

**A Study of the Implementation of Quality
Management Systems (QMS) within the Kuwaiti
Manufacturing Industry**

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Dedication

For my dad and mom who have always supported me throughout the time I spent abroad and away from them. For my siblings who were always there when needed. For my role model and idol, Mohammed Khaled Alkhadher (my dad), he is the reason why I took the initiative and continue my career in the world of engineering. Your support and caring mean the world to me, despite the fact that you have huge responsibilities; you never made me feel isolated. I also dedicate my thesis work to my family and many friends. A special feeling of gratitude to the above mentioned people whose words of encouragement and push for tenacity ring in my ears. My sister Aishah, my brothers Faisal, Abdulwahab and Abdulrahman have never left my side and are very special. I also dedicate this thesis to my supervisor Dr Hom Nath Dhakal who has supported me throughout the process. I will always appreciate all he has done in helping me develop my academic skills. I will never forget his role in supporting me during low moments, Thank you so much Dr. Hom, you are such a great person.

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Declaration

Whilst registered as a candidate for the above degree, I have not been registered for any other research award. The results and conclusions embodied in this thesis are the work of the named candidate and have not been submitted for any other academic award.

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Nomenclature

A number of key terms are used throughout this document and are defined here:

CBS	Central Statistical Bureau
CI	Continuous Improvement
DMAIC	Define, Measure, Analyse, Improve & Control
EFQM	European Foundation Quality Model
ERP	Enterprise Resource Planning
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
GNI	Gross National Income
GRC	Gulf Research Centre
HoQ	House of Quality
ISO	International Standardisation Organisation
IT	Information Technology
KISR	Kuwait Institute for Scientific Research
KIU	Kuwait Industries Union
KMS	Kuwait Manufacturing Sector
KOC	Kuwait Oil Company
KPC	Kuwait Petroleum Company
KSA	Kingdom of Saudi Arabia
KSMLMEs	Kuwait Small, Medium and Large Manufacturing Enterprises

KUNA	Kuwait News Agency
LEs	Large Enterprises
MCI	Ministry of Commerce and Industry
ME	Middle East
MEs	Medium Enterprises
MP	Member of Parliament
PAI	Public Authority for Industry
PDCA	Plan Do Check Act
PMS	Performance Measurement System
QA	Quality Assurance
QASCO	Qatar Steel Company
QCs	Quality Controls
QFD	Quality Function Deployment
QI	Quality Initiative
QMI	Qatar Manufacturing Industries
QMS	Quality Management System
R&D	Research and Developments
RE	Requirement Engineering
SEs	Small Enterprises
SMEs	Small and Medium Enterprises
SMLEs	Small, Medium and Large Enterprises

SPC	Statistical Process Control
SRQ	Survey Research Question
TQM	Total Quality Management
UAE	United Arab Emirates
USA	United States of America

Dissemination

Publications in conferences and symposium papers

- Al-Khadher, A., Dhakal, H., Al-Najem, M., & Kluaypa, P. (2012). Study of Quality Management Systems (QMS) in GCC Countries. 6th Quality Conference in the Middle East (pp. 451-472). Dubai: Hamdan Bin Mohammed e-University.
- Kluaypa, P., Dhakal, H., Popov, I., Bennet, N., & Al-Khadher, A. (2012). Quality Management and Business Excellence in Small and Medium-Sized Enterprises: A Literature Review. 6th Quality Conference in the Middle East (pp. 64-77). Dubai: Hamdan Bin Mohammed e-University.

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Abstract

The intended contribution and unifying purpose of this research was to identify the enablers and barriers affecting the implementation of quality management systems (QMS) within the Kuwaiti industrial context. This was achieved by assessing the current practices adopted by a number of manufacturing firms in Kuwait and then the gaps or areas that need to be filled were measured.

QMS is defined as an organisation's structure, responsibilities, processes, procedures and resources which guide and control an organisation with regard to quality in order to constantly improve the effectiveness and efficiency of its performance. QMS enables businesses to minimise undesired impacts on the processes while maximising the effectiveness and efficiency of those processes that deliver products or services to end-users. This PhD research focuses on identifying the general state of the manufacturing sector within Kuwaiti Small, Medium and Large Enterprises (KSMLs) and analyses links, enablers and barriers related to the implementation of QMS by linking the possible effects of culture.

The research was carried out using a case study as well as the mixed methods approach involving the use of both quantitative and qualitative research methods. In the first instance a single case study organisation involving a large sized enterprise within the Kuwaiti manufacturing sector was researched into as a pilot study. This helped in refining both the quantitative survey questionnaire and the qualitative interview questions. Thereafter, for the quantitative approach, a total of 192 valid responses out of 308 received data sets involving KSMLs that included three different levels of management (top, middle and shop floor) were generated using physical and online-surveys, the target participants being managers working in the industrial sector in Kuwait. The qualitative research design included twenty-five interviews involving twenty-five KSMLs, also at different management levels (six top, six middle and thirteen shop floor managers) in the manufacturing sector in Kuwait.

Findings from this study confirmed that leaders and managers of the manufacturing sector in Kuwait are actively engaged with customers. However, they lack the process

of delegating tasks and empowering of people. Findings further suggest that firms' strategy must focus on appreciating cultural aspects such organisational culture, investing in employees, developing training programmes, and addressing community and social responsibility.

This study contributes to the body of knowledge on QMS and provides a viable framework (model) that was over time developed through an iterative series of revisions, literature review, a case study and expert views. The new model designed and proposed in this thesis is called the Kuwait Quality Culture Model (KQCM). This model portrays the importance of culture along with other factors in the initiation and the implementation of QMS, particularly in Arabic culture.

Overall findings confirm the researcher expectation that QMS performance (managing people, policy & strategy, partnerships & resources, and culture) is positively associated to commitment and leadership of top management and those managers at different levels stress on the importance and necessity of internal communication channels. Moreover, employees' empowerment and relevant processes (people, policy & strategy, partnerships & resources, and culture) are crucial in implementing any quality practices. Furthermore, culture was found to be a vital factor as it plays an important role in the implementation of QMS in Kuwait. Finally, when implemented, the study confirmed that KQCM results (people, customers and society) would lead to better organisational performance.

Keywords– Quality management system (QMS), Kuwait quality culture model, Kuwait small medium and large enterprises, organisational culture, Kuwait manufacturing sector, GCC manufacturing culture, total quality management.

Chapter 1 Introduction

1.1 The current scenario

This thesis focuses on the general state of the manufacturing sector within Kuwaiti Small, Medium and Large Enterprises (KSMLEs). The unifying purpose of this research is to identify the enablers and barriers affecting the implementation of quality management systems (QMS) within the Kuwaiti industrial sector.

This chapter provides the general background and the necessity for the research. It identifies gaps in previous research, processes used, the aims and objectives of the research and outlines the chapters.

Kuwait is a small but wealthy oil-producing country located on the Arabian Gulf, a strategic location in the Middle East. Its major economic sectors are industries (50.6%) and services (49.1%). Petroleum accounts for nearly half of GDP, 95% of export revenues, and 95% of government income (Kuwait Economy Profile 2014, 2015). Industries include oil, petrochemicals, cement, shipbuilding and repair, water desalination, food processing and construction materials.

The rapidly growing competitiveness in manufacturing industries globally, especially in Asia, has encouraged the governments of the Arabian Peninsula Gulf Cooperative Council (GCC) countries not only to strive to continuously improve their productivity and income, but also to maximise the quality of their products and services (Manassah, 2014). Academics and manufacturing practitioners have emphasised the importance of the manufacturing sector, especially in countries such as the GCC members, whose main source of income is oil (Al-Shammari, 2013). This reliance on

oil income has the potential to significantly endanger their economies; the need for diversification of income is inevitable. The consequences have been evident recently due to the 2008 worldwide economic crisis that resulted in the price of oil plummeting, reaching its lowest level since 2005 (Mohammadi, 2014). A quality management system (QMS), one of the quality improvement pillars, is defined as the organisation structure, responsibilities, procedures, processes and resources for implementing quality management (Psomas & Antony, 2015; Vujović, Krivokapić, & Jovanović, 2010; Magutu, Mbeche, Nyaoga, Nyamwange, Onger, & Ombati, 2010; Bewoor & Pawar, 2010; Aggelogiannopoulos, Drosinos, & Athanasopoulos, 2007) and is an important factor in customer satisfaction and competitive success in today's global manufacturing landscape. Thus, the study aims to investigate the implementation of quality management systems and their effects on the Kuwaiti manufacturing sector.

It is undeniably true that Small, Medium and Large Enterprise (SMLE) manufacturing firms play a vital role in Kuwait's economy. Some limited research studies carried out in this sector have suggested the positive impact of quality management tools such as total quality management (TQM) and QMS. It has also been pointed out by many researchers that many SMLEs have been ineffective and are struggling to survive. This situation may have come about as many of these SMLEs fail to compete and have no proper quality management systems in place. In order to compete successfully in the market, many manufacturing organisations in recent years have found solutions to the demand of higher efficiency by accepting change and adopting advanced management tools and techniques such as total quality management (TQM), application of lean principles, and activity-based costing to minimise waste and improve processes (Aoife et al., 2015).

Several reports suggest a rise in the number of manufacturing industries in the Gulf region (Al-Najjar & Jawad, 2011; Hvidt, 2011; Dawoud, 2012; Sturm et al., 2008; Abusa & Gibson, 2013; Abusa & Gibson, 2013; Achoui, 2009; Al-Mubaraki & Busler, 2014; Al-Alawi et al., 2007; Alhaqbani, 2013; El-Khasawneh, 2012; Islam & Khadem, 2013; Jaeger et al., 2013; Jarkas & Bitar, 2012; Ramadhan et al., 2013; Reiche, 2010; Talib et al., 2011). The last decade has witnessed a remarkable spread of quality management tools and techniques in the manufacturing and service

industries worldwide. In any business, including the manufacturing sector, the implementation of quality management systems (ISO 9000, QMS, TQM) has many advantages such as continuous improvement, customer satisfaction, reduction of waste and cost, increased financial performance and increasing employees' motivation.

Quality practitioners worldwide have identified the necessity of QMS in manufacturing firms and the importance of implementing its tools, techniques and theories. Studies have covered the USA (Zhou, 2012; Golicic & Medland, 2007; White et al., 1999), Canada (Stuart & Boyle, 2007), West Europe (Bakås et al., 2011; Bonavia & Marin, 2006; Achanga et al., 2006; Johansen et al., 2004; Bhasin, 2012), Asia (Wickramasinghe & Wickramasinghe, 2012; Perera et al., 2010; Nordin et al., 2010; Wong et al., 2009; Rose et al., 2011; Ferdousi, 2009; Yang & Yu Yu, 2010; Rahman, 2010; Wong M., 2007; Antony, 2006; Dhandapan et al., 2004; Upadhye et al., 2010) and Australia (Sohal & Egglestone, 1994).



Figure 1: GCC region (D. Gupta, 2014)

The six GCC countries are located on the Arabian Peninsula of West Asia (Figure 1). Kuwait, Saudi Arabia, Bahrain, Qatar, Oman and the United Arab Emirates (UAE) (Figure 2) represent the largest group economy in the Middle East (ME) region and collectively rank seventeenth in the world economy (Abu Hussin, 2010).



Figure 2: Map of GCC countries (Saidel & Christopherson, 2005)

According to the World Bank (World Bank Group, 2011), the gross national income (GNI) per capita ranking of GCC countries ranked as a mean of the total six countries, is 23rd in the world. These figures reflect the importance of this region for developing countries in terms of wealth and impact on the global economy. Yet, there are enormous incentives (reduced utility bills, industrial loans with minimal interests etc.), which should allow these countries to pull ahead of other ME countries (see chapter 2 for a full discussion).

With oil price instability, most of the oil-producing countries, such as Kuwait, Saudi Arabia and the UAE, have chosen manufacturing of products and goods as a long-term choice to achieve diversification of income (Mady, 2009). There is growing appreciation in the GCC countries that the manufacturing sector can also play an important role in the development process of the region's economies. This is reflected in the increased number of manufacturing companies established in recent years, and organisations' willingness to implement some aspect of quality management systems with the aim of higher efficiency. If this trend continues, productivity and quality enhancement can be realised by accepting change and adopting advanced management tools and techniques such as quality management principles of the

International Standards Organisation (ISO) 9000, total quality management (TQM), zero defects, six sigma, quality function deployment (QFD), lean principles and acceptance sampling, activity-based costing to genuinely eliminate waste, achieving customer satisfaction and improve processes (Kumar & Antony, 2008). It is clear that the development and implementation of QMS plays a vital role in attracting business to the region and help them stay competitive in the market. Despite this, the quality management system is not well developed in the GCC region.

This thesis aims to investigate the implementation of quality management systems and their effects on the manufacturing sector of Kuwait.

1.2 Rationale for the current research study

Several works suggest that QMS is effective in the area of manufacturing (Zhang, 2005; Psomas & Antony, 2015; Ahuja, 2012; Garza-Reyes et al., 2011; Amba & Abdulla, 2014). However, most of the research has focused on reviewing the literature rather than contributing to the development of functional QMS as best practice.

According to Deming, product quality is the one aspect that keeps any company competitive in the market by increasing sales (Deming W. , 2000). The number of companies' adopting QMS in Kuwait is particularly low.

As other Gulf states have invested heavily in non-oil infrastructure and launched a number of ventures to encourage private sector involvement, Kuwait's policies, according to a local newspaper (Orabi & Al-Shami, 2013), seem more relaxed, stuck in a time warp even, focusing on a cradle-to-grave welfare system which favours less entrepreneurial spirit or initiative. It is possible that Kuwait's strong financial position, primarily driven by its substantial oil income, is the cause of the slow growth in the non-oil sector.

From 2013 to the time of writing (2015), the manufacturing sector has grown by 28% (against a target of 100%) and the 'other services' sector rose 14%. Key sectors, such as transportation, construction, communication and finance, which are dominated by

the private sector, collectively grew 6% last year (2014), compared to only 1% growth in 2011 and contraction in the years before according to the local newspaper (Orabi & Al-Shami, 2013).

Kuwaitis represent 73% of the public sector workforce, and changes are afoot to reduce the number of expatriates and replace them with 19,000 Kuwaiti nationals who are on the waiting list for employment at the Civil Service Commission even though early in 2014 a government official noted that the country's public sector employs three times more people than needed (Hussain, 2014).

The demands for a multiplicity of sources of income were discussed in the Kuwaiti parliament's first session of second meeting in February 2014. Many members of parliament (MPs) expressed their resentment in the form of interrogations of the government's role in supporting and promoting manufacturing industries in Kuwait, as a result of the government's latest report concerning manufacturing in the country and the potential danger of over-reliance on oil income to the country's central budget which in turn, will affect the next generation's financial reserves in the near future, and requested restructuring of the manufacturing sector (Abo Alraish, 2014).

Furthermore, reports supporting Abo Alraish (M. Al-Ajmi, 2015; Almutairi, 2014), have suggested that the manufacturing sector would have come closer to meeting its growth target if the government, instead of moving a large proportion of the country's funds, estimated at over 3 billion Kuwaiti dinars (equivalent to more than £6 billion), abroad for investment, had offered more support to the sector. The State Bureau Audit (an official government organisation that monitors performance as well as sector productivity) report for the financial year 2014 also suggests that the Public Authority of Industry (PAI) did not properly fulfil its remit which also contributed to the constraint of growth in the sector.

The Kuwait Public Authority for Industry (PAI), established in 1997 as part of the government's efforts to strive for diversification, is responsible for manufacturing activities in Kuwait and is linked with the Ministry of Commerce and Industry (MCI) whose minister is the chairman of the PAI board of directors. Within PAI there are two main departments, quality assurance (QA) and the technical office. The purpose of QA is to ensure manufacturing enterprises meet government standards in order to

achieve the authority's unifying purpose of developing the manufacturing sector in Kuwait. However, it (PAI) was not achieving its objective as the aforementioned reports reveal. The Kuwaiti government is yet to establish a centre for manufacturing quality, an idea suggested by many manufacturing practitioners in 2013 but so far thwarted by the seemingly endless bureaucracy involved (Orabi T. , 2013). Almutairi (2014) reports that only 6.5% of planned government works have been completed and many projects shelved, mainly because the extensive layers of government bureaucracy delayed funds being issued by the government. Al-Ajmi (2015) writes that one of the issues was PAI's lack of vision as it had not planned for any new industrial and service cities since the middle of 2006. Specialists and practitioners have rubbed salt in the wound by accusing PAI of being the main reason investors and decision-makers chose not to invest in the manufacturing sector; PAI refute this, alleging that it is corruption by market leaders that has prevented new investors from starting their own manufacturing businesses.

The above statements clearly show the importance of and challenges facing the manufacturing sector in Kuwait. Any effort to improve the existing framework by implementing QMS is implicitly justified. It should also be noted that there are no pre-existing suitable models which could be used to address the current issues facing the Kuwaiti manufacturing sector.

The Kuwaiti manufacturing sector is going through a period of recession and instability exacerbated by the security unrest that has hit the region recently, despite the 28% growth. Manufacturing, as a tool of the government's vision in terms of diversification, has struggled to contribute significantly to the government's annual budget. Many issues have been linked to this failure, one of which was the lack of resources and support provided by the government and of any tangible quality standards that could improve Kuwait's manufacturing sector such as plant allocation or government incentives (Al-Dasouqi, 2015). The introduction of QMS, as a philosophy or system with the use of a conceptual model, will certainly serve the manufacturing industries in Kuwait. This can be argued as there is no evidence of systems and/or models adopted by manufacturing enterprises which have proved successful other than in the petrochemical sector.

1.3 Research aims and objectives

The aims and objectives of this study are to examine the state of the manufacturing sector, and the links, obstacles and enablers related to the implementation of quality management systems (QMS) in Kuwait. The GCC region as a whole is experiencing rapid growth due to the effects of globalisation, in particular manufacturing growth, and its countries are being forced to adapt to this changing competitive environment (Salaheldin, 2009a) in order to survive. Currently Kuwait is lagging behind Saudi Arabia, the UAE, Qatar and Oman in adjusting to this; the power of oil production and reserves will not last forever and the need for diversification is imminent. This could be achieved through reducing production costs and increasing output capacity while maintaining the quality of products and charging reasonable prices. The economic vulnerabilities created by rapid globalisation necessitate the use of new techniques, tools and philosophies that are already employed elsewhere in the world (Hokoma et al., 2010). I also anticipate that the findings may be applicable to the other GCC countries which share both governmental and cultural traits.

1.3.1 Aims

This research aims to identify the general situation of the Kuwaiti manufacturing sector, and identify and analyse links, enablers and barriers related to the implementation of quality management systems in the Kuwaiti Small Medium and Large Enterprise manufacturing sector as well as investigating the possible effects of culture.

1.3.2 Objectives

The main objectives include:

- Understanding quality management systems (QMS), their theory and philosophy through an in-depth review of relevant literature;

- Identification of the general state of the manufacturing sector (SMLEs) in Kuwait and use of the literature as the basis to develop a QMS implementation model more suited to the Middle East context, and especially to Kuwait;
- Understanding and analysis of different barriers and enablers to implementation of QMS in the manufacturing sector;
- Development of a QMS model suited to the manufacturing sector of Kuwait by exploring the possible effects of culture.

1.4 Research Questions

This study has research questions which were answered using a quantitative and qualitative mixed method approach. From the above aims and objectives, three overarching research questions arise:

1. Why is QMS implementation in the manufacturing sector (SMLEs) of Kuwait important?
2. Can the proposed model serve more effectively than the European Foundation Quality Model (EFQM) in implementing QMS in the Kuwaiti manufacturing sector?
3. Is the proposed QMS model suitable for use in the manufacturing sector?

1.5 Research Hypothesis

Unlike the research questions, research hypotheses are either accepted or rejected using only numerical examination (quantitative method approach). Hypotheses are a necessary part of research; authors need hypotheses to compare with the data collected and establish whether their ideas are correct or not (Hilborn & Mangel, 1997). The following are the author's research hypotheses:

1. *QMS performance is positively associated to commitment and leadership of top management.*

2. *Communication between top and bottom management is important.*
3. *Employees' empowerment and relevant processes are crucial to successfully implementing any quality practices.*
4. *Culture plays an important role in the implementation of QMS in Kuwait.*
5. *The KQCM model will lead to greater organisational performance.*

1.6 Research Methodology

Many researchers have emphasised the benefits of combining qualitative and quantitative approaches (Brewer & Hunter, 1989; Morse, 1991; Sandelowski, 1996; Tashakkor & Teddlie, 1998; Sandelowski, 2000; Adcock & Collier, 2001; Erzberger & Kelle, 2003; Maxwell & Loomis, 2003; Polit & Beck, 2004). This research study utilises the mixed methods approach outlined by Benz and Newman and further developed by Lund (Newman & Benz, 1998; Lund, 2012), which includes combining qualitative (case studies, semi-structured interviews and observation) with quantitative (survey questionnaire) methods. This offers many benefits including:

1. [Greater ability] to answer certain complex research questions than qualitative or quantitative research in isolation.
2. Qualitative and quantitative results may relate to different objects or phenomena, but may be complementary to each other in mixed methods research.
3. Mixed methods research may provide more valid inferences. If the results from quite different strategies such as qualitative and quantitative ones meet, the validity of the corresponding inferences and conclusions will increase more than with convergence within each strategy.
4. In mixed methods research, qualitative and quantitative results may be divergent or contradictory, which can lead to extra reflection, revised hypothesis, and further research. Therefore, provided the data are collected and analysed correctly, such divergence can generate new theoretical insights. (Lund, 2012, p. 157)

Another benefit of this method is the increase in the credibility and validity of the research; by collecting data from multiple sources subsequent analyses are strengthened.

The following steps were followed by the researcher while carrying out the research:

1. The literature review was used to understand the theory, concept and philosophy of QMS. The main aim of the literature review is to review the works that have been already conducted on QMS and identify the enablers of and barriers to, as well as critical success factors in implementing QMS.
2. Selection of research philosophy: there are two philosophies used to conduct research which are fundamentally different and competing:
 - a. Logical positivism which uses quantitative and experimental methods;
 - b. Phenomenological scientific enquiry which uses qualitative and naturalistic approaches.

Based on the positive and negative aspects of both approaches (discussed in chapter 4) the phenomenological approach is used in this research.

3. Selection of data collection methods: the following steps were used to collect data;
 - A confidential case study was conducted to complement the quantitative results and to support the pilot study, as well as helping to finalise the shape of the proposed model, KQCM;
 - Semi-structured face-to-face interviews as the main method; these included 25 interviews with managers from different levels within Kuwaiti Small, Medium and Large Manufacturing Enterprises (KSMLMEs);
 - Development of a (confidential) survey questionnaire which was sent to 308 KSMLMEs: 192 responses were received, a response rate of 62%. The questionnaire was developed to answer the Research Questions (RQs) in order to collect precise and reliable data and avoid any biases that might incur;
 - Analysis of data collected was done by using statistical software (SPSS) in order to ascertain the reliability and validity of the research instrument (the survey questionnaire).

This approach, the author believes, will ultimately increase the validity and impact of the research.

1.7 Expected contribution and originality

This research is expected to contribute significantly to the body of knowledge on QMS. The following points summarise the significance of this contribution:

- Most research studies have been conducted on organisations that have already implemented quality practices; therefore, findings regarding barriers, enablers and critical success factors were recognised and analysed based on their existence within those organisations. However, this research will tackle the research gap by studying manufacturing firms in Kuwait who have not yet implemented a quality practice and are either planning or wish to implement a quality management system;
- Earlier research has not covered QMS or QIs in Kuwait or the GCC region. The geographical area has been studied, but not in relation to QMS/QIs and QMS/QIs have been studied, but not in this area;
- There is no evidence of research studies in the Middle East, GCC or Kuwait which have considered the cultural dimension when implementing QMS. This research intends to propose a quality culture model which the author believes will best serve manufacturing enterprises in Kuwait;
- The methodology of this research is unique with respect to other studies conducted in the same region, due to the fact that the researcher used a mixed methods approach (qualitative & quantitative), i.e. he started his research by testing the situation and identifying the population of his study, then conducting a case study to act as a pilot study. A survey questionnaire was then developed for three different levels of management (top, middle and shop floor) and interviews were conducted with manufacturing firms' representatives holding positions similar to the aforementioned managerial levels in order to compare the findings from the literature review with those from the case study, survey questionnaire and interviews. This allowed the

author to revisit his questionnaire and identify any bias or weaknesses of his literature review and add/amend survey questions accordingly.

- There is a lack of research on the subject of QMS in the Middle East in general. Hence, the contribution of this study will extend beyond Kuwait as Middle Eastern citizens share many similarities in terms of culture, language, traditions and traits;
- SMEs have been investigated the most by other researchers; however, studies to date have not included large enterprises which the author considers should be included as the geographical size of the study area (Kuwait) is small. The study therefore includes all four manufacturing classifications namely, Small Enterprises (SEs), Medium Enterprises (MEs), Small and Medium Enterprises (SMEs), and Small, Medium and Large Enterprises (SMLEs);
- Last but not least, since Kuwait is an oil-dependent country, this study will contribute to the diversification plan created by the Kuwaiti government to increase sources of income. The author believes that helping manufacturing industries to successfully implement quality management systems, tools, techniques, practices and models will increase their productivity, performance and sales which, in turn, will benefit the economy of Kuwait and sustain prosperity.

1.8 Research implications

This study can offer a useful insight to KSMLMEs who are intending to implement quality tools, techniques and theories within their organisations as it outlines a) the enablers for implementing such quality systems, b) the barriers that deter their implementation and c) the critical success factors in terms of utilising them. In addition, it can also be applied beyond the context of Kuwait, for example in other Gulf Cooperation Council (GCC) countries, since there are similarities between the six nations in terms of government structure and especially culture which is the researcher's fundamental subject in this study. The Kuwait Quality Culture Model (KQCM) can be used as a guideline for successfully implementing any quality model

concerning KSMLMEs and can also be used by government officials to set standards based on academic, as well as practical, evidence.

1.9 Research limitations

Sources of information about QMS and its barriers and enablers in the region, especially Kuwait, are very limited. Furthermore, many respondents and interviewees were reluctant to share information about their firms as most KSMLMEs are family-owned and they were inherently wary of disclosing information that could be seen as useful to their competitors; the majority of them lacked the background to appreciate that this study could help them compete and prosper.

1.10 Thesis Outline

This thesis consists of 7 chapters. A brief overview of each follows:

Chapter 1 outlines the current scenario, the rationale for the research, and states the research aims and objectives. The chapter presents the research questions and hypotheses, outlines the thesis and addresses the implications and limitations of the research.

Chapter 2 presents the literature review and its importance to this study. It also examines manufacturing in GCC countries, including the general state of manufacturing, enablers of and barriers to QMS. Definitions of quality as established by quality gurus, practitioners and academics follow. It further examines the concept of culture and its role in affecting KSMLMEs and goes on to highlight existing quality models, comparing their similarities and differences. The chapter also sheds light on quality practices and presents the view of quality researchers as well as current practitioners' findings and thoughts on QMS and its benefits and insights in the GCC and Kuwait. The summary presents the novelty of the research and the research gap tackled.

Chapter 3 presents the model that was developed by the researcher, outlining each element and analysing the differences from other models. It also covers the reasons behind choosing such a model and the rationale for the inclusion of culture.

Chapter 4 demonstrates how the study approach was chosen. The research used mixed methods to achieve its aims and objectives. It includes interviews, survey questionnaires, and observation and expert view panels. A summary of the developed model is presented.

Chapter 5 presents the case study research design, its benefits and importance in relation to the qualitative and quantitative discussions in chapter 6. The field case study is discussed and its methodology, finding, discussions and recommendations outlined.

Chapter 6 presents the results of the chosen method in terms of survey questionnaire and semi-structured interviews. It discusses and analyses the findings, including comparisons between the quantitative and qualitative results.

Chapter 7 closes the report, reviewing the work undertaken and draws conclusions regarding key parts of the work. Finally, future work is discussed with a particular focus on how quality practices can be successfully implemented in third world countries that are rich but do not have the required elements in order for QMS to be successful.

Chapter 2 Literature Review

2.1 Introduction

This chapter reviews the literature in order to understand the theory, concepts, enablers, barriers and critical success factors for QMS implementation. The chapter also identifies two research gaps: geographical (implementation of QMS in Kuwait) and process (the growing popularity of mixed methods methodology which enabled the researcher to identify a new variable for his proposed model, the Kuwait Quality Culture Model (KQCM)). The chapter also examines the general situation of manufacturing and quality initiatives (QIs) in GCC countries, including ISO 9000 standards, total quality management (TQM), six sigma, acceptance sampling, continuous improvement (Kaizen), 5Ss technique, quality function deployment (QFD) and statistical process control (SPC). The context of Kuwait is presented followed by the chapter summary which highlights the gaps and motives of this study. In addition, important definitions related to quality are outlined including quality definitions, Deming's 14 points, Crosby's zero defect, Juran's breakthrough and control, Ishikawa's quality circle and Taguchi's Taguchi technique. The chapter also focuses on important elements of QMS in terms of definitions, and analyses the effect of culture in the implementation of QMS by outlining culture in general, in the Middle East, the GCC region and Kuwait. Different quality models are discussed which in turn, are supportive in developing the conceptual framework of this research.

2.2 Manufacturing in GCC countries

Since the oil crises of the 1970s, countries have been forced to pay attention to other sources of energy and income in order to avoid the reoccurrence of such a crisis (Alpanda et al., 2010). This will ultimately influence the significance of quality techniques and initiatives at which the Japanese, who first created the Continuous Improvement (CI) culture, have proved to be exceptionally successful over the last three decades. They are a stepping stone on the path to globalisation, especially in the GCC region which, despite its large production and reserves of oil and natural gas, is still classified as 'developing' rather than 'developed' (Salaheldin, 2009b).

It is not easy to identify a company that is adapting a quality tool or initiative (van der Wiele & Brown, 1998), particularly in the GCC region where companies tend to use a benchmarking approach to models and techniques that are used in more developed countries such as the USA, Japan and China.

For instance, Qatar, which is a member of the GCC, has been developing its infrastructure and manufacturing sector since making a breakthrough in technology advancement linked to the exploration of natural gas in 1991 (Amsden, 1991). Despite this, Al-Saadi, who established a framework of measures to assess their quality transfers and sustainable development of quality tools, found that these measures were ineffective in advancing the search of benchmarking for quality development, due to the under-estimations by top authorities of what QMS can achieve when implementing it and un-established policies and priorities to facilitate the use of these tools in Qatar Manufacturing Industries (QMI) (Al-Saadi, 2010).

Saudi Arabia on the other hand, has a wider industrial sector thanks to its larger size: Al Turki & Faris recorded 3,657 operating factories and total investments of \$68 billion during their research (Al Turki & Faris, 2010). A 2013 report, however, indicated nearly double the number of factories (6,471) (CDSIME&P, 2013), and Najeh & Kara-Zaitri (2007) contend that the age of its industry gives it the advantage of experience over Qatar. Saudi Arabia is also trying to make ISO 9001:2000 certifications (QMS) for manufacturing companies mandatory as a way of improving their quality standards and processes.

The United Arab Emirates (UAE) has also recently expanded its manufacturing capabilities in the run-up to the 2020 World Expo which is being held in Dubai: 5,825 factories were reported in early 2015 and a growing number of foreign investors and large manufacturing companies are choosing Dubai as a geographically strategic location for manufacturing, as well as distributing their products (Alturaiki, 2015). The UAE is the world's fourth largest aluminium producer and accounts for over 50% of GCC countries' aluminium production. According to the UAE's Industrial Development Bureau, the manufacturing sector's contribution to GDP is gradually growing, reaching 14% of GDP of UAE's economy. This is evidence of how the manufacturing sector was neglected in the past (UAE National Media Council, 2013).

The Kingdom of Bahrain is also experiencing industrial growth, the Ministry of Industry and Commerce reporting approximately 400 manufacturing companies in 2015 (MOIC, 2015). This is quite a large number in relation to the size of the country (765 km²). Bahraini authorities are striving to attract international investors by providing the necessary resources to meet their requirements in an attempt to create a manufacturing centre in the Middle East region to cope with the fast growing GCC market. The location of Bahrain makes it an attractive choice for foreign as well as regional investors. Being accessible by different means of transportation, thus making it a strategic passage to the rest of the world (Asia, Europe and Africa) (BEDB, 2014). The country's government has also been working on developing its workforce skills in order to be able to offer investors skilled 'home-grown' workers.

In Oman, the manufacturing sector contributed 10.3% of GDP in 2011, compared to 4.7% in 1995. Oman's manufacturing sector is considered to be an important source of national income (Bashir et al., 2014) and is a key sector in the government's "Vision 2020" economic diversification plan. However, according to Bashir, et al. (2014, pp. 2-3), there are 15 obstacles which restrain their manufacturing productivity improvement programmes:

- (i) Insufficient investment in workforce training;
- (ii) Poor financial controls and/or information systems;
- (iii) Weak middle managers;
- (iv) Decline of the work ethic;

- (v) No clear connection between employee effort and rewards;
- (vi) Insufficient capital for improving plants and equipment;
- (vii) Poor employee relations;
- (viii) Weakness in industrial and manufacturing engineering;
- (ix) A piecemeal, unplanned approach to improving productivity;
- (x) Inadequate/ineffective coordination among departments or functional areas;
- (xi) Insufficient investment in management and supervisor training and development;
- (xii) Poorly trained supervisory personnel in the area of productivity-related problems;
- (xiii) High worker turnover;
- (xiv) Lack of workforce loyalty;
- (xv) Impossibility of program implementation.

Last, but not least, Kuwait (also a member of the GCC and considered one of the world's richest countries) has adopted a strategy of providing support via incentive programmes for Kuwaiti manufacturers such as long-term loans with fairly minimal interest rates, low facilities rent charges and tax exemptions from the annual revenues. However, manufacturers are still concerned that the size of their plants are controlled by the government's establishments such as PAI, which hinders their expansion, the achievement of the government's diversification goal and meeting Kuwaiti citizens' living needs and requirements (Mady, 2009). Another concern was the misuse of funds received from the Kuwaiti government as grants by PAI which were supposed to be given to manufacturers in need of improving their infrastructure in order to enhance the manufacturing sector (Abo Alraish, 2014).

2.2.1 General state of the manufacturing sector in GCC countries

This section will shed light on the general state of the manufacturing sectors in GCC countries. It will provide information on quantitative data collected by the author to

serve as the initial stage of sequential explanatory strategy in research design (see section 4.5).

Curkovic et al. (2000) argue that the constructs of quality may differ from one industry to another; Corbett and Rastrick (2000) however, stress their findings that industrial sectors such as petrochemical, refractors, electronics and food have no significant differences with regard to implementation of quality practices. Mady (2009) agrees, writing that, differences exist in quality practices in different countries due to the uniqueness of each business environment and the necessity for fit (Mady, 2009). This uniqueness includes competitions, technology change and customer expectations which might create different threats and opportunities and will influence the manufacturing strategies in each country accordingly. Thus, the study argued, the industrial sectors in GCC countries differ from each other in the level of use of quality practices because of cultural geography, not sector.

The general state of manufacturing within GCC countries is closely tied to the extent to which quality practices are considered important factors in the success of quality initiatives in the GCC region. The region is still in the process of developing with regard to manufacturing, and this could be attributed to the lack of skilled people who could raise the level of quality practices implemented in GCC firms to the required standards which, they felt, should have been reached before now. The researcher believes that the general state of manufacturing in the GCC in terms of quality practices should be considered as in the process of developing, as do other scholars (Al-Jalahma, 2012; Jaafer, 2013). All consider that the economy and incentive programmes from their governments have been increasing gradually since 1997.

The setting up of a manufacturing company in the UAE takes only two days whereas in Kuwait, it may take as long as two years (Alabdulghani, 2013). Moreover, there is a huge difference in labour law between GCC countries which is supported by Saudi Arabia and Oman respectively (Al Turki & Faris, 2010; Ashrafi & Bashir, 2011).

2.2.2 Enablers of implementation of QMS in the GCC manufacturing sector

Saudi Arabia is unique amongst the GCC countries in that it is the only one to possess a specific enabler: its industrial cities are built to the highest standard as a result of the Saudi government's incentive projects regarding diversification. The Saudi authorities are considering making certification of factories mandatory. Ashrafi & Bashir (2011, p. 193) conducted an empirical investigation into the differences between ISO 9000 standard certified and non-certified organisations in Oman. Their findings showed significant differences between the two in terms of benefits and improvement of organisational performance. However, they also revealed that organisations that are not certified but are trying to achieve high quality performance by the use of effective quality management can be successful as long as the steps taken increase the organisation's sales and profits. They listed the benefits of certification as follows:

- Clear communication of quality goals by top management;
- The active involvement and commitment of employees to quality-related activities;
- The development of procedures for monitoring key indicators of customer satisfaction;
- The utilisation of cross-functional teams;
- The availability of quality data (internal to the organisation);
- The evaluation of employees throughout the organisation based on customer satisfaction with quality of product and services;
- The emphasis of quality by top management through a well-defined quality policy;
- An open and trusting organisational structure.

In addition, in Saudi Arabia a study by Magd, et al. (2003, p. 317) revealed the following findings of the benefits of implementation of QMS:

- Increased quality awareness in the firms;
- Improving the efficiency of the quality system;
- Improving customer service;

- Improving the quality of products;
- Improving inspection methods and time to produce finished goods;
- Reduced customer complaints;
- Improving inspection methods and time to receive incoming materials.

In the UAE, Zaramdini (2007, p. 480) reported the following motives for implementation of QMS:

- Improving productivity and/or efficiency;
- Use it as a basis for internal costs reduction;
- Reducing incidents, rejections and complaints;
- Improving processes and procedures;
- Improving product and/or service quality;
- Improving relationships between employees and management.

It appears, from the growing number of studies conducted, that researchers are increasingly interested in the benefits of QMS implementation in GCC manufacturing firms (Al-khalifa & Aspinwall, 2000; Hamza, 2008; Mady, 2009; Salaheldin, 2009a; Al-Saadi, 2010; Al-Najjar & Jawad, 2011; Alturaiki, 2015).

On the other hand, numerous studies of QMS worldwide emphasised the importance of getting certification of quality standards; they described the benefits of being certified as lucrative in terms of business, and a critical factor in successful implementation of QMS, as well as a way of increasing sales and profitability. Moreover, it has been confirmed that customers seek manufacturers that are ISO standard certified and registered before entering negotiations to do business with them. (Biazzo & Bernardi, 2003; Dick, Heras-Saizarbitoria & Tarí, 2013; Dick, 2000; Feng, Terziovski & Samson, 2007; Goetsch & Davis, 2014; Gotzamani & Tsiotras, 2002; Magd & Curry, 2003; Psomas & Antony, 2015; Psomas, 2013; Sampaio et al., 2009; Sitki Ilkay & Aslan, 2012; Terziovski, Power & Sohal, 2003; To, Lee & Yu, 2012; Van den Heuvel, Koning, Bogers, Berg & van Dijen, 2005; Withers & Ebrahimpour, 2000; Yahya & Goh, 2001).

2.2.3 Barriers to implementation of QMS in the GCC manufacturing sector

Khalid Alabdulghani, a member of the board of the Kuwait Industries Union and an active practitioner in the field of manufacturing in Kuwait, when interviewed by Hadeel Jaafer for *Manufacturing in Kuwait* magazine in February, 2013, expressed his frustrations regarding the Kuwaiti government's control over the size of plants of manufacturing companies, stating that without land, manufacturing would not exist (Jaafer, 2013). He thought that the reason behind this control was the huge area (estimated to be 250,000m²) that had been reserved by the Kuwait Oil Company (KOC) for oil exploration: when it was discovered that there was no evidence of oil, he encouraged the Public Authority for Industry to start taking the necessary actions such as making official requests to the Ministry of Housing in order to obtain the oil-free areas by stating "it's time for expansion". Alabdulghani classified Kuwait's industrial sector as the weakest of the GCC countries and he said that the new government development projects plan's failure to include any national manufacturers was, in effect, a way of killing off the non-oil national economy. Mady had a similar view to Alabdulghani's claims in his 2009 article. Abo Alraish (2014), as well as pointing to corruption as a major reason that deterred foreign investors, reiterated Alabdulghani's concerns about the length of time needed to obtain manufacturing permits.

In Qatar, nine barriers were found according to Al-khalifa & Aspinwall (2000, p. 199):

- Existence of a strict hierarchical and authoritative structure;
- A lack of commitment and support from the top managers;
- Resistance from both employees and middle management;
- A negative work climate;
- Lack of resources to implement changes;
- Lack knowledge and skills in senior management;

- Wrong positions given to the wrong people;
- Racism in employee’s promotions rather than being equal in opportunities, achievements and experience;
- Lack of empowerment at lower employee levels.

Lack of up-to-date knowledge, availability of skilled workers, plant size and poor labour law were the most critical barriers (Al-Zamany, Hoddell, & Savage, 2002; Bardoel & Sohal, 1999; Detert, Schroeder, & Mauriel, 2000; Marshall et al., 2002; Mellahi & Eyuboglu, 2001; Salegna & Fazel, 2000; Scott, Mannion, Davies, & Marshall, 2003; Shin, Kalinowski, & El-Enein, 1998; Subrahmanya Bhat & Rajashekhar, 2009; Talib & Rahman, 2015; Talib, Rahman, & Qureshi, 2011; Talib, Rahman, Qureshi, & Siddiqui, 2011; Tamimi & Sebastianelli, 1998) that impacted the shortfall in the implementation of quality practices in terms of culture.

2.3 Small, Medium and Large Enterprises (SMLEs)

One of the main challenges in performing a cross-country analysis of SMLEs data is the absence of a universal definition of what constitutes small, medium or large firm. One of the most accepted definition is provided by (Stein, 2001, p. 2) who differentiate SMEs from large firms and said that SMEs are “*businesses with 6 to 50 employees or with annual revenues less than 50 million*”. According to the European Commission (EC) recommendation, the most common definition criteria are the number of employees, annual turnover and balance sheet total (capital). The following table presents the definition of SMEs according to EC.

Enterprises	Employees	Annual turnover	Annual balance sheet
Micro enterprise	1 – 9	<2 million Euro	< 2 million Euro
Small enterprise	10 – 49	>10 million Euro – 10 million Euro	>10 million Euro – 10 million Euro

Medium enterprise	50 – <250	>10 million Euro – <50 million Euro	> 10 million Euro – <50 million Euro
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Table 1: SMEs definition according to the European Commission recommendation (European Commission, 2015)

In Kuwait, the economic and social significance of the Kuwaiti Small, Medium and Large Enterprises (SMLEs) is well recognised by developed and developing nations. The Kuwait Small Projects Development Company (KSPDC), a state-financed fund that takes equity shares in small and medium projects, considers projects with capital up to 150,000 Kuwaiti Dinar (USD 520,000) as small and those with less than 500,000 Dinar (USD 1.7 million) as medium-size while firms with more than 500,000 Dinar as large firms. The number of employees does not appear to be used for size criterion (Hertog, 2010).

In the contrary, Kuwait Chamber of Commerce and Industry (KCCI), which is an official government establishment do consider size criterion. It suggests defining small businesses as those that employ 20 people and have a capital of between KD 150,000 (USD 0.55 million) and KD 200,000 (USD 0.73 million) while it defines medium size businesses as those with employment of 50 people and a capital of up to KD 500,000 (USD 1.8 million). Al Ritaj Investment Company on the other hand, which is a private institution identifies SMEs as enterprises with a net value of KD 1 million (USD 3.7 million) up to KD 10 million (USD 36.6 million). Furthermore, Al Raeda Investment Company, which is another private institution suggests defining businesses with up to 10 employees and capital of up to KD 200,000 (USD 0.73 million) as small and those with up to 100 employees and capital of up to KD 500,000 (USD 1.8 million) as medium size. The Central Bank of Kuwait (CBK) includes SMEs that are unlisted companies or unincorporated enterprises such as a partnership or sole proprietorship (Koch, 2011).

Many studies confirmed that most economic activities in the world come from these Small and medium size firms rather than the large ones (e.g. Beck, Demirgu, Kunt, Soledad, & Peria, 2011). Motohashi (2005) explains that SMEs have responded to competitive challenges in both local and global market of developing and developed

countries. The SMEs sector plays an important role in the economic development. For example, in the UK 99.8% of all firms fall into SMEs sector while in Europe, around 90% of all enterprises are SMEs (Hillary, 2000). The percentages are always similar to other countries around the world. Studies indicate that SMEs alone accounts for about 70% of national production, although this may vary significantly from one country to another (O’Laoire & Welford, 1998).

According to Gulf region, the continued resilience of oil prices has allowed the region to maintain their commitment towards sustained investment in SMLEs growth and development. Figure 3 shows SMLEs projects forecast by country. Over the next decade, Gulf region countries are planning 1638 major projects worth more than USD 968 billion across various sectors. Over 80% of these projects are construction, infrastructure, and petroleum industry related projects (Rampurwala & Marafi, 2011).

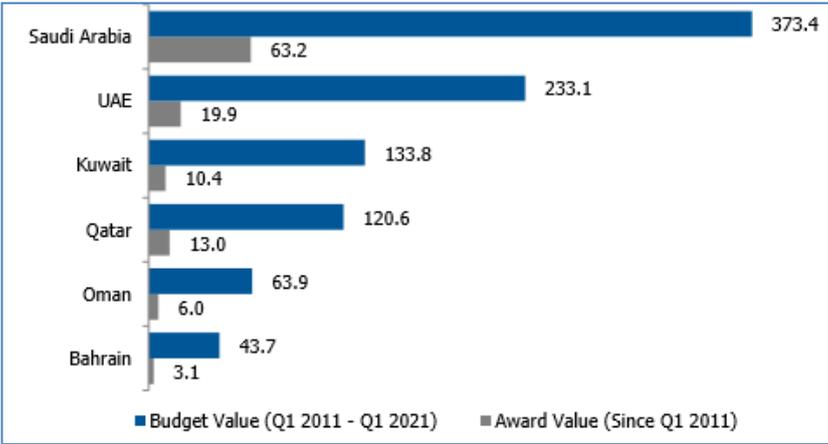


Figure 3: Projects Forecast By Country (USD billions): Q1 2011 - Q1 2021 (Rampurwala & Marafi, 2011)

Figure 4 shows that most of the new projects are contributing in the construction sector as well as petroleum and petrochemical.

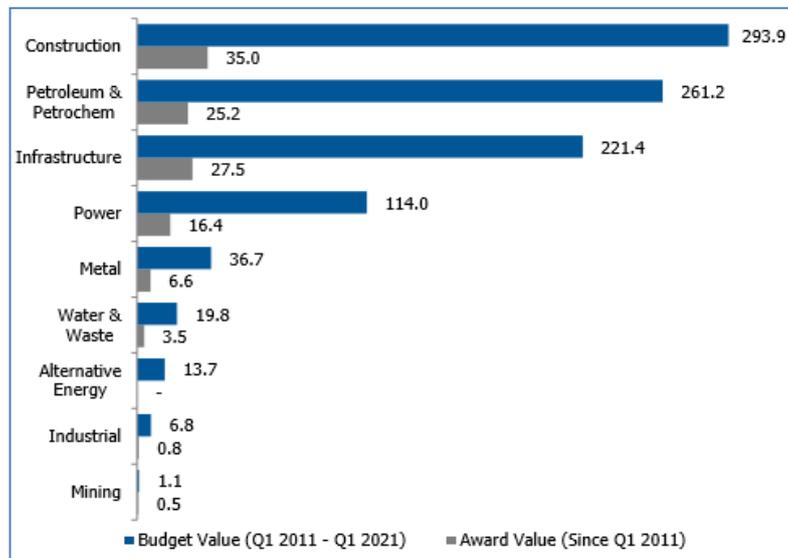


Figure 4: Projects Forecast By Sector (USD billions): Q1 2011 - Q1 2021 (Rampurwala & Marafi, 2011)

There are considerable differences in the character of large and small enterprises. For example, large enterprises have more access to resources, technical ability, time and capital required to carry out production (James, Holt, Homewood, & Viney, 1998). While SMEs have limited resources and capital, yet it is closely integrated into the fabric of the local society, have employees that typically come from within a small radius of the company and often use traditional processes or services (Smith, 1997).

Moreover when comparing large firms with smaller firms, we can see that small firms lack information management systems which affect its total quality management, small firms found to focus on information-gathering with one or two key personnel rather than sharing scanning activities among a range of top executives, this is dissimilar to larger enterprises since it have the required capital to recruit external consultants or may even have in-house experts that contribute to its quality systems. This reality favours the search of innovations in the management systems field (James et al., 1998).

As a result, understanding the definitions and importance of different enterprises classifications would enable the author to further focus on firm size investigated (SMLEs) as previous literature did not shed light on its positive as well as significant impact on societies and nations both economically and socially. Moreover, in terms

of firm classifications for this study, the researcher adopted the KCCI definition since it is an official authority associated with the Kuwaiti government.

2.4 Quality definitions

The understanding of the concept of ‘quality’ is quite vague; almost every individual perceives it subjectively and explains it differently. General product requirements ensure their safety and reliability; however, they may differ from the requirements related to quality (Liepina et al., 2014).

Quality has been in existence for as long as the human race (Elshennawy, 2004). The Latin word ‘qualitas’ is translated as ‘quality’, ‘characteristics’, ‘type’, or ‘order’ (Geiger, 1995). It is derived from the word ‘qualis’, which means ‘what the real thing is’ (Bergman & Klefsjo, 2010), thus showing that quality characterises the actual nature of an object (a product, service, process, etc.). Other authors also have noted that quality refers to those characteristics that make an object (mostly a product) suitable for a certain use (Giaccio et al., 2013).

Over the years a number of definitions of quality have been developed, each reflecting the particular context in which it was formulated and several authors have pointed out its diverse interpretation (Liepina et al., 2014).

Crosby (1980, p. 19) defined the concept of ‘quality’ as “conformance to requirements”, pointing to the need for conformity assessment in order to ensure that the product complies with the specified requirements. In *Quality without Tears* he provided further explanations for his definition: “conformance to requirements, not goodness” (Crosby, 1995, p. 64) and it is this interpretation that the author of this thesis has chosen to use, drawing attention to the fact that quality is not a general term, but, on the contrary, can be specifically identified and measured, thus confirming his view that requirements should be clearly defined in order to avoid any misinterpretation, and that consecutive measurements need to be performed to assess compliance with these requirements. When non-compliance is found, it is perceived as lack of quality.

Furthermore, Crosby's definition indicated that explicit requirements should be set for product quality assessment, then the actual compliance of the product with the requirements should be compared, and on the basis of this comparison, the quality would be assessed. These activities are characterised by a set of conformity assessment activities. This is one of the definitions that clearly indicate the interrelations between quality and conformity assessment, and the fact that conformity assessment can be one part of the quality assessment process (Crosby, 1980, p. 56).

Similarly, the original definition of the concept of 'quality' by Juran was "fitness for use" (Juran & Gryna, 1970, p. 1). Dale, Van der Wiele and Van Iwaarden used a similar interpretation of the concept – "fitness for purpose" (Dale, et al., 2007, p. 181). These definitions show the degree to which the product in use performs in accordance with its intended purpose (Halachmi & Bouckaert, 1995). The above mentioned authors believe that the focus on ensuring fitness helps to avoid setting excessive requirements, while at the same time it is an indication of the importance of conformity assessment in quality assurance and confirms the need to perform it.

Quality can also be defined as "fulfilling the requirements of a user" or "conforming to a certain standard" (Kumar, et al., 2010, p. 307). This definition is relevant when talking about how a company understands customer demand and helps to satisfy its customers (Paswan et al., 2004). In this thesis, quality is viewed as a consumer's perception of whether the products or services of a particular manufacturing firm are inferior or superior when compared to other products.

After examining the literature where the definition of the concept of quality is included, it seemed that the most appropriate definitions for this research are those given by Juran and Gryna (1970) (the original definition), Crosby (1980), Dale et al. (2007) and Liepina, et al. (2014), which include the reference to explicit requirements, their execution and evaluation, and correspondence to conformity assessment activities. Through evaluation, Liepina et al. (2014) found that the most frequently mentioned terms in their studies are: 'product' (56), 'customer' (34), 'service' (29), 'requirement' (26), 'need' (25), 'satisfy' (20), 'conformity' (15), 'characteristic' (15), 'ability' (11), 'feature' (10) and 'expectations' (9) times. According to the researcher,

quality is perceived as meeting users' requirements/characteristics in order to achieve its maximum efficiency and effectiveness.

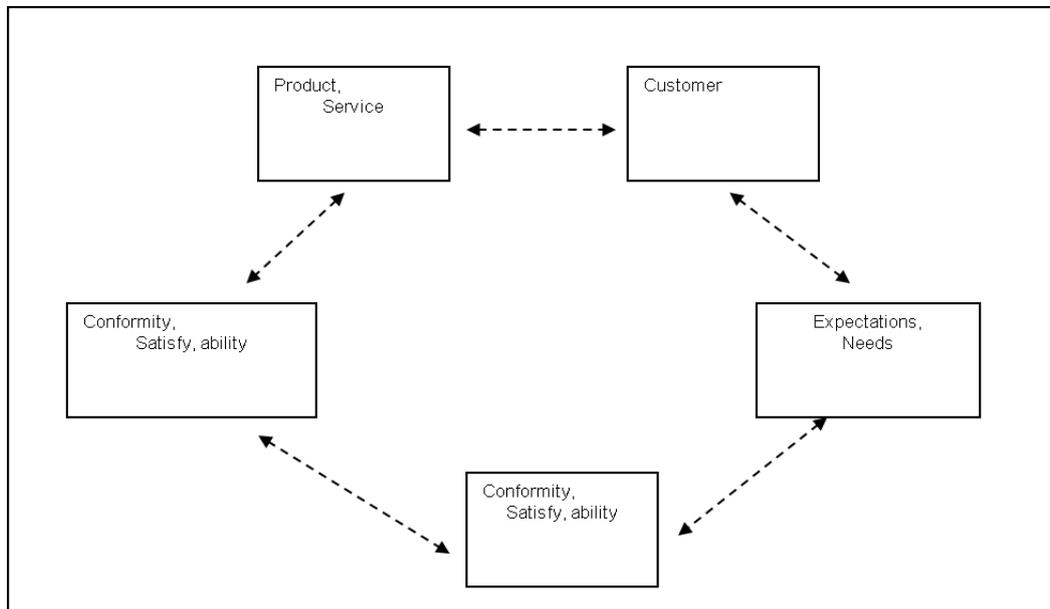


Figure 5: The scheme of interrelations of the terminology related to the concept of 'quality' (Liepine et al., 2014)

On the basis of this evaluation, they grouped the related terms and identified five groups of terms that describe 'quality' and then depicted the interrelations between them as illustrated in Figure 5.

After analysing the definition and evaluation of the opinions of Juran and Gryna (1970), Dale et al. (2007), Halachmi and Bouckaert (1995) and Crosby (1980) about the concept of 'quality', it was concluded by the author that most frequently the quality of a particular object (mostly a product) is assessed using Kara et al.'s (2005) and Van Kemendane et al.'s (2008) viewpoints. Requirements are one of the key aspects characterising quality; without them it is not possible to perform quality assessment. Requirements are also sometimes termed 'characteristics', 'features', 'standards', etc., and by comparing the requirements with the object, its compliance is assessed. To ensure manufacturing of adequate products and reliability of the conformity assessment procedures, competent organisations/individuals must also be involved in the assessment process.

Consequently, it was also concluded by the author that quality can be objectively assessed by taking into consideration the following aspects: object, requirements,

compliance and competence. From that, the author concluded that conformity assessment is associated with quality. There is a strong linkage between them, because conformity assessment can be used to assess quality if explicit requirements for an object's (for example, a product), quality exist. The results of such an assessment are credible for competent organisations/individuals performing the assessment process.

2.4.1 Deming's 14 points

Dr. William Edwards Deming is popularly known as the “father of the Japanese post-war industrial revival” and was also considered the “leading quality guru in the United States” (Gabay, nd). He was the author of the 14 Principles of Management, which was his business philosophy. It is through these 14 Principles that industry transformation has taken place; small and large organisations use these 14 Principles in managing their operations and conducting their business affairs.

Deming's 14 principles as cited in Gabay (nd) are:

- 1) *Create Constancy of Purpose Towards Improvement.* There is a need for short-term reaction with long-term planning;
- 2) *Adopt the New Philosophy.* The new philosophy to adopt is “quality philosophy”; all study teams at all levels work towards putting quality in all that they do as they look at the customers who deserve quality performance;
- 3) *Cease Dependence on Inspection.* According to Deming, if a firm maintains quality procedures, they do not need to spend time on inspections, none the less, if there is an inspection from a government body, the company do not need to be afraid because they are following a standard procedure anyway. The quality is already embedded which reduces inspections and the level of scrutiny.
- 4) *Move towards a single supplier for any one item.* Maintaining a single source (core group) with a long-term relationship is the key to nurturing relationships by establishing mutual trust and reliance between purchasers and vendors, and delivering products that meet standards. Striving to make

operations more cost efficient means lowering prices while maintaining high profitability;

- 5) *Break down barriers between departments.* Each department serves not the management but the other departments that use its outputs, hence every department must be a team player not a competitor with others; each department should aim to serve others and not be in conflict with them. Integration, cooperation, open communication lines, mutual understanding and support are necessary to achieve success in this area of management;
- 6) *Improve constantly and forever.* The management is obligated to continually improve quality. The effort to continually improve is focused on improving the personnel so they can improve the processes; continual improvement requires conducting quality audits to correct actions and system audits to indicate process deficiencies and flaws;
- 7) *Institute Training.* There is a need to invest in the development of an extensive and comprehensive training programme for personnel to achieve uniformity in results and achieve consistent quality. This point of Deming's can be one of the most expensive endeavours by the company which requires a substantial commitment from the management;
- 8) *Institute Leadership.* Leaders in the organisation are expected to devote their time and efforts to quality and to lead others by example;
- 9) *Drive out fear.* Fear is counter-productive for the company in the long-term; it is best to encourage all personnel to be responsible for improvement so they are free to discuss any subject at any point of time. As a result, they become more open to discussion and are willing to assist and support others;
- 10) *Eliminate slogans.* It is counter-productive to harass the workforce without improving the processes they use; management must not improve penalties, replace or rebuke personnel for their ineffectiveness, instead they should try to understand what is wrong about the process and analyse it in order to find resolutions;
- 11) *Eliminate management by objectives.* This encourages teams by creating best foundations for the most efficient implementation of production, not

by setting production targets which may potentially result in poor-quality goods;

12) *Remove barriers to Pride of Workmanship*. This principle promotes the need to recruit and hire people who are adequately trained and can deliver workmanship;

13) *Institute education and self-improvement*. This is made possible by investing in the education of work forces; encouraging self-education, introducing training programmes, valuing knowledge and professionalism. These are necessary to achieve commitment for lifelong employment and business success;

14) *The Transformation is everyone's job*. There is a need to have a special management team with a plan of action to carry out the quality mission and the critical mass must be involved in the change. Both parties must reach a consensus to collect energy, intellect, experience and priorities for continual improvement.

Neave (1987) summarises Deming's 14 principles as making use of statistical ideas and methods throughout organisations by the management which is the most important part. The management has to create an environment where the importance of statistical practices is recognised to an unprecedented extent.

2.4.2 Crosby's zero defects

Philip Crosby used to be an assembly line worker before he became an entrepreneur advocating the importance of quality control in manufacturing (Saxon, 2001). He was known for his concept of zero defects, which emphasises the importance of satisfying customers as a basis for measuring quality control. He was also known for developing methods of eliminating causes of defects before a defective product reaches the customer (Saxon, 2001). Companies that have benefited from his zero defects concepts include General Motors, Chrysler, Motorola, and Xerox.

Crosby introduced the zero defects concept in the 1950s and this was adapted by most companies for purposes of installing industrial quality control measure. He

acknowledged that although people tend to commit mistakes they can work towards achieving the zero defects goal to improve quality. Crosby believed that companies could achieve success by improving efficiency, reliability and profitability; he was the author of *Quality is Free* in 1977; it was so popular in drawing management's attention that was translated into 15 languages (Saxon, 2001). He also authored an autobiography, *Quality and Me: Lessons from Evolving Life* (1999). He was known for his powerful message: "Get things done right the first time—it is better business and cheaper in the long run." (Saxon, 2001, p. n.p).

The following are highlights of Crosby's Zero Defect Concept as reported by Suarez, (1992):

- 1) Doing things right the first time can be done when the "management has to set the standard and then show, by personal performance, that it can be met" (p. 4). Leadership by example is also demonstrated under this concept;
- 2) The Zero-defect concept does not mean people have to be perfect. This concept only means that that people have to perform the requirements agreed upon and do it right every time; Quality is said to be a journey, hence continual efforts to do things right every time is advised;
- 3) The purpose of the Zero-defect concept is to show people that management is committed to doing things right; it makes the "management stand up in front of everyone and renounce their evil ways" (p. 5);
- 4) The Zero-defect concept promotes cheaper and more efficient ways to do things right the first time. Doing things over is a waste of time, money and productivity.

Crosby's zero-defect concept is backed up by his extensive experience in the field of quality management. His concept is actually defect prevention, and this can be achieved if people endeavour to continually pursue zero-defects. Furthermore, he believed that this can be achieved through communicating clear expectations, goals and plans with expected benefits by the top management. This will in turn, encourages workforce to devote their efforts to achieving high quality. With this mechanism in place, zero defects approach can be realised. The ideas when conveyed

poorly result in poor performance. In addition, with the zero-defect concept, the messages delivered or communicated are defect-free and therefore they also prevent companies from incurring costs for producing poor quality work.

2.4.3 Juran's breakthrough and control

Dr. Joseph M. Juran is known for developing his quality trilogy, quality planning, quality control and quality improvement. He believed that to have quality management, there must be quality actions to be planned out, improved and controlled (Anonymous, nd). There has to be a plan to improve performance on a project; to use tools and techniques. Through planning, there can be a breakthrough in order to achieve a higher level of performance, which needs to be controlled to prevent from any form of deterioration.

Dr. Juran also believed that to achieve customer satisfaction, there must be quality of products and to achieve this quality control is necessary; quality it is achieved by continual improvement through a succession of small improvement projects carried out throughout the organisation (Anonymous, nd). Dr. Juran has ten steps to achieve quality improvement as reported by Good Morning Ishan (2011):

- (1) *Build awareness of need and opportunity for improvement.* This involves the process of identifying areas for improvement by conducting surveys among the staff, keeping track of the number of mistakes being made while making sure that they are minimised, decreased or totally corrected;
- (2) *Set goals for improvement.* There must be clear and specific goals to achieve and good planning on how to achieve them;
- (3) *Organize to reach your goals.* There must be an organised group to establish a system in identifying problems, selecting projects, appointing teams and designating facilitators that will help achieve the goals. By organising themselves, the people within the organisation are focused on doing their respective roles and responsibilities, resulting in great contributions for achieving the organisation's goals and objectives;

- (4) *Provide training.* It is important to have education and training for managers and the workforce to achieve professionalism. Through education and training, companies are investing wisely their resources to achieve high performance outcomes;
- (5) *Carry out projects to solve problems.* When conducting projects there has to be interdepartmental or cross-functional quality improvement teams that are responsible for tackling chronic problems that could hamper the company's way to achieving progress. With effective teams working efficiently and effectively in identifying problems and formulating solutions to solve these problems better performance outcomes are achieved. These teams therefore have to develop among themselves quality control interventions that reduce waste and at the same time improve customer satisfaction;
- (6) *Report Progress.* This is necessary to keep track of what has been achieved, and what has not been achieved in order to reduce variances. It also provides confidence to the management and the workforce for having achieved or improved something along the way;
- (7) *Give recognition.* This is to boost morale of employees who are involved in the improvement activity in the organisation;
- (8) *Communicate results.* This is also a necessary tool to share with people what has been done to learn and improve further; it also provides an signpost for people of other areas that need improvement;
- (9) *Keep score.* This is also necessary to keep abreast of how the company's goals are achieved step-by-step; it keeps track of progress and measures leverage to control the process; and
- (10) *Maintaining momentum by making annual improvement part of the regular process of the company.* The principle of continual improvement is ensured under this tool as it involves people in sustaining the improvement of activities to achieve long-term organisational goals.

Juran recognised that people involved in the chain, from the product designer to final user, will be assuming roles as suppliers and customers. Since these roles are important and assumed by everyone in the chain, it is best that everyone will strive to

do his or her part the best he or she can and carry out some transformation or activity that will contribute to fully satisfying customers.

2.4.4 Ishikawa's quality circle

Dr. Kaoru Ishikawa is another quality guru from Japan. His contribution to quality is also noteworthy because he believed that total quality viewpoint and company-wide quality control are focused on the human side of quality, meaning quality is best achieved through the people that execute the process of achieving quality. Ishikawa desired to “democratize quality” by making quality control understandable by all workers. Inspired by Deming, Ishikawa came up with his seven basic tools of quality control as reported by Manufacturer's Edge (nd):

- 1) *Cause and Effect Diagrams*. This is also known as Ishikawa or Fishbone Diagrams. This tool determined symptoms of a problem or “effect” as a means of finding the root cause. The diagram forces users to consider causes of the problem and there is a need to conduct brainstorming techniques to be able to develop a graphical analysis of the problem and its root causes;
- 2) *Check sheets*. This is also known as Data Collection sheets and Tally charts. This tool is used to capture data in a manual, reliable, formalised way so that it will be easy to come up with a decision based on facts. Data gathered are bases for forming graphical representation hence it would be easy to identify areas that need improvement;
- 3) *Control (Run) Charts*. This is another tool used to measure how process changes over time. The plotting of data against pre-defined upper and lower control limits is used to determine whether or not the process is consistent and under control, and when also when out of control, meaning the date cannot be predicted;
- 4) *Histograms*. This is a tool that makes use of bar charts which measure the frequency distribution of data that are grouped together in ranges or

“bins”; this tool is used to discern frequency of occurrences in long lists of data hence this tool provides an effective visual of performance of data;

- 5) *Pareto Charts*. These are used to organise and display information to show relative importance of various problems and causes of problems. They reflect the implications of organised items to determine the highest to the lowest, relative to measurable effect as to time, frequency and cost;
- 6) *Scatter Diagrams*. These tools are used to identify the relationship between two variables; one variable provides direct impact on the other variable which confirms that there is a direct relationship between the two variables given the case; and
- 7) *Flow Charts*. This tool provides a visual presentation of an actual process that is carried out which could vary depending on how the process owner imagines it; it is not a statistical chart but it already provides a visual presentation of the inefficiencies and potential areas for improvement.

Figure 6 depicts the Cause and Effect Diagram (also known as the Ishikawa or Fishbone Diagram) that can be used by teams or individuals to identify and arrange the causes of an event or problem or outcome, as a first step for problem solving procedures. This approach is utilised to find out root causes of the problem and improve the process accordingly. The work carried out by Omachonu & Ross (2004) involved investigating the defects of rubber gloves within a manufacturing organisation (Jirasukprasert, et al., 2012). Moreover, they suggested that fishbone diagram was very useful in correlating DMAIC methodology.

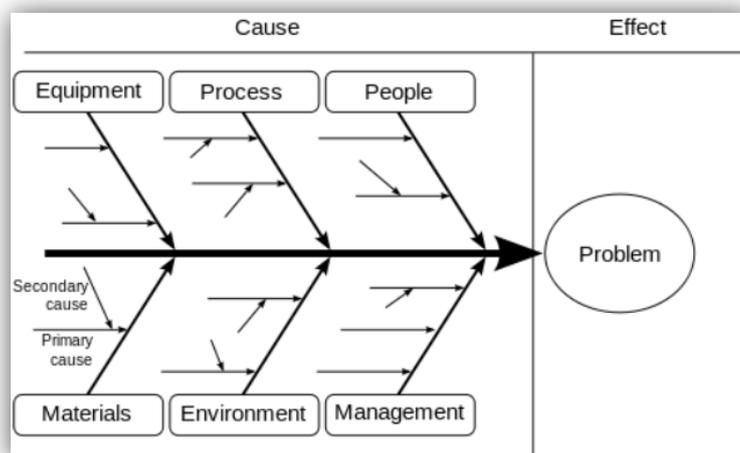


Figure 6: Ishikawa Diagram (Ishikawa, 1985)

The diagram illustrates the hierarchical relationship between the causes according to their level of importance or detail and a given outcome. Ishikawa emphasised that quality management should extend beyond the product manufactured or service provided, to after-sales service. The Japanese realised that since quality must permeate the entire company, it cannot be entrusted to just one department but must be the centre of attention for top management. In addition, he emphasised that the term quality means quality of product, service, manufacturing and management – in fact, the company itself. He also established an idea of the "internal customer", the next item/individual in the process, and he paid attention to statistical tools, used in organisations, describing these tools as "indispensable for quality control" (Ishikawa, 1985, p. 198).

2.4.5 Taguchi's technique

Taguchi was a Japanese engineer and statistician, who took on the responsibility of rebuilding the Japanese phone framework. He established his own strategies and methods in order to control quality (Dale and Plunkett, 1990). Taguchi was a guru of statistical methods and his view was that mass production creates variations. Therefore, he suggested a robust design system which reduces process variation (Box & Bisgaard, 1988). Furthermore, his philosophy of reducing variability is by achieving it to a nearest target value (Castro & Domínguez, 2013). Taguchi's rule for manufacturing process is to take into consideration the following steps in order to eliminate variations during the design and manufacturing process (Karna & Sahai, 2012):

- 1) System design;
- 2) Parameter design; and
- 3) Tolerance design.

Moreover, Taguchi developed an 8-steps methodology for analysing process variations as reported by Karna & Sahai (2012):

- | | |
|-----------------------------------------------------------------|-------------------------------------------------------------------------------|
| 1) Identify the main function, side effects and failure mode | 2) Identify the noise factors, testing conditions and quality characteristics |
| 3) Identify the objective function to be optimised | 4) Identify the control factors and their levels |
| 5) Select the orthogonal array matrix experiment | 6) Conduct matrix experiment |
| 7) Analyse the data, predict the optimum levels and performance | 8) Perform the verification experiment and plan the future |

Furthermore, Karna and Sahai also suggested that Taguchi's method can be used to increase experimental efficiency in order to design high quality systems (Karna & Sahai, 2012). For instance, if a part of an item is made and it meets the specifications, the expense is low. If it deviates from the specification, then the social expense increases accordingly. In this way, the expense of deviation from the target can be assessed. This implies loss because item execution would be relative to the deviation's square from the target worth (Carr et al., 1996).

Any deviation from the target will result in loss to both the consumer and society. Accordingly, consistent change should be the objective. Moreover, the hypothesis of zero defects is inconsistent with the loss of capacity; in light of the fact that if zero deformity level is achieved, there is minimal motivation to move forward (Dale and Plunkett, 1990).

2.5 Management definitions

According to Zlatanović (1999), the most used management definition is that of Henri Fayol, a pioneer in the field of management. It has been used with more or less modification by many theoreticians over the years in the process of developing a

complete management definition, as well explaining the idea and meaning of management (Aoife, 2015). Fayol defined management as the most important process in job performance which involves managing a company in a broad way, which means estimating, organising, commanding, coordinating and controlling. Fayol perceives management as the process of leading the organisation in achieving its goal using the available resources (Zlatanović, 1999). Nowadays management is mostly defined as a process of directing people to perform jobs and tasks to reach predefined goals. This complex process consists of a number of single procedures: planning, organisation and control (Van Vliet, 2014).

Operations management on the other hand, differs from most other areas of management research which address both the physical and human aspects of an organisation (Drejer et al., 1998).

2.6 The concept of ‘quality management’

Quality management is necessary to identify, target, control and coordinate the various elements (aims, processes, resources, etc.) within an organisation. Manufacturing-based definitions of quality take into account quality from a manufacturing viewpoint, where pre-determined requirements, design activities and manufacturing practices are the bases of quality product and accordingly, the quality definition will be “conformance to requirement” (Crosby, 1990).

According to Juran and Gryna, quality management is the process whereby certain operations are performed to ensure the achievement of the objectives and improve company performance (Juran & Gryna, 1970). At the same time, the literature reveals that researchers found different types of quality management classification. In addition, taking into consideration that it is through the quality management division into specific activities (components) that connection with conformity assessment is sought, the researchers initially identified quality management classifications in order to choose the most efficient and analyse it in depth. One of the best known types of quality management classification was determined by Juran, known as the Quality

Trilogy or Juran Trilogy. It is a set of three consecutive activities (planning, control and improvement) that are repeated cyclically (Spurgeon et al., 1990; Bisgaard, 2007; Godfrey & Kenett, 2007; Juran, 1986):

- quality planning – setting specific goals, identifying potential customers and their needs, defining the product features so that they meet customer needs, developing the process used for monitoring the process of manufacturing;
- Quality control – meeting the quality objectives, conducting activities in accordance with the identified plan, evaluating performance, choosing the subjects that will be monitored and defining measurement units, taking measurements, assessing performance, determining the differences and defining further action;
- Quality improvement – assessing the needs for improvement by identifying specific activities required, stating the activities and determining the causes of the problems, defining action required and assessing whether it will be sufficient to achieve the goal; performing repeated control.

Other types of quality management classifications also exist, one of which is the Three Spheres of Quality; this classification of activities (control, assurance and management) differs from the Quality Trilogy and the actions to be taken (Foster, 2004):

- Quality control – refers to monitoring of the missed opportunities, stability and performance of the processes, reduction of process variability, process optimisation up to nominal measurements, sampling, preparation and maintenance of monitoring maps;
- Quality assurance – refers to activities performed in order to guarantee product quality, provide an essential link with design, analysis of error types and impact, process improvement, product reliability and durability testing, etc.;
- Quality management – includes all activities, including control and assurance activities (namely, planning quality improvement activities, creation of the organisational quality culture, training, retraining, etc.).

More recently, classification of quality management into four activities (planning, control, assurance and improvement) in accordance with the Standard ISO 9000: 2005

has become the most widely known. Such a set of activities is slightly different from previously mentioned quality management classifications. Each of the activities under this classification includes the following (ISO 9000, 2009):

- Quality planning – focused on setting quality objectives and clarifying the requirements, necessary operational processes and related resources in order to meet the quality objectives;
- Quality control – focused on fulfilling quality requirements;
- Quality assurance – focused on the belief that quality requirements will be met;
- Quality improvement – focused on enhancing capacities for meeting the quality requirements.

After evaluating quality management classification in different literature sources, the author of this study believes that the most appropriate contemporary classification is given in the standard ISO 9000: 2009 “Quality management systems-Fundamentals and vocabulary” while maintaining that quality management can be defined differently and subjectively by the researcher, practitioner or entrepreneur.

2.7 The Definition of Quality Management Systems (QMS)

There are many definitions of QMS (Dassonville & Salgé, 2000); it is defined as an organisation’s structure, responsibilities, processes, procedures and resources to guide and control an organisation with regard to quality in order to constantly improve the effectiveness and efficiency of its performance (Sedevich Fons, 2011; Kanchana Ratnam et al., 2012; Netto et al., 1997; Schlickman, 2003). Ismyrlis et al. (2015) define QMS as the minimisation of undesired impacts on processes while maximising the effectiveness and efficiency of those processes that deliver products or services to end-users.

The ISO 9000 series defines QMS as a set of proportioned activities to control and direct an organisation in order to improve the effectiveness and efficiency of

performance for that organisation with emphasis on continuation of that improvement (ISO 9000 Series, 2008). Many researchers, managers, entrepreneurs and scientists in the field of quality have looked at QMS from their own views, experience and beliefs differently, yet all of them agree that its purpose is to enhance customer satisfaction and all round improvement of the organisation. QMS provide a framework for organisations to reach globally accepted standards that help companies to develop a stable and an acceptable level of quality of their products and/or services by controlling business and production processes supporting it (Kuncoro, 2013). One important point which needs to be remembered is that QMS does not necessarily mean an ISO certification; it can be any quality initiative, practice, tool, technique or even implementation model. This is carefully studied and thoroughly investigated by the author.

2.8 Quality Initiatives (QIs) in GCC Countries

In this section, the importance of the most popular quality tools and initiatives that are used world-wide and in the GCC region (ISO 9000 standards, Total Quality Management (TQM), Six Sigma, acceptance sampling, Kaizen, 5S's, Quality Function Deployment (QFD) and Statistical Process Control (SPC)) is outlined. A brief description of each tool and its main enablers and obstacles, and where it stands currently in GCC countries is also given.

2.8.1 ISO 9000 Standards

The purpose of ISO 9000 standards is to simplify the production process and services by providing a set of quality requirements (Ab Wahid & Corner, 2011). They also act as an aid or road map for organisations in different sizes and sectors to implement an effective quality management system (QMS). The nature of standards allows enterprises interested in implementing them to determine the right standard that applies to them (Beattie & Sohal, 1999). Figure 7 is an example of ISO 9001 certificate.

ISO 9001 is arguably one of the most influential contributions to present, within the family of ISO 9000 standards (Heras-Saizarbitoria, 2011).



Figure 7: Example of ISO 9001:2008 Certificate (Great Lakes Industry, Inc., 2010)

It contains one of the most important sections that outline the importance of obtaining a quality management certificate which is quality management principles. It summarises them in eight sections:

- (1) Customer focus;
- (2) Leadership;
- (3) Involvement of people;
- (4) Process approach;
- (5) System approach to management;
- (6) Continual improvement;
- (7) Factual approach to decision making;
- (8) Mutual beneficial supplier relations (International Organization for Standardizations, 2011).

Figure 8 shows how the eight principles are used for ISO 9000:2000 accreditation.

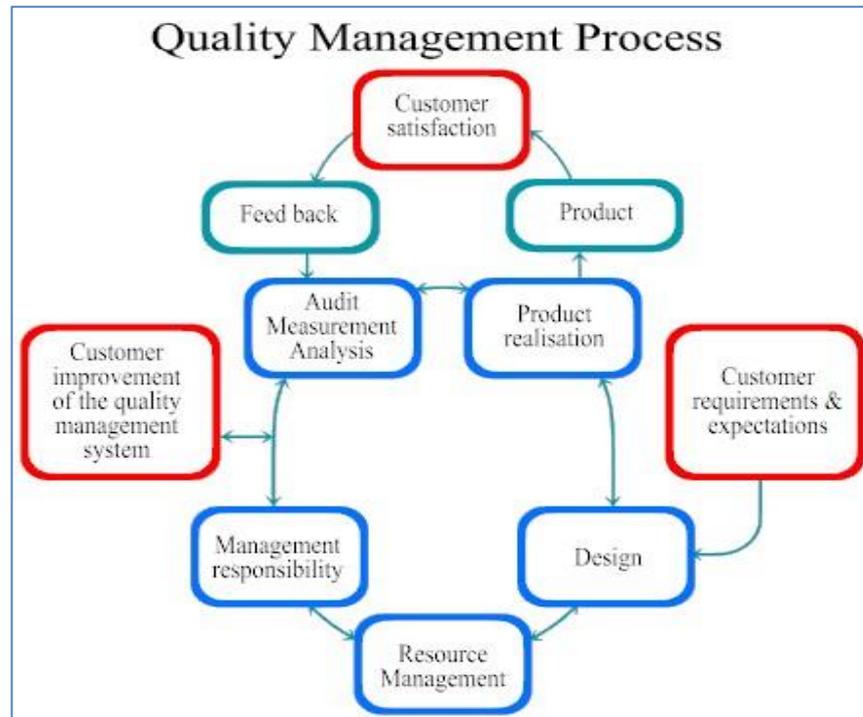


Figure 8: Quality Management Process (Thames Valley Management Consultants Limited, 2004)

Salahedin argued that implementation of ISO 9000 standards have helped many organisations in the GCC region, mainly in the electronics and food sectors (Salaheldin, 2009a). In the petrochemical, manufacturing industry fewer companies implemented them. However, they were not implemented at all in the financial sector due to six major issues which were identified by (Zaramdini, 2007).

Mady advocated that the Kuwaiti Public Authority for Industry (PAI) should encourage firms to seek ISO 9000 certification, apply for regional quality awards and attend international quality management workshops, in order to increase the awareness and knowledge of Kuwaiti manufacturers (Mady, 2009). In Saudi Arabia, ISO 9000 certification is becoming almost mandatory due to the fact that the number of factories is increasing and the government has been supporting their manufacturers in order to enter the global competition amongst leading countries such as USA, Japan and China (Al Turki & Faris, 2010).

Al Turki and Faris suggested that increased quality awareness in the firms is the main benefit of certification in the GCC region, specifically in Saudi Arabia. Improved efficiency of the quality system came second and improved customer service came third. However, ISO 9000 certification has also been criticised by Curkovic & Pagell (1999) for the cost of registration (which is prohibitive for all but the largest firms), being too time- consuming and too formalised and impersonal to the extent that the cost of attaining certification is greater than the benefits derived (Stevenson & Barnes, 2001).

2.8.2 Total Quality Management (TQM)

The meaning of each word making up the acronym TQM:

“Total” means applying to every aspect of work, from identifying customer needs to extensively evaluating whether the customer is satisfied. “Quality” means meeting and exceeding customer expectations and last but not least, “Management” which means developing and maintaining the organisational capacity to constantly improve quality” (Cohen & Eimicke, 1994, p. 450).

Although it may be possible to describe fine distinctions between the two (TQM & QMS), most authors and observers use the terms QMS and TQM interchangeably.

Achieving quality, especially in manufacturing industries, is not easy. Many quality models have been developed post-Deming, all seeking to achieve quality improvements in terms of performance and productivity (Zhang, 2005).

Deming sees TQM as a society issue rather than a theory of management. He stresses that firms must not only seek profit but they must consider community wellbeing and interests, for example, to provide jobs (Deming, 1986). The institutional system must be viewed from both the organisational and societal viewpoints (Kronenberg & Renee, 1991). Hence, the TQM approach is a model that puts more consideration into humanist change concepts (Burrell & Morgan, 1988).

It is important to recognise the differences between the various TQM philosophies espoused by total quality gurus. They are summarised in Table 2 with three criteria of comparison.

Guru	Definition	Emphasis	Dominant factors
Deming	Customer led	Process	Control of variation
Juran	Customer led	Process	Fitness for purpose
Crosby	Supply led	Performance	Zero defects
Taguchi	Supply led	Process/Design	Quality loss function value to society
Ishikawa	Value led	Process	Companywide quality control/quality circles

Table 2: Comparing the gurus-summary of approaches (Ghobadian & Speller, 1994)

The concept of total quality management (TQM) (also called total quality control), refers to the production of a perfect product in each process at every stage in production by taking a series of measures which require an organised effort by the entire organisation to eliminate or prevent errors (Mazumder et al., 2011, p. 365). It can be qualified as an old management theory as its origin can be dated from the 1960s; however, in developing countries, only a small number of organisations have attempted to implement TQM (Jones & Seraphim, 2008).

In the manufacturing sector, TQM involves committed leadership, adoption and communication of TQM, closer customer relationships, closer supplier relationships, benchmarking, increased training, open organisation, employee empowerment, zero defect mentality and process improvement (Shahin & Dabestani, 2011). Ross explained TQM as a set of practices: continuous improvement, meeting customers' requirements, reducing rework, increased employee involvement and teamwork, process redesign, competitive benchmarking, team-based problem-solving, constant measurement of results, and closer relationships with suppliers (Ross, 1993). Successful implementation of TQM requires effective changes in an organisation's culture and it is impossible without management leadership (Ho et al., 1999). Whalen and Rahim pointed out that TQM supports the sharing of information in the decision-making process with top, middle, and frontline management people (Whalen &

Rahim, 1994). Moreover, the aforementioned authors concluded that without developing a culture of teamwork within the organisation, implementing TQM will not be successful.

Although, most of the previous research has been done on the critical success factors of TQM practices on performance of enterprises in Europe, USA and the Far East, a few writers and researchers have addressed TQM implementation in emerging markets (Badri & Davis, 1995; Raghunathan et al., 1997; Al-khalifa & Aspinwall, 2000; Chapman & Al-Khawaldeh, 2002; Al-Zamany et al., 2002; Al-Marri et al., 2007; Salaheldin, 2009a). In GCC countries such as the UAE, Oman and Saudi Arabia and Yemen, the implementation of TQM has not been taken seriously (Westerduin, 2010). However, TQM has been developed recently in some manufacturing organisations such as the Kuwait Oil Company and 139 companies in Qatar (Salaheldin, 2009a; Garza-Reyes et al., 2011). Researchers in Oman have investigated TQM implementation in depth by relating it to ISO 9000 certification, exploring how the two are linked and differentiated from each other using the most common practices cited in the literature (customer focus and satisfaction, training, leadership and top management commitment, team work, employee involvement, continuous improvement and quality information and performance measurement) in an attempt to have it seriously considered by companies and government establishments in the manufacturing sector in Oman (Ashrafi, 2008; Ashrafi & Bashir, 2011; Arumugam et al., 2008).

2.8.3 Six Sigma

Six sigma is a statistical quality improvement tool which helps to improve business processes by reducing costs and waste, and by improving efficiency and effectiveness of processes (Breyfogle, 1999). These goals have a direct proportional relationship to customer satisfaction and profitability increase (Hung & Sung, 2011). It is difficult for developing countries to use 6S because it is really only of use in the precision manufacturing sector, which does not really exist in developing countries.

Six sigma also aims to reduce the variation around the mean value of the process, one of the vital dimensions of business process according to Kanji (2008). Timans et al.

(2011) argued that six sigma methodology can be implemented in all types of product manufacturing in order to reach zero defects and traced its evolution over the last 10 to 15 years. The DMAIC application (see Figure 9) is often mentioned and has been focused on by six sigma researchers (Hung & Sung, 2011). DMAIC stands for:

- **Define:** It is the responsibility of top management to identify customer requirements according to their feedback, the company's strategy or mission and set goals.
- **Measure:** The refining of the problem and search of the root cause of it to help the project team move on to the next step.
- **Analyse:** In this stage, it is the project team's responsibility to analyse the problem using data analysis tools and techniques in order to verify root causes and then develop hypotheses and finally validate those hypotheses.
- **Improve:** This is the most important stage, when the project team find and implement solutions that will prevent the problem from recurring and eliminate waste by developing ideas to remove root causes and set standardised solutions.
- **Control:** Without control the improvement process will start reverting to its previous state so, it is necessary for the project team to establish measures and standards and conduct those measures routinely.

GCC countries' contribution to lean and six sigma data is sparse due to the fact that these heavy statistical tools are more effective in and appropriate to larger plant sizes than those in GCC countries (Hamza, 2008).

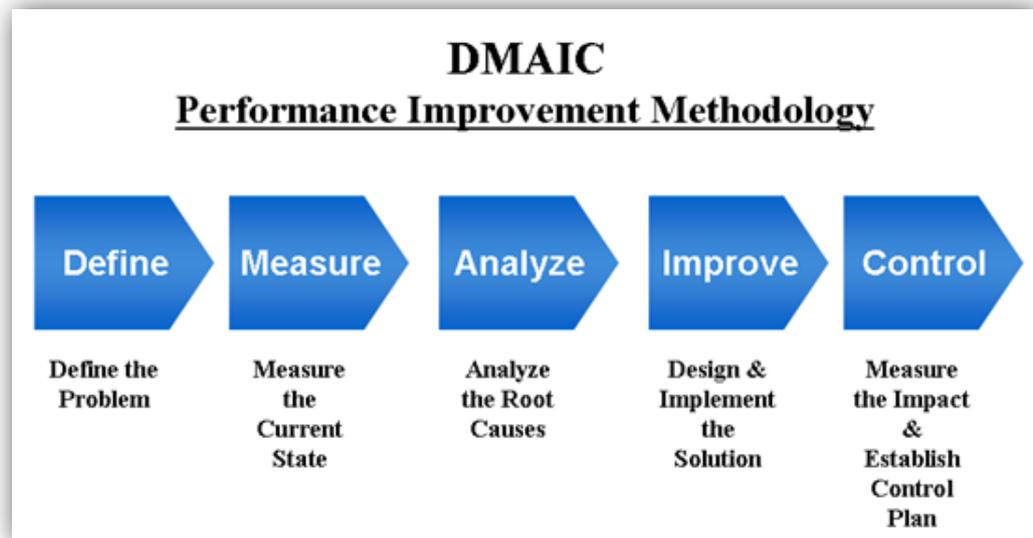


Figure 9: DMAIC six sigma method (Starbird, 2002)

Hamza surveyed 55 companies from Qatar, Kuwait, Saudi Arabia and Oman to investigate the level of awareness of six sigma implementation and found that 78% thought it not relevant to their type of production, 10% were unaware of the concept and what it is supposed to achieve while 12% considered it a complicated system that could easily be replaced by other cheaper and less complex statistical tools, which encapsulates the unsuitability of using such tool in the region at that moment of time (Hamza, 2008).

Despite this, Hamza argued that six sigma is evolving quite quickly, pointing out the historical development of manufacturing in the GCC where it was and how it stands during the development of Hamza's research paper (2008). Timans et al. (2011) identified sixteen critical success factors for the implementation of six sigma. The most frequent being linked to customer, vision and plan statement, and management plan involvement and participation. Biju and Nair (2009) found the following limitations to six sigma implementation in manufacturing industries of GCC region:

- i. Lack of quality data;
- ii. Cost;
- iii. The choice of prioritising between service process, the statistical definition of 'defect' and their measurements;

- iv. Awareness of the concept of six sigma.

On the contrary, according to the Kuwait News Agency (KUNA), Mr. Al-Saad, CEO of the Kuwait Petroleum Company (KPC), claimed that KPC saved USD160 million after implementing a six sigma continuous improvement quality tool (KUNA, 2015).

2.8.4 Acceptance Sampling

The acceptance sampling technique is a practical tool which consists of decision-making blocks submitted for evaluation which result in either acceptance or rejection of tested samples (Stephens, 2001). Sampling according to Schilling (1982) falls into one of five categories: single, double, multiple, sequential and skip lot.

Figure 10 shows the basic concept of the process for sampling before delivery to customers. Acceptance sampling is regarded as one of the most reliable system improvements in many industries rather than only being used in the manufacturing industry (Kaya & Engin, 2007).

In Saudi Arabia, Duffuaa et al. (2009) reported that the use of a single sampling inspection plan can significantly reduce the cost of manufacturing product, a finding reiterated in Kuwait according to Darwish and Duffuaa (2010).

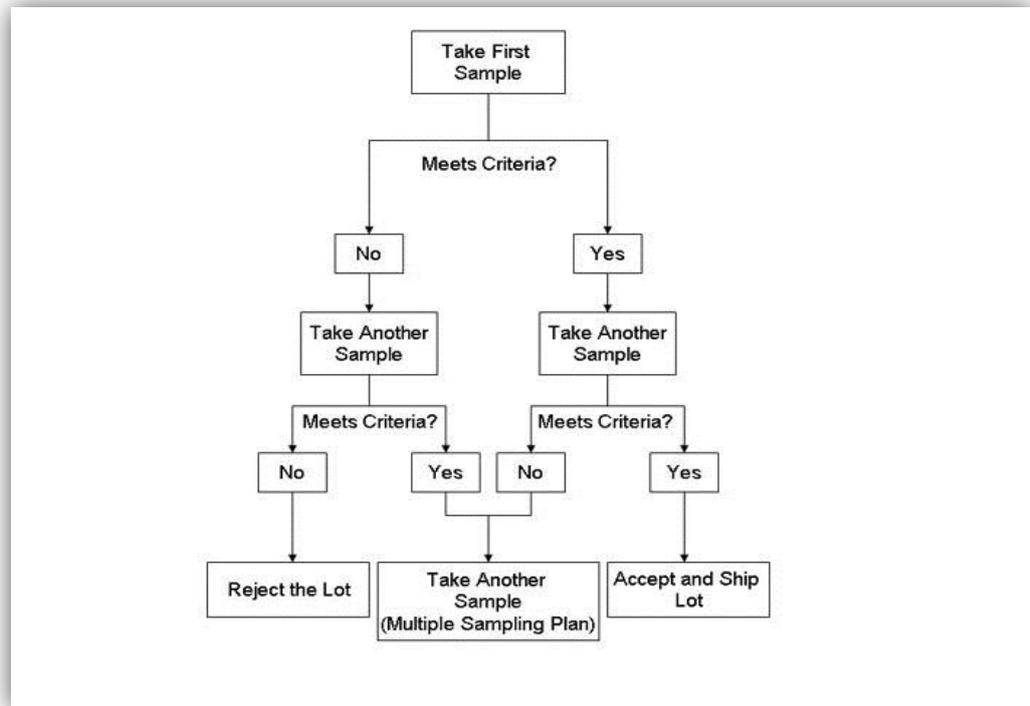


Figure 10: Example of Double Sampling Plan (Yang M. , 2009)

2.8.5 Continuous Improvement Tools (Kaizen)

According to Dale (1996, p. 49) continuous improvements are “the means of improvement to people and process performances needs to be continually sought and monitored”. *Kaizen* is a Japanese word that has become popular in many companies round the world. It means the process of continuous improvement of the standard way of work (Chen et al., 2000) and is a combination of two concepts, *kai* (change) and *zen* (for the better) (Palmer, 2001). The concept of kaizen created considerable interest among researchers as it increases organisations’ productivity and helps to produce high quality products with minimum effort. The concept’s effects were found to be repeated in many studies such as Deniels (1996) and Reid (2006).

Kaizen can be applied to any area that requires improvement. It is more than just a means of improvement as it represents the daily issues occurring in the workplace and the manner in which those issues are overcome (Kaizen, 1992). The kaizen approach requires all employees to participate; therefore, everyone in the company is

encouraged to play a role in kaizen activities. Kaizen forms an umbrella that covers many techniques including total productive maintenance, Kanban, automation, six sigma, just-in-time, suggestion system and productivity improvement (Imai, 1986) as illustrated in Figure 11.



Figure 11: Different kaizen tools (Imai, 1986)

Kaizen can be seen in many organisations in the GCC region, especially in Saudi Arabia and the UAE. In fact, it is prevalent in the industrial sectors due to globalisation and stories of its success with regard to improvement of product quality, efficiency and production levels of employees while lowering costs and bringing in transformational changes in the West and Far East (Magd, Ahmed, & Hamza, 2007). In Oman, the use of kaizen (continuous improvement) programmes is quite popular in industrial companies according to Ashrafi and Bashir (2011). However, there currently is no evidence of kaizen implementation in Kuwait as no empirical studies have been conducted on the subject.

2.8.6 5S Technique

The 5S technique is typically the first lean method which organisations should consider implementing as it helps to reduce waste and make the best of productivity,

optimising it through maintaining an orderly workplace by using visual signals that help achieve more consistent operational results. This method could be said to ‘clean up’ and organise the workplace in its existing configuration, thus it may be seen as a quality improvement tool towards successful implementation of any manufacturing system (Skaggs, 2009). Liang (2010) argued that the 5S tool can be used as a quality control tool in the process of the DMAIC method of six sigma, improving quality through standardisation. Figure 12 shows the 5S sequence of activities: sort, set to order, shine, standardise, and sustain as outlined by Venkateswaran (2011).

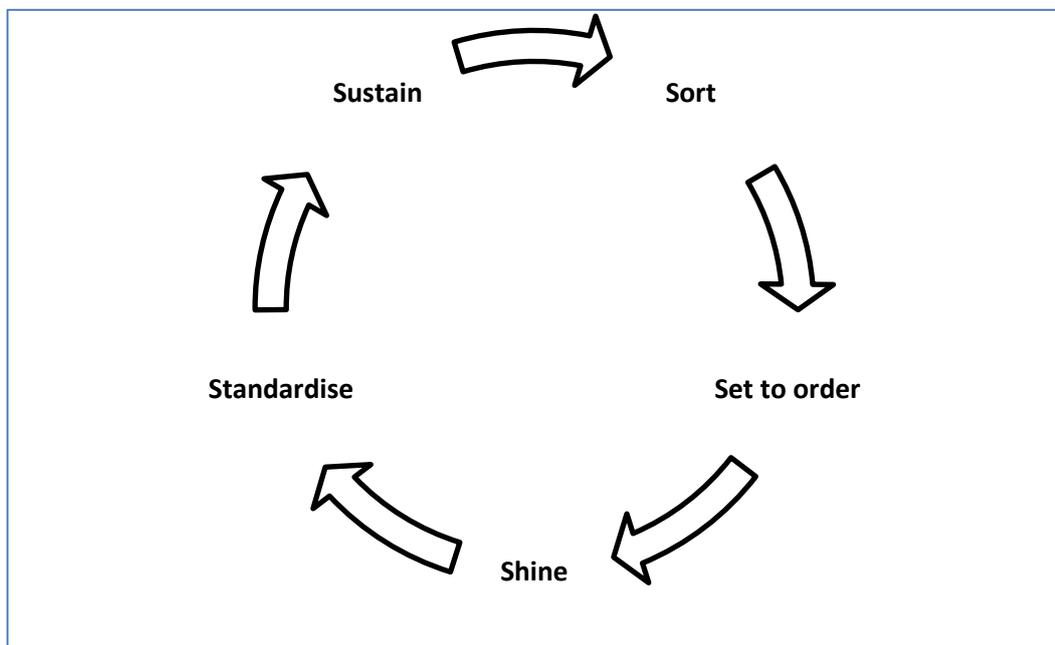


Figure 12: 5S technique (Venkateswaran, 2011)

A typical 5S implementation would result in significant reductions in the space needed for existing operations. It also would result in the organisation of tools and materials into labelled and colour coded storage locations, as well as ‘kits’ that contain all that is needed to perform a task. It is a simple learning activity that can be organised in any department of the organisation. From the management perspective, 5S is the first activity that will test organisational readiness for lean and the management’s commitment to implement change.

It will point out organisational weaknesses and identify leaders, followers, or non-supporters. It will force the entire organisation to learn not only how to implement a

project successfully, but also teach participants about the importance of discipline and standardisation, which are key elements of implementing change (Skaggs, 2009). Table 3 summarises the benefits of its implementation.

Area	Benefits
Productivity	Waste reduction through systematic work systems
Quality	Fewer human errors through visual control & other systems
Equipment performance	Routine cleaning & inspection prevent unscheduled breakdowns
Safety	Reduction of hazards through proper storage & organisation of items in the workplace

Table 3: Benefits of implementing 5S (Chan K. , 2009)

One of the barriers when investigating 5S practices is the difficulty in identifying organisations that have applied it in the GCC region, especially in Kuwait.

2.8.7 Quality Function Deployment (QFD)

QFD is a customer-driven approach and part of a company’s strategic plan which allows customer requirements to be incorporated throughout the stages of planning, design, engineering, and manufacturing into the final product (Zandi & Madjid, 2011). The QFD model has been proved to be successful in many industries in improving customer satisfaction, design processes and creating a competitive advantage (Hauser & Clausing, 1988). QFD can be conducted through a series of charts called House of Quality (HoQ). Organisations in the manufacturing industry that correctly implement QFD can significantly improve productivity, quality, product development time, and engineering knowledge and reduce costs (Besterfield et al., 2003). A HoQ is a conceptual sketch map which provides information such as “what to do” (performance characteristics) or “how to do it” (engineering characteristics) (Chan & Wu, 2005) (see Figure 13).

Fu et al. 2015’s empirical study of Requirement Engineering (RE) techniques in 157 organisations revealed the benefits of using QFD as a process improvement and customer satisfaction. The author suggests that generalising the use of QFD as a

quality tool for the context of Kuwait is acceptable according to Hamza 2011's research findings.

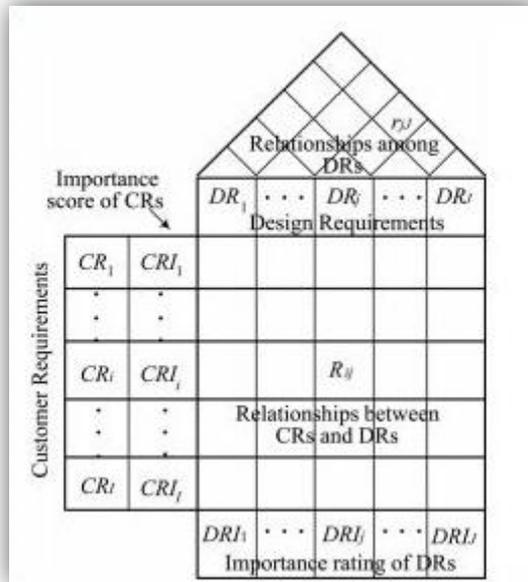


Figure 13 House of Quality (Liang-Hsuan et al., 2013)

2.8.8 Statistical Process Control (SPC)

Statistical Process Control (SPC) is among the tools and techniques used for measuring performance of quality practices already implemented in an organisation. It was introduced by Walter A. Shewart in 1942 and popularised by Deming in Japan in 1950. Deming emphasised continuous improvement by claiming that managers are responsible for constantly striving to improve the production system of manufactured products by referring to Shewart's cycle illustrated in Figure 14. This is further defined and explained in section 2.8.9.

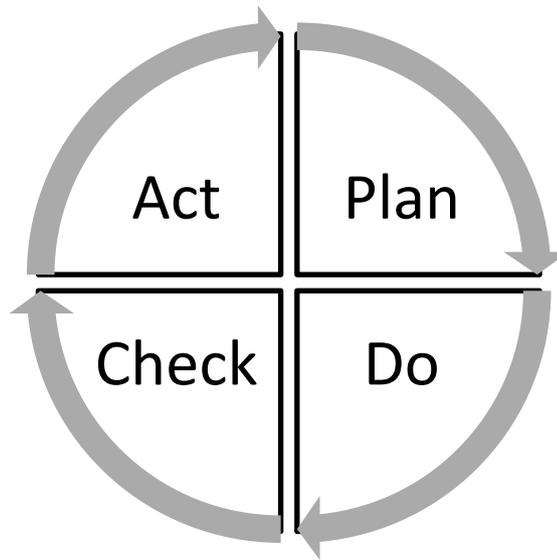


Figure 14: Shewart's cycle described by (Deming E. , Out of the crisis, 1986)

SPC is useful for reducing variability and monitoring processes when data is collected on a sampling basis and plotted chronologically on a chart and used to identify the controlled and non-controlled variation from sample to sample (Rodriguez-Borbon & Rodriguez-Medina, 2014).

In addition, SPC methods are used extensively to monitor quality of manufacturing processes as well as sustaining the improved processes as even quality control tools can drift or shift for some reason. Figure 15 shows an SPC application as an example that allows the user to distinguish between controlled and non-controlled processes.

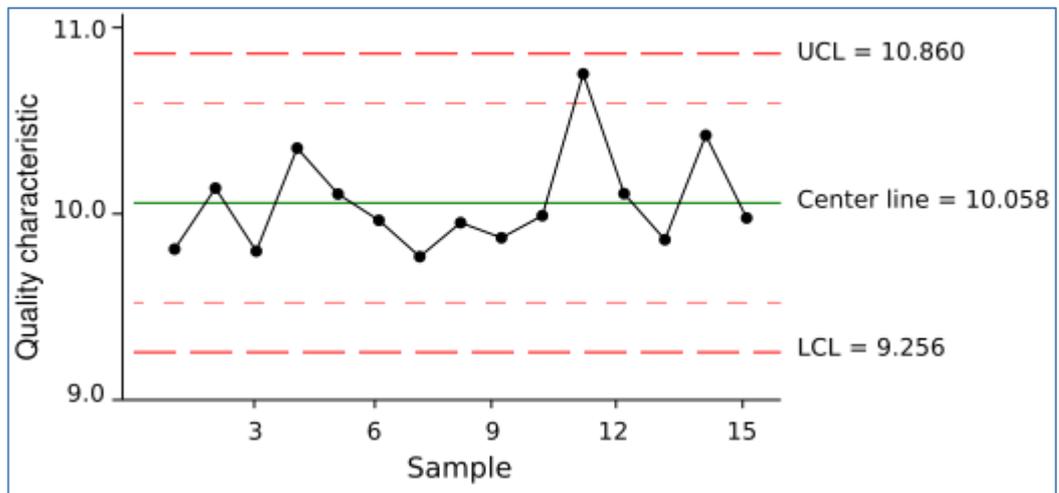


Figure 15: Example of SPC application (control chart) (Sharma & Sharma, 2014)

Some GCC-based manufacturing companies, such as those in Saudi Arabia, are in favour of applying quality practices; however, they struggle to sustain the improvement that they made on their processes (Sharma & Sharma, 2014). SPC is also extensively used by scholars to test the reliability of tools used, no matter what the topic being investigated.

2.8.9 Deming’s PDCA cycle

The circle of control referred to as Deming’s PDCA cycle compares the results of an action with a target or set point Figure 16. Corrective measures are then adopted in a repeated form (Sokovic et al., 2010; Basu, 2004).

Act	Plan
Managing Nonconformity	The Quality Concept and Objectives
Improvement	Statutory Considerations
ISO 9001 Certification	Product Liability and Product Safety
Cultural and Organisational Aspects	Training for Quality
Total Quality Management	The Control of Design
Environmental Management Systems	
Management System Integration	

Table 4: PDCA characteristics 1 (Sokovic et al., 2010)

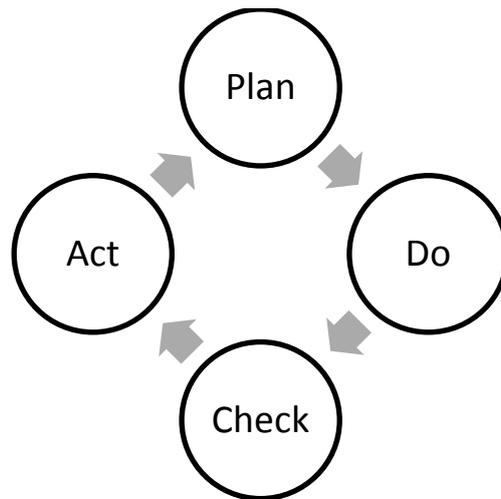


Figure 16: PDCA cycle (Sokovic et al., 2010)

Check	Do
An Introduction to Statistics	Procurement
Control Charts	Just-in-Time Supplies
Inspection	Process Capability
Functional Testing	Product Reliability
Inspection and Measurement Equipment	Materials Handling
Metrology	Servicing
Quality Audits and Reviews	Service Quality
Quality and Safety-related Cost	Documentations and Records
Benchmarking	Controlling Changes
	Standards, Standardization, Conformity and
	Compatibility

Table 5: PDCA characteristics 2 (Sokovic et al., 2010)

The use of the PDCA cycle allows for a continuous search for methods of improvement. It is effective in both doing a job and managing a programme. The PDCA cycle enables two types of corrective action; temporary and permanent. Temporary action is aimed at results by practically tackling and fixing the problem, whereas permanent corrective action consists of investigation and eliminating the root causes, and therefore targets the sustainability of the improved process (Sokovic, 2010).

2.9 Culture

Culture is considered by quality practitioners, experts and academics as an important factor for any business. Kilmann, et al. (1985, p. 5) described culture as “the shared philosophies, ideologies, values, assumptions, beliefs, expectations, attitudes, and norms that knit a community together. These psychological qualities reveal group agreement, implicit or explicit, on how to approach decisions and problems, the way things are done here”. Garrity (1993) wrote: “Culture has an impact to the degree that provides direction, has strength, and is pervasive. Direction refers to the course of culture is causing the organisation to follow; strength refers to the level of pressure the culture exerts on its members; and pervasiveness is the degree to which the culture is shared” (p.436).

2.9.1 Organisational culture

Parmelli et al. (2011, p. 6) defined organisational culture as "an anthropological metaphor used to inform research and consultancy and to explain organisational environments". In recent years, the need to pay attention to organisational culture in order to improve a manufacturing quality in manufacturing industries has been increasingly noted. Culture is seen as arrangement of shared qualities (what is important) and convictions (how things work), which interact with employees to shape people’s behaviour, hierarchical structures and control frameworks (Uttal & Fierman, 1983). As per the above-mentioned definition, organisational culture means a complex problem made out of the qualities, convictions, fundamental assumptions and images deciding management styles in the organisation. Furthermore, organisational culture has a somewhat wide and broad impact on firm’s performance and values which not only affect employees, clients, suppliers and adversaries but also society as a whole (Barney, 1986).

Scholars have described a variety of perspectives on the philosophy and practice of organisational culture (Barnard, 1968; Herbert, 1997; Weber, 1968). Barnard perceives organisations as cooperative systems, emphasising the psychological and

social aspects. He focuses on the human side of people management and believes that human cooperation, participatory management and voluntary effort interact with each other as a system of cooperation formed by individuals. Consequently, his approach to the organisation is still relevant today.

Herbert on the other hand, relies on the concept of organisational structure and the relationships of the various functions within organisations. The main purpose of the organisational function, according to him, is to facilitate the flow of information and the making of appropriate decisions (Herbert, 1997). He promotes the concept of rationality as follows:

- Organisations are created in order to enhance human rationality and to structure human behaviour so that it may approximate abstract rationality.
- Individuals are limited in the degree of rationality they can obtain. Therefore they join collectives to achieve a higher degree of rationality.

Moreover, he introduced the concept 'means-ends hierarchy' to build rationality on a robust foundation. Rationality is defined as the behavioural alternatives (means) that will help the organisation's members in achieving the stated ends above his level of hierarchy. A rational organisation maximises its efficiency.

Similarly, Weber emphasises the rational aspects of bureaucratic organisations. He describes organisational forms as deeply embedded in the social structure and as part of society. He suggests that bureaucracy was the most rational institutional response to the complexities and uncertainties inherent in modern capitalist societies such as the Middle East. In this bureaucracy, organisational process is concerned with policy and standard operating procedures. However, he also highlights the potential dangers inherent in societies dominated by large-scale bureaucratic organisations. Therefore, he argues that human activities determine the character and behaviour of social systems where the bureaucratic principle is also a concern for human relations.

Perrow, a sociologist, further commented on that concern for the organisational environment which can also be traced back to Weber (Perrow, 1986).

Schein interpreted organisational culture as “a pattern of basic assumptions invented, discovered, or developed by a given group as it learns to cope with its problems of external and internal integration that has worked well enough to be considered valid, and, therefore to be taught to new members as the correct way to perceive, think, and feel in relation to those problems” (Schein, 1992, p. 20). Gilaninia et al. investigated the readiness level for implementation of TQM and its impact on organisational culture on managers in the Middle East. Empirical data was collected from 229 people working at the University of Azad in Iran and it was found that organisational culture has a large effect on how ready firms are to implement TQM (Gilaninia, et al., 2012).

Similarly, Xie et al. (2014) examined the influence of culture on the new generation employees’ and traditional employees’ job satisfaction within manufacturing enterprises. The empirical results from their study show that corporate culture, involvement and consistency have a positive influence on employees’ job satisfaction. In addition, it was revealed in their findings that intergenerational difference plays a significant moderating role between the involvement perception, consistency perception and job satisfaction.

Another study carried out in the context of the Turkish business environment, examined the relationship between organisational culture and performance measurement systems in manufacturing enterprises. The relationship was tested empirically. According to the results, firms with a flexible culture are likely to use non-financial performance measures and Performance Measurement System (PMS) for the purpose of organisational attention-focusing and supporting strategic decision-making more than firms which have a controlled culture. However, firms with a controlled culture have a tendency to use PMS for aims such as monitoring and legitimisation more than firms which have a flexible culture (Eker & Eker, 2009). Another work reported by Yusuf, Gunasekaran, and Abthorpe (2004) on the implementation of ERP in Rolls Royce suggested that cultural aspect needs to be addressed before successful implementation of ERP. They briefly outlined that training and education can help in bridging the gap between before and during the implementation.

2.9.2 Culture and change management

What is clear from the definitions mentioned in 2.9 and 2.9.1 is that culture is a social reality created iteratively over a period of time as members of an organisation set a course of action, face problems and opportunities, learn from their experience, communicate that learning to others in the organisation and reinforce the beliefs and behaviour that result in significant improvement in the business.

A flexible culture is suitable for firms in dynamic and instable environments in which they have to respond to continuous change and customer profiles and adapt to conditions swiftly: in such an environment, due to low predictability, a mechanical organisational structure is not suitable for firms (Leana & Barry, 2000). Therefore, the focus of organisations is the idea of a culture of change grafted on theory and management practices. The objective is to change the attitude of the management and employees towards quality control. Crosby (1979) argues that changing a culture involves changing the attitudes and mindsets of people, a time-consuming factor, but necessary as tools and techniques alone cannot achieve the desired change. Accordingly, this view argues for a more commercial approach for the public sector as an abandonment of the traditional pyramid structure of public sector management. The drawbacks of the old approach which is the pyramid structure were identified as: 1) excessively long lines of management with ambiguous responsibility and accountability; 2) lack of incentives and innovation; and 3) a culture that was more concerned with procedures than performance. As a result, public services will gradually move to a culture where the relationships are contractual rather than bureaucratic (Tuchman et al., 1994). In other words, structures, behaviour and values had to be modified and adapted in order to change the culture by orienting it towards behaviours more appropriate to TQM. This means that in order to bring about change in people's behaviour within an organisation, success stories and models have to be introduced to create awareness for change (Garrity, 1993). Therefore, culture within an organisation plays a vital role when considering change, as this factor may cause several hindrances during the process when an organisation intends to change its system.

2.9.3 Culture in Middle East

The Middle East (ME) region is formed of Western Asia and North Africa. The region's language is Arabic, apart from Israel (Hebrew) and Turkey (Turkish), and the main religion is Islam, except Israel which is Judaism. Manufacturing sectors in the ME are significantly influenced by local traditions, culture and customs and, since culture affects management, it is quite reasonable to assume that culture affects organisations in which management exists (Adler, 1991). For instance when there is an excellent relationship between managers and their employees, where their relationship is based on trust and respect, communication channels would allow organisations to better achieve their outcomes as a result. Therefore, it is fair to say that a positive culture has an impact on organisations performance.

In his study of language, culture and management style in the area, Adler repeatedly referred to Hofstede's research on the differences in work behaviours in different cultures. Hofstede found that differences in work-related attitudes and values were more effectively explained and interpreted than other general characteristics such as age, gender, and position, etc. within the organisation. Hofstede used several dimensions to account for values and interests across different cultures such as Power Distance Index (PDI), Individualism versus Collectivism (IDV), Uncertainty Avoidance Index (UAI), Masculinity versus Femininity (MAS) and Long-term Orientation versus Short-term Normative Orientation (LTO) (Hofstede, 1983). Figure 17 illustrates Hofstede's Cultural Model, which shows the Arab countries in three dimensions (PD), (IC) and (UA).

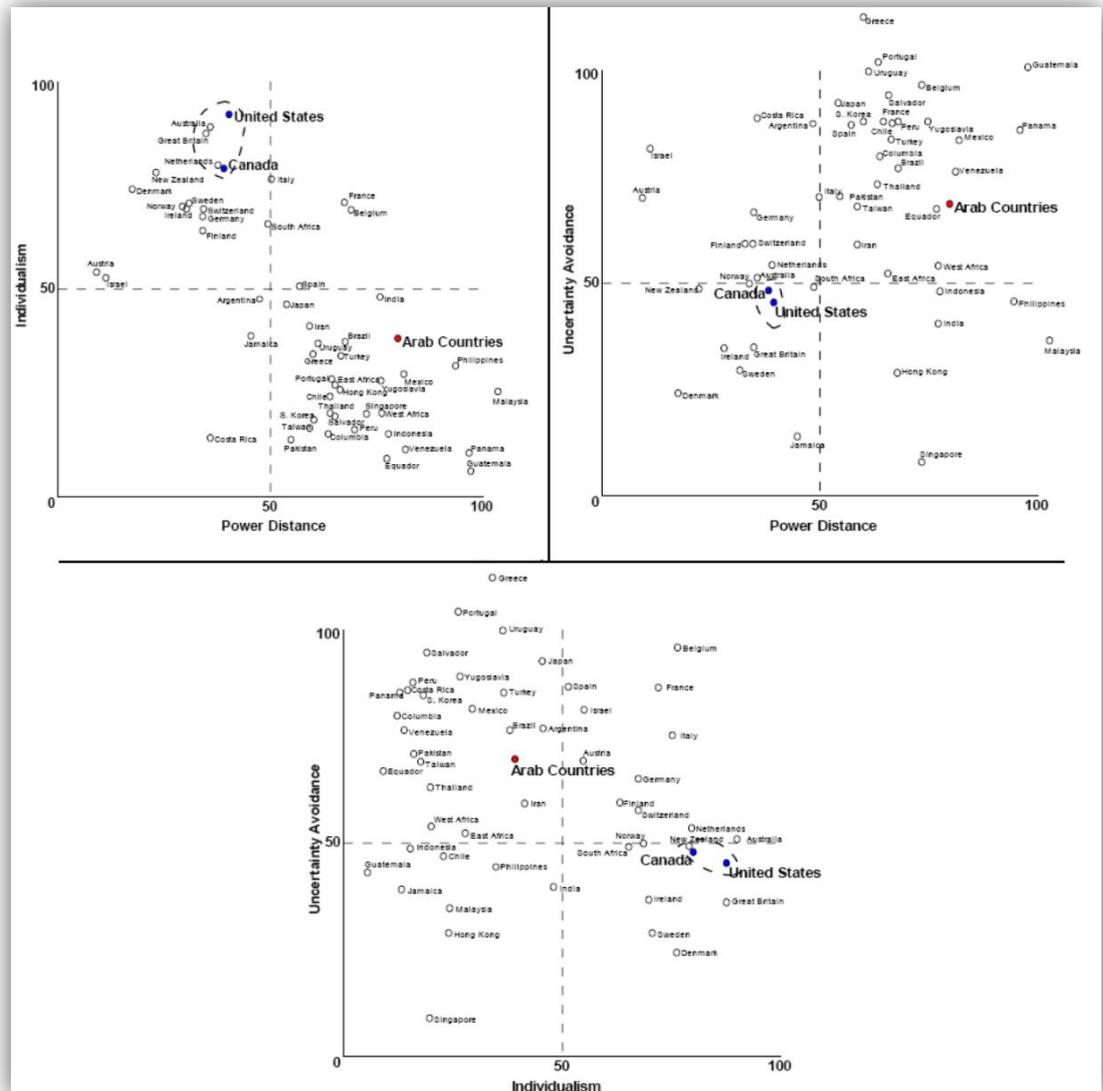


Figure 17: Hofstede's Cultural Model, showing the Arab countries in three dimensions (PD), (IC) and (UA) (Hofstede, 1983)

According to Hofstede (2011) PDI is the ratio to which the less powerful members of society accept that power is distributed unequally. The top right chart in Figure 17 illustrates Arab countries measuring approximately 80% which indicates a high power distance in the above mentioned region. IDV consists of high side and low side dimension namely, Individualism and Collectivism respectively. On one hand, Individualism means the preference in which individuals' main concerns are themselves and their immediate families. Collectivism on the other hand, means the opposite where individuals expect their relatives to prioritise them in exchange for

unquestioning loyalty (Hofstede, 2011). Arab countries scored approximately 38% which reflects that they are socially-oriented. MAS refers to Masculinity versus Femininity, which represents the degree of equal opportunities in terms of gender, where high scores of Femininity indicate a masculine society. Examples of Masculinity can be heroism, assertiveness and rewards for success, whereas Femininity can be quality of life, caring for the weak and cooperation (Hofstede, 2011).

In the Gulf region, there are many factors that affect businesses as well as people when performing tasks and activities. Related to Hofstede's model, the culture of Arab countries is collectivist and masculine, scoring high on both the PDI and UAI dimensions as indicated in Figure 17 (Hofstede, 1983). Arab countries were found to be low on future orientation, socially-oriented, hierarchical, and masculine as shown in Figure 17.

2.9.4 Culture in GCC

Culture is an important player in implementing quality tools, techniques, theories and models (Hall, 1959; Gonzalez & McMillan, 1961; Oberg, 1963; Nowtony, 1964; Hessling & Kannen, 1969; McCann, 1970; Bass & Burger, 1979; Hofstede, 1980; Laurent, 1983; Barney, 1986; Burrell & Morgan, 1988; Abbas et al., 1997; Bardoel & Sohal, 1999; Corbett & Rastrick, 2000; Al-Alawi et al., 2007; Ab Wahid & Corner, 2011; Manager C, interview, August 15, 2012; Abusa & Gibson, 2013b; Abo Alraish, 2014; Al-Ajmi, 2015). Hofstede (1980b) and Hunt (1981) concluded that organisation and management theories and models in Western industrial countries are insensitive to culture differences, and so cannot be applied or applied successfully in the rest of the world without taking culture into account.

The GCC countries, especially the oil producing ones, are classified as developing or third world countries. Language and religion have a major impact on people's life and everything they do. Furthermore, culture and religion are major issues in the GCC region, and are considered to be vital in shaping the management systems, customer relations, employee management and suppliers' relations and commitment (Welsh &

Raven, 2006). Since the exploitation of oil and recent breakthroughs in technology and media, attitudes, values and norms have been changed. This is due to the influence from the West on social, economical, technological and political aspects of life in the Middle East (Atiyyah, 1997). The region has been in a transitional phase since the discovery of oil, which resulted in radical changes in GCC countries in terms of creating more opportunities, revenues and industrialisation (Abbasi & Hollman, 1993). Cunningness is one of the popular features of culture in the GCC region where countries experience modern life while at the same time maintaining traditional values and norms. This can lead to contradictions as the requirements of modern life require the discarding of some traditional values to cope with the constantly changing world (Welsh & Raven, 2006). Fatalism is highly regarded by Arabs, especially GCC nationals, as shown by the frequent use of the phrase of '*Insha'Allah*' ('God willing'). This phrase is strongly linked to religious values and beliefs, however nowadays, people in the Arab world tend to misuse it. For instance, it is sometimes used to signal the possibility of not achieving a task or making a deal when it comes to business. Another example might be the relationship between a boss and his employee where the latter tries to procrastinate doing tasks assigned by his boss (Ali, 1993).

2.9.5 National Culture (Kuwait)

Culture has to be distinguished between national and organisational culture before it can be studied. Hofstede (1991, p. 5) defines national culture as "the collective programming of the mind which distinguishes the members of one group or category of people from another". He also (1980a) introduces a comparison between organisational culture and national culture as cited by Al-Ajmi (2011), assuming that "unique" values are specific to national culture whereas organisational culture is identified by "shared" values within the organisation. He suggests that people share a collective national character that represents their cultural mental programming and this mental programming shapes values, beliefs, assumptions, expectations, perceptions and behaviour (Myers & Tan, 2002).

This study considers culture as a very important factor due to its direct influence on the implementation of QMS (Elfatthaly, 1979). Family commitments and obligations take priority above all else according to Elfaituri (2012) who emphasised that all Arab countries from North Africa to West Asia share the same values due to similarities in language and religion. Similarly in Kuwait, social and business relations are immensely affected by language and religion as well as family connections (Al-Najjar & Jawad, 2011). These three elements are considered to be dominant in the country's culture.

According to the Hofstede (1983) cultural dimension's index, Kuwait scored 90% compared to the USA for the Power Distance dimension; this indicates that people in Kuwait accept the hierarchical order which is seen in organisations as reflecting inequalities and centralisation, Figure 18. However, in terms of the Individualism dimension, the USA outnumbered Kuwait by 66%, which indicates that Kuwait is a collectivistic society where loyalty is paramount (Hofstede, 2011).

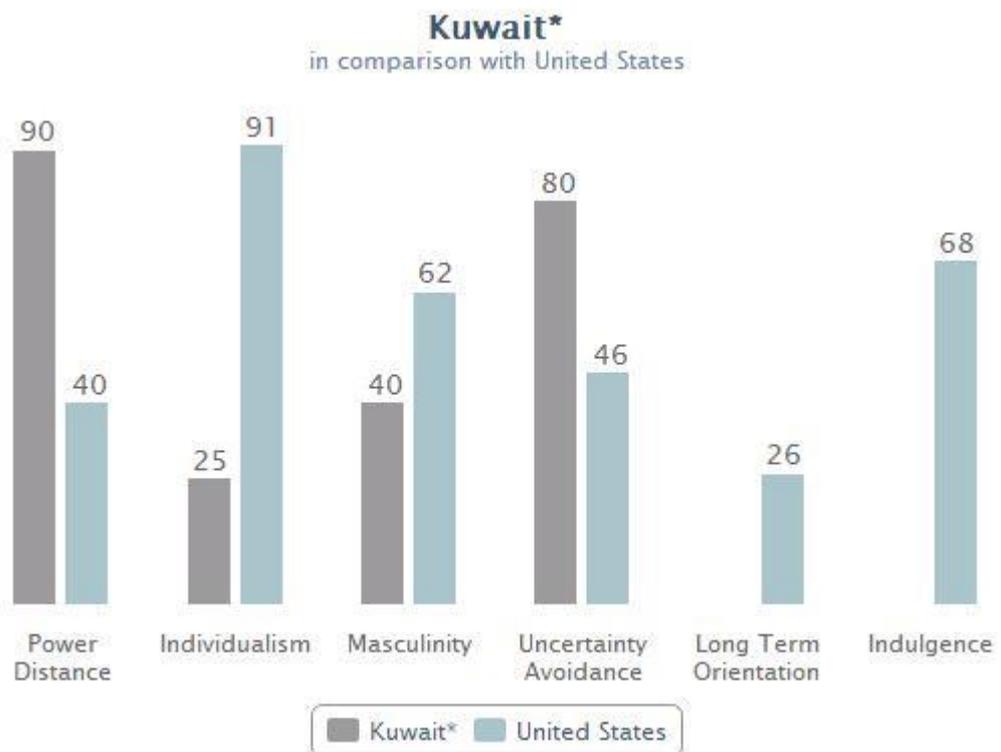


Figure 18: Hofstede's cultural model comparison between Kuwait and the USA (Hofstede, 2011)

Al-Ajmi (2011) disagrees with Hofstede's claim that the Arab cluster has an identical national culture dominated by Islam (Hofstede, 1983). However, Al-Ajmi's findings focus on investigations in the service industry, rather than the manufacturing sector in Kuwait, where his results compromise the findings of Hofstede's cultural model in two dimensions namely, power distance and uncertainty avoidance.

Consequently, it is important to take into consideration the national culture factor when implementing QMS. According to Hofstede's cultural dimensions, Kuwait ranked 35th of 66 countries in his global competitive index where culture was incorporated as a variable.

2.10 Culture models

Cultural models are derived from practices, traditions and beliefs of individuals within society in their normal everyday life (Fryberg & Markus, 2007). Cultural models are found in many literatures (Hall, 1959; Trompenaars & HampdenTurner, 1997; Hofstede, 1980a; Hofstede, 1983; Hofstede, 1998) which focus on investigating national culture. However, the models developed by Denison and Schein with regard to organisational culture are considered as the most effective ones for comprehending organisational culture measurement.

2.10.1 Iceberg model

Herman's iceberg (1970) model is made of two parts illustrating the difference between the visible/formal aspects of an organisation (systems, structures, policies, technologies) the upper half, and the hidden/informal aspects of an organisation (attitudes, beliefs, values, and perceptions) the lower half below the water line as in Figure 19 (Ghinea & Bratianu, 2012).

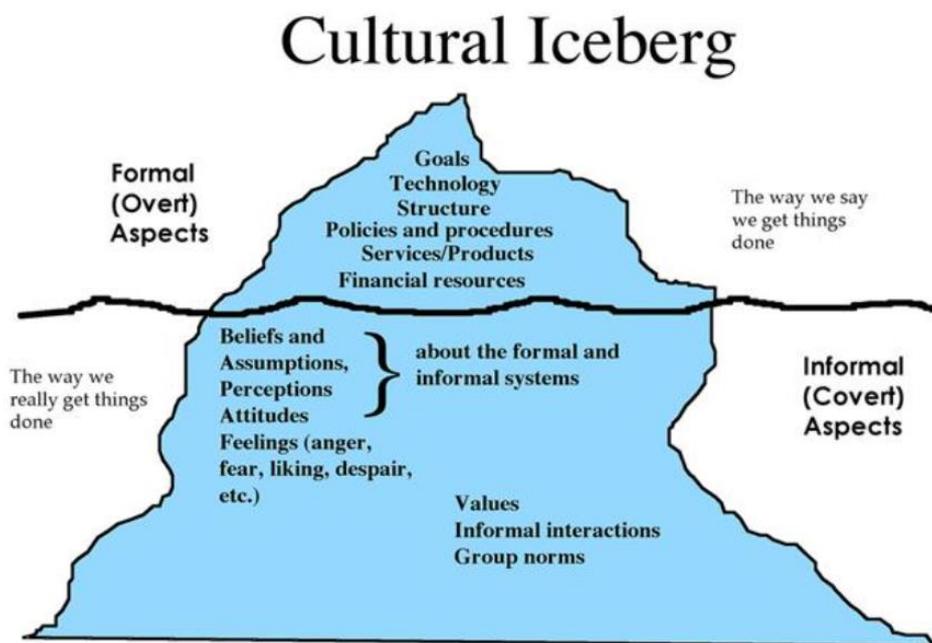


Figure 19: Herman's Iceberg Model of Workplace Dynamics Developed by Stanley N. Herman of TEW systems in 1970 (Ghinea & Bratianu, 2012)

Hence, based on the Iceberg Model, what appears to be "normal" in manufacturing firms may be totally uncommon in other cultures and contexts. Most attributes of manufacturing firms such as customs, values, norms, beliefs, attitudes and assumptions are invisible, 'under the surface', while fewer indicators of culture such as language, ethnicity, religion, artefacts and behaviours are 'above the waterline'. Not only does the majority of culture lie 'under the surface', but what is visible can also be misleading. Therefore, in order to fully understand culture, we need to take a closer look at manufacturing and carry out in-depth investigations on, for example, how culture might enhance/damage firm performance.

The hidden informal dimension of change is often explained by the Iceberg Model: only 10-15% – the formal systems such as products, policies, procedures, etc. – are visible, while the rest, the informal system, such as perception, feelings, attitudes, norms, attitudes and values are below the surface (Bourke, 2001).

Researchers, therefore state that successful change requires a change in values within people's attitudes and behaviour, their basic ways of thinking. Moreover, they state, in this context change initiatives must be translated into implications for each individual who will be affected (Senge et al., 1999; Marshall & Conner, 1996).

2.10.2 Schien's model

Schein come up with an organisational culture model similar to Herman's Iceberg Model. The original 1980s Schein model explains the complexity of organisational culture by dissecting culture into three levels (Schein, 2004).

Schein's model helps in understanding organisational culture at different levels such as artefacts, espoused values and basic underlying assumptions by fully describing the organisational behaviours as norms and relationships between group members (Schein, 2004). Yilmaz describes Schein's model of organisational culture as heuristic, examining different elements of an organisational culture on three integrated levels, resembling the structure of an onion (Yilmaz, 2014).

As illustrated in Figure 20, the first level of Schein's model consists of the physical and social context created by organisational members. The most visible element on this level is the artefacts that are created or displayed by organisational members, and the explicit communication behaviours of organisational members (Schein, 1992). The second level refers to the espoused or official values to which the organisation is expected to adhere (Schein, 1992).

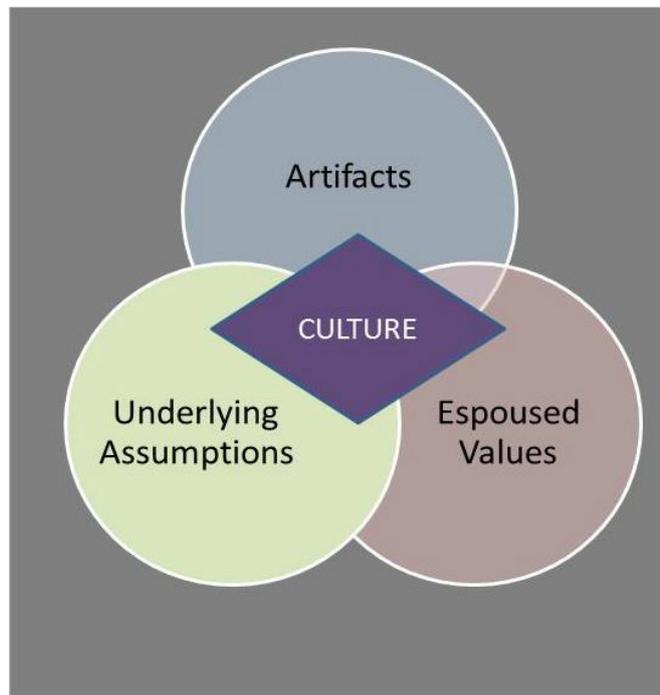


Figure 20: Schein's organisational culture model (Yilmaz, 2014)

This level is labelled 'espoused' values because there might be a discrepancy between the official values of the organisation (i.e., value statements) and the actual manifestation of these values (i.e., observable behaviours) in the organisation (Miller, 2012). It is also the values and beliefs an organisation has adopted, the rules of behaviour and how employees are expected to behave in a given situation. Schein draws attention to the fact that people often recite the values and beliefs defended, however, in practice, employees do not show them (Schein, 2004).

The third level, the underlying assumptions, refers to how individuals in the organisation perceive the world and core principles underlying their world view (Yilmaz, 2014). These constitute the core of the culture. Assumptions cannot be recognised as they are invisible which makes it hard for management to perceive what their employees are thinking of in terms of their work attitude and performance. In other words, it is not easy to take actions or have reliable impressions of people by considering their language, region and religious backgrounds. Despite Schein's suggestion that organisational culture can be studied at one of three levels, if the underlying assumptions are not handled properly, poor possible interpretation artefacts and values can occur (Schein, 2004). Since Culture rests in the underlying

assumptions, these underlying assumptions should be understood in the first place then investigated in order to determine the visible levels of culture within an organisation.

Schein's Model of Organisational Culture offers a practical heuristic to identify and analyse various elements of organisational cultures (Miller, 2012). His model is found to be more about observing than collecting data. The model explains that artefacts and behaviours are the visible elements, tangible or verbal openly in the organisational, such as construction, furniture, dress code and language. Although they are greatly visible within an organisation, they are sometimes difficult to use to decipher the quality culture (Schein, 2004).

As a result, the author believes adopting Schien's model on its own would not be enough to successfully measure how far the organisation is from successful implementation of quality.

2.10.3 Denison's Model

This culture model, which is considered to be a pragmatic model, depends on feedback from the organisation as a whole. This enables leaders to identify the shortcomings within the organisation before implementing any change. Furthermore, the model enables top management to measure their organisational weaknesses and strengths before they start looking for any solutions or changes. According to Denison and Mishra, organisational culture is measureable and can be related to the organisational outcomes.

It can be measured based on four variables namely involvement, consistency, adaptability, and mission (Denison & Mishra, 1995).

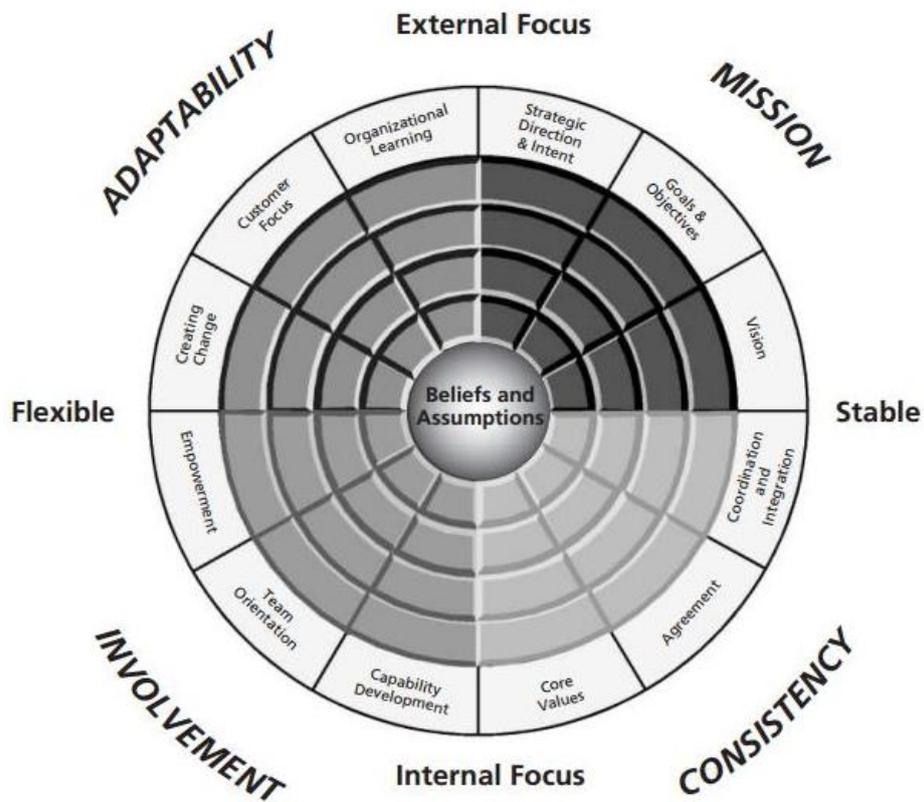


Figure 21: Denison's culture model (Denison et al., 2004)

Denison's model differs to Schein's, where beliefs and assumptions are the core of culture. For example, how people behave, what stories are told. It could be argued that they are of marginal importance compared with, for example, the hierarchy of the organisations and how the work is organised, managed, and implemented (Denison, 1996).

The significant aspect of the above-mentioned difference is recognition; there are different layers of culture. The first two models discussed, Iceberg Model and Schein model, do not adequately illustrate the relationship and integration between the layers, representing the layers as separate, as having no influence over the other (Denison, 1996).

For example the models cannot explain how leaders influence middle managers to carry out the firm's goals and objectives. Hence, the use of models using integrated circular rings of representations began to emerge in the literature, illustrating and

demonstrating maturity in understanding the integration and influence of the different layers in the culture of an organisation.

Denison's model may not be efficient enough by itself to understand the quality culture, as it is important to identify the variables that can affect QMS implementations before attempting change.

2.10.4 Lewis model

Richard D. Lewis developed a model that classifies culture into three distinct categories: linear-active, multi-active and reactive. Understanding other cultures will assist in understanding how culture in Kuwaiti manufacturing sector, for example, can be compared to other firms in other parts of the world; promote harmony in inter-cultural relations; how their communication styles are taken into account by their management and learn to adapt to various reactions (Lewis, 2006).

Figure 22 shows that Kuwait is classified in the upper part of the multi-active-reactive section. In linear-active countries people tend to be task-oriented, highly organised planners who accomplish their tasks one at a time (Lewis, 2006).

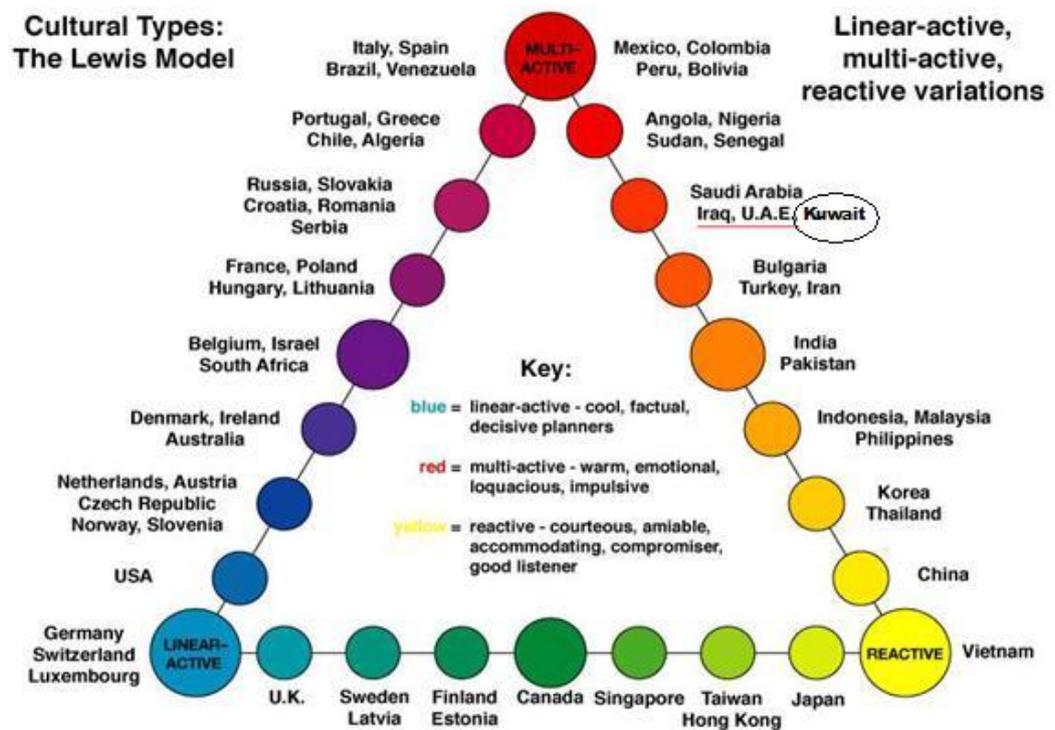


Figure 22: Lewis model, Cultural Characteristics (Richard Lewis Communications Group, 2013)

Nevertheless it is important to consider that many cultures are a mix of cultures, but are still set in one category (Richard Lewis Communications Group, 2013). Table 6 shows the three categories and their characteristics.

Linear-active	Multi-active	Reactive
Talks half of the time	Talks most of the time	Listens most of the time
Does one thing at a time	Does several things at once	Reacts to partner's action
Plans ahead step by step	Plans grand outline only	Looks at general principles
Polite but direct	Emotional	Polite, indirect
Partly conceals feelings	Displays feelings	Conceals feelings
Confronts with logic	Confronts emotionally	Never confronts
Dislikes losing face	Has good excuses	Must not lose face

Rarely interrupts	Often interrupts	Doesn't interrupt
Job-oriented	People-oriented	Very people-oriented
Sticks to facts	Feelings before facts	Statements are promises
Truth before diplomacy	Flexible truth	Diplomacy over truth
Sometimes impatient	Impatient	Patient
Limited body language	Unlimited body language	Subtle body language
Respects officialdom	Seeks out key person	Uses connections
Separates the social and professional	Interweaves the social and professional	Connects the social and professional

Table 6: Characteristics of the Lewis classification (Richard Lewis Communications Group, 2013)

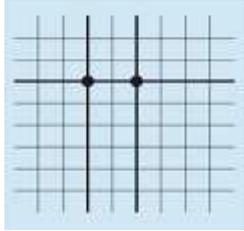
Manufacturing firms in Kuwait tend to fall between multi-active and reactive. People tend to talk most of the time and do several tasks at once, and managers might be affected by emotions and displays of feelings. Due to culture, people offer good excuses and often interrupt. When managers take into account the importance and diversity of communication across different cultures, then they will be more likely to succeed in their negotiations. Relating this to the context of manufacturing companies in Kuwait, people might get emotional when making decisions.

As a result with the above mentioned phenomenon related to culture, this study adopted Lewis's culture model. Quantitative and qualitative investigation will be carried out in order to further explain the impact of culture on the business performance of manufacturing firms in Kuwait.

2.10.5 Charles Handy's model

Handy proposes a simple model for classifying cultural aspects into four organisational cultures; power, role, task and person culture. This model describes the different organisational cultures present by relating the culture to an organisational

structure, making the task of identifying an organisation's culture easier to comprehend than other approaches. Handy pointed out not only that describing something as abstract as culture without a specific diagram is a complicated task, and also emphasised the fact that organisational culture and organisational structure are interrelated. Omotola and Oladipupo have noted that Handy's framework is used by many scholars to link organisational structure to organisational culture (Omotola & Oladipupo, 2011). This framework is described in detail in Table 7.

Type of culture	Culture illustration	Description
Power culture		<p>Power culture can be illustrated by a spider web, because the key of the organization sits in the centre, surrounded by circles of intimates and influence. Control emanates from the centre of the web, and there is little bureaucracy and rules in place. Organisations that depicted power culture may respond quickly to events, but decision making will be made by those closer to the centre of the web. This type of culture is usually present in small entrepreneurial organisations and political groups, but will often disband as the organization grows.</p>
Role culture		<p>The main theme of role culture is individuals have clearly delegated authorities within a highly defined structure. It is illustrated as a building supported by columns and beams, each column and beam as important as the next. In this culture, individuals are the role occupants, and the role continues even if the individual leaves. Rules and procedures are of high importance in this culture. Role culture is usually present in the public sectors bodies.</p>
Task culture		<p>The task culture is depicted as a net, with some of the strands thicker than others, and knots are present at the interstices of the net. These knots represent the point of power and influence within the organization. This culture relies on the unifying power of the group to improve efficiency and to help the individual identify with the objectives of the organization. In this culture, teams are formed to solve particular problems, and therefore this culture is often present in matrix or project-based structured organisations.</p>

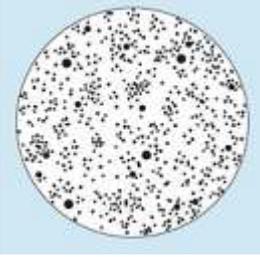
<p>Person culture</p>		<p>The person culture exists in organisations where all individuals believe themselves superior to the organization. The individual is the focal point of this culture, the organization merely exists to serve and assist the individual within it to further their own interests without any overriding objective. Professional partnerships involving consultants or experts may operate as person cultures, because each of the partners brings a particular expertise and clientele to the firm.</p>
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Table 7: Charles Handy's model (Omotola & Oladipupo, 2011)

The important aspect of the model described by Charles Handy, there are some companies where power remains in the hands of only a few people who are allowed to make decisions. They are the ones who enjoy special privileges in the workplace. In such a culture, subordinates have no choice but to strictly follow the instructions of their superior. Employees do not have the freedom to express their opinions and share ideas in an open forum and have to follow what their manager says. Managers in such type of culture can sometimes be biased to certain groups which can lead to unrest among others (Mubin et al., 2014). Organisations are establishments where teams are formed to achieve objectives or solve critical problems, following the cultivation of different tasks. In these organisations, people with common interests and specialisations, work together as a team. In such a culture, it is expected that each team member contributes equally and performs tasks in the most innovative way (Mahaela, 2009).

There are some organisations where employees feel they are more important than the organisation. These organisations follow a culture known as the culture of the person. In a culture of the person, people are more concerned about their own selves rather than the organisation. The organisation of such a culture takes a back seat and suffers thereafter. Employees come to the office just for the love of money. They are rarely loyal to management and never decide in favour of the organisation.

The role of culture is to create an environment where every employee is assigned roles and responsibilities according to their specialisation, qualification and interest. In such an environment, employees can take decisions and undertake challenges willingly. As a result, Power comes with responsibility in such work culture.

This framework by Handy also strengthened the relationship between organisational culture and organisational structure (Handy, 1985). For example, the role and cultures of the task in this model reflects similarly to the hierarchical structures and the matrix, respectively. It also highlights how organisational culture closely related and the structure is and how leadership within an organisation influences the type of culture of an organisation, which was also noted by Schein (Schein, 1986).

2.10.6 Hofstede's model

Hofstede established a culture model which includes four dimensions namely power distance index, individualism versus collectivism, uncertainty avoidance index and masculinity versus femininity. Long-term and short-term orientation as the fifth dimension was then introduced to analyse different cultures in different places. Minkov (2011) further introduced the sixth dimension of culture after using data from the World Values Survey to further analyse the effect of culture in different countries. Initially, it was based on four fundamental issues in human societies, exploring how national cultures differ and revealing the unexamined rules by which people in different cultures think, feel, and act in business, family, schools and organisations (Hofstede, 1980a).

Power distance can be defined as "the extent to which the less powerful members of institutions and organisations within a country expect and accept that power is distributed unequally" (Hofstede, 1980a). The model explains that inequality within a society is visible in the existence of different social classes.

Within this dimension, power is normally distributed equally among all despite hierarchical differences. Thus, every individual equally benefits in the organisation. Thus, power distance index refers to the differences in the work culture as per the power delegated to the employees, according to the hierarchy in organisations (Hofstede, 1980a). Within the dimension 'Masculinity vs. Femininity', there are differences between male and female values when it comes to the culture of the organisation (Hofstede, 1980a).

In terms of the dimension termed 'Individualism', it reflects a case where some organisations strongly rely on team work. Within this dimension organisations believe that the output is always greater when individuals exchange ideas and discuss things among themselves to come out with innovative ideas.

'Uncertainty avoidance' refers to cultural values where employees respond in a certain way to unusual and unforeseen circumstances. It involves the tolerance level of the employees in both comfortable and uncomfortable situations. Here organisations prepare employees for such situations and also aid them to adjust well in any given condition (Hofstede, 1980a).

Finally, when it comes to the 'long term orientation', it reflects how organisations focus on longer term relationships with its employees. People in organisations believe in loyalty and strive to live up to the expectations of the management. Here employees are more concerned with their position and image, where they follow a culture which is short-termism and less is done to retain them. Moreover, employees here are concerned only with profit motives and quit as and when they get an external opportunity (Hofstede, 1980a).

2.11 Quality Models

The following section presents different quality models such as EFQM, SERVQUAL, MBNQA and TQM, which have been found to be vital for manufacturing firm success.

2.11.1 European Foundation Quality Model (EFQM)

The European Foundation for Quality Management's (EFQM) award for excellence was launched in 1992. The EFQM Excellence Model was then revised in 1999, and updated slightly in 2003, to take account of current thinking, practices and working

environments. The model was adapted in its 2003 version for many manufacturing context (Xie et al., 2014).

Its criteria are now widely used for systematic review and measurement of operations. The model demonstrates that processes are the means by which an organisation utilises the talents of its workforce to achieve desirable results (Al-Jalahma, 2012). Moreover, improvement of the processes can result in improvement of the performance of an organisation. The model is meant to be a self-assessment tool covering business results, customer satisfaction, leadership, processes, people management, people satisfaction, resources, policy and strategy, and impact on society. The criteria for these quality awards play an important role in promoting and rewarding quality and business excellence and encourage competition.

In addition, comparisons of results with internal targets, competitors, or similar “best in class” organisations enable companies to prioritise and drive improvements (Iqbal et al., 2014).

The fundamentals of quality awards are almost the same because they all represent the TQM philosophy; however in different countries quality awards do differ from each other. In lesser developed countries these awards give less attention to features like social responsibility and more to leadership, whereas in Europe, the model is weighted more towards to social impact and human resource management. The EFQM model assumes that any organisation regardless of its sector, size, structure etc. should have a functional management system to be successful. Consequently, EFQM can be used as an instrument to reform the management system of an organisation by conducting self-assessment (Gomez & Gomez, 2010).

The EFQM model is a non-prescriptive model which consists of nine criteria split into two sections; five are enablers (how tasks are done in an organisation), and four are

results (what has been achieved by an organisation) as illustrated in Figure 23.

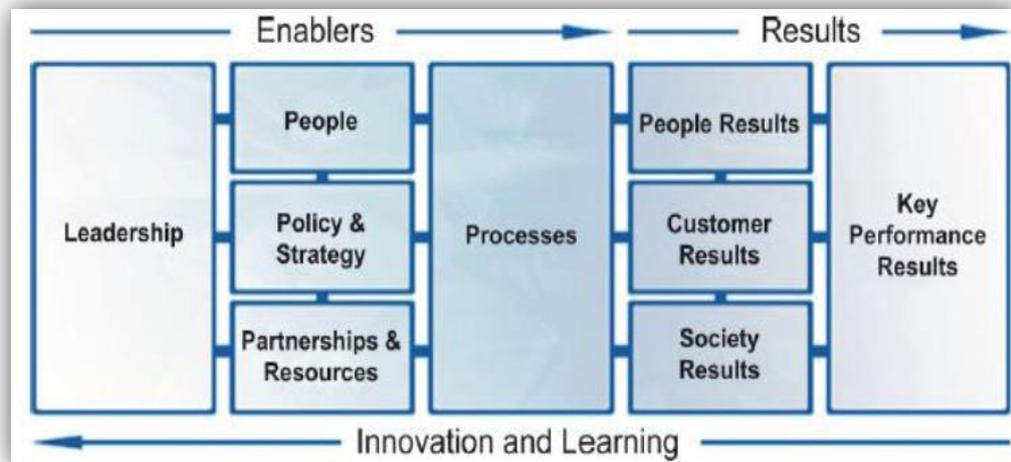


Figure 23: The EFQM Excellence Model (Eskilden, 2001)

The model can enable its users to achieve sustainable excellence if it is implemented after understanding each element of the model. Arrows mean innovation and learning are sustainable, facilitating the improvement of enablers which leads the organisation to achieve better results (Gomez & Gomez, 2010).

The meaning of each criterion is summarised in Table 8.

Criterion	Definition
Leadership	Excellent leaders develop and facilitate the achievement of the mission and vision. They develop organisational values and systems required for sustainable success and implement these via their actions and behaviours
Policy and strategy	Excellent organisations implement their mission and vision by developing a stakeholder focused strategy that takes account of the market and sector in which it operates. Policies, plans, objectives and processes are developed and deployed to deliver strategy
People	Excellent organisations manage, develop and release the full potential of their people at an individual, team-based and organisational level. They promote fairness and equality and involve and empower their people
Partnerships and resources	Excellent organisations plan to manage external partnerships, suppliers and internal resources in order to support policy and strategy and the effective operation of processes

Processes	Excellent organisations design, manage and improve processes in order to fully satisfy, and generate increasing value for, customers and other stakeholders
Customer results	Excellent organisations comprehensively measure and achieve outstanding results with respect to their customers
People results	Excellent organisations comprehensively measure and achieve outstanding results with respect to their people
Society results	Excellent organisations comprehensively measure and achieve outstanding results with respect to society
Key performance results	Excellent organisations comprehensively measure and achieve outstanding results with respect to the key element of their policy and strategy

Table 8: EFQM excellence model criteria definitions (EFQM, 2003)

The most important benefit that the organisations can achieve by applying the EFQM model is identifying the organisation's and its employees' strengths and weaknesses, which would assist the organisation with its improvement plans (Tajri, 2005).

The study of the relationships between the elements of the EFQM Excellence Model must take into account two main issues. Firstly, how the enabler and result criteria are interrelated and to what extent an integrated approach should be adopted (Flynn et al., 1994). Secondly, the model presupposes an association between the enablers and the results, since excellence in the enablers will be visible in the results (Moeller et al., 2000). Consequently, the causal relationships within and between both domains emerge as important aspects to be analysed (Bou-Llusar et al., 2005). Some of the research studies revealed that the EFQM model achieves better results in the private sector such as manufacturing enterprises than the public sector (Sadeh Ehsan, 2010; Gomez & Gomez, 2010; Yaqoubi, 2011).

Overall, the EFQM model leads organisations to organisational excellence by identifying the areas which require improvement (with regard to continuous improvement), and their strengths and weakness through conducting the self-assessment tool in their organisations. Then these improvement areas and strength points will be integrated in company's strategic plans in order to eliminate the

weaknesses and keep the improvement at a continuous pace (Vaxevanidis et al., 2006).

2.11.2 SERVQUAL

The SERVQUAL model was proposed and developed by Parasuraman et al. (1985, 1988, 1990, 1991 & 1994). According to Kilbourne, in real life, every type of service will have factors which are more important than others and this depends on the environment and its characteristics (Kilbourne et al., 2004). The five dimensions are assurance, empathy; reliability, responsiveness, and tangibility (see Table 9).

SERVQUAL is a 45-item instrument that measures customers' perceptions and expectations of service quality. It is divided into three parts. The first section (items E01 to E22) measures the customer's expectations with respect to an excellent provider of the service being studied. The second section (items P01 to P22) measures the customer's perceptions with respect to the current service provider. The last part is a single question regarding the customer's assessment of the overall service quality provided. There are five dimensions underlying each of the items. They are tangibles, reliability, responsiveness, assurance and empathy (caring, the individualised attention the service provider gives its customers). Service quality gap measures (items G01 to G22) were scored by subtracting responses of perceived items from expected items (i.e. item G01 = P01 – E01) (Watson et al., 1998).

Choudhury suggests in his study that consumers differentiate between four dimensions of service quality – attitude, competence, convenience and tangibles (Choudhury, 2007). The results of Kilbourne's study, evaluates the initiatives firms' managers take in order to increase the skills of employees and thereby bring about a culture of customer service.

Dimension	Description
Tangibility	Introduction of physical facilities, equipment, personnel, printed and visual materials. Does the service provider have physical installations, equipment, people and communication?

Reliability	How consistent and certain is a company in terms of performance. This is the most important dimension for the consumer of services. Is the company reliable in providing the service? Does it provide as promised?
Responsiveness	The employee's initiative and willingness to help customers and to provide prompt service. Are company employees helpful and capable of providing fast service?
Assurance	Knowledge and courtesy of employees and their ability to inspire trust and confidence among customers. Are the employees well-informed, educated, competent and trustworthy?
Empathy	Is the firm giving caring, customised and individual attention to customers? How does a firm appreciate its customers? Does the service company provide careful and personalised attention?

Table 9: Service Quality dimensions (Kilbourne et al., 2004)

Several authors have suggested other different sets of dimensions over the years (such as Vriens (2000) and Rajpoot (2004)). However, this research will only look at the ones mentioned here as this type of model does not suit manufacturing industries and will not be used in the comparison section with MBNQA and EFQM models due to the developing criticisms such as failing to draw on established economic and psychological theory, focusing on the process of service delivery and not the outcomes of the service encounter and that SERVQUAL is based on a disconfirmation paradigm rather than an attitudinal paradigm (Buttle, 1996; Watson, et al., 1998).

2.11.3 Malcolm Baldrige National Quality Award (MBNQA)

The Malcolm Baldrige National Quality Award (MBNQA) was introduced in 1987 by the US Department of Commerce for US-based organisations (Bou-Llusar, 2009). The main objectives of the award as cited by Iqbal et al. (2014) are:

- To encourage companies to improve productivity and quality;

- To recognise the achievements of those companies to improve the quality of their goods and services and;
- To establish guidelines and criteria that can be used by any organisation in evaluating its own quality improvement efforts.

The growing need for guidelines and standards for TQM implementation forced countries to develop models for self-appraisal and for identifying and addressing quality issues (Vaxevanidis et al., 2006). The criteria used for the award incorporates all major elements of TQM and is often referred to as a de facto definition of TQM (Dale, 2002; Reiman, 1989).

The MBNQA's framework is formed of the following seven independent quality criteria (NIST, 2010): leadership; strategic planning; customer/market focus; process management; human resource focus; measurement/analysis; and results. According to Lee et al. (2006) and Lama et al. (2008), the criteria can be explained and summarised as follows:

- Leadership leads to motivation for continuous improvement, guidance, organisational values, and directions;
- Strategic planning ensures the link between quality planning and organisational strategy and results in actions plans, priorities, and required resources;
- Customer/market focus results in knowledge regarding current and future customers and markets;
- Measurement/analysis identifies scope, validity, and management of relevant data and information;
- Human resource focus develops, empowers, and rewards employees;
- Process management evaluates approaches to create value and manage quality;
- Results represents an overall score that includes results related areas such as customer focus, products and services, financial outcomes, and market shares.

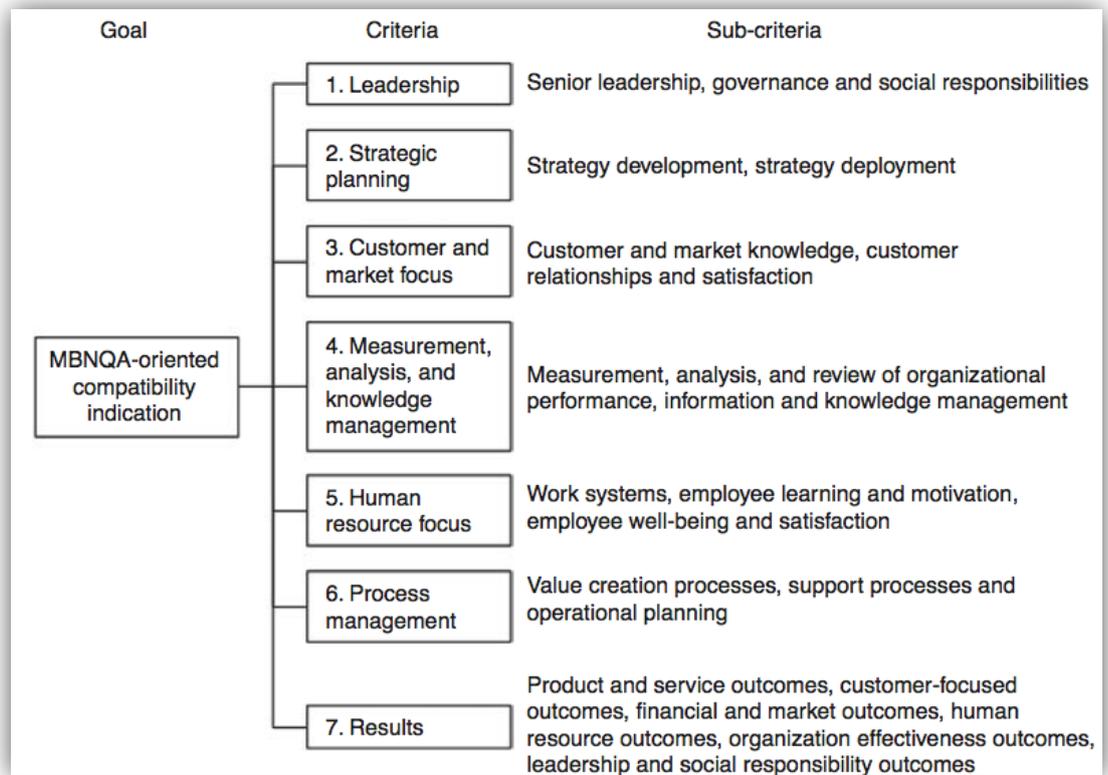


Figure 24: MBNQA criteria (Lama et al., 2008)

The award criteria categories, sub-categories and the point values are further summarised in Table 10.

Categories/Items	Point values
1. Leadership	120
1.1 Organisational leadership	80
1.2 Public responsibility and citizenship	40
2. Strategic planning	85
2.1 Strategy development	40
2.2 Strategy deployment	45
3. Customer and market focus	85
3.1 Customer and market knowledge	40
3.2 Customer relationships and satisfaction	45

4. Information and analysis	90
4.1 Measurement and analysis of organisational performance	50
4.2 Information management	40
5. Human resource focus	85
5.1 Work systems	35
5.2 Employee education, training, and development	25
5.3 Employee well-being and satisfaction	25
6. Process management	85
6.1 Product and service processes	45
6.2 Business processes	25
6.3 Support processes	15
7. Business results	450
7.1 Customer focused results	125
7.2 Financial and market results	125
7.3 Human resource results	80
7.4 Organisational effectiveness results	120
Total points	1000

Table 10: MBNQA items point values (2005) (source <http://balbridge.org>)

Different organisations have understood the necessity to measure themselves against the Baldrige model which aims to identify the areas for improvements both internally and externally. As per Iqbal et al. (2014), a lot of organizations use the Baldrige criteria for the purpose of benchmarking, however, only few organisations apply for the award.

2.12 EFQM and MBNQA Models Comparison

This section compares two different quality models which have been used in manufacturing: the Malcolm Baldrige National Quality Award (MBNQA) model in the USA and the European Foundation for Quality Management (EFQM) model in Europe. SERVQUAL has been dismissed by the author due to criticisms by many researchers (Dick & Juan, 2013; Buttle, 1995; Williams, 1998; Ladhari, 2009). He also believes, after reviewing the literature that SERVQUAL best serves the service industries rather than manufacturing.

The comparison of the MBNQA and EFQM models will shed light on three dimensions that describe and explain their structure (Al-Tabbaa et al., 2013). The dimensions include:

- (1) The core principles of TQM;
- (2) The remaining criteria not covered by TQM principles; and
- (3) The core values and concepts that underpin the models' criteria.

Table 11 and 12 illustrate the differences between the two models with the use of percentage calculations as described by Bou-Llusar et al. (2009).

Dimension for comparison (TQM core principles)	The MBNQA model	The EFQM model
Leadership	Leadership (12%)	Leadership (10%)
Customer focus	Customer focus (8.5%)	Customer results (20%)
Human resources management	Workforce focus (8.5%)	People (9%), people results (9%)
Process management	Process management (8.5%)	Processes (14%)
Continuous improvement	Measurement, analysis and knowledge management (9%)	Not specified, however, the model-flow supports the learning and innovation process

Table 11: Comparison between the EFQM and MBNQA main criteria (Bou-Llusar et al., 2009; Dror, 2008; Oakland, 2003)

Dimension for comparison	The MBNQA model	The EFQM model
Other models' criteria	Strategic planning (8.5%)	Policy and strategy (8%)
	Not specified, although this can be covered by the "results" criterion	Society results (6%)
	Results (45%)	Key performance results (15%)
	Not specific	Partnership and resources (9%)

Table 12: Comparison for the EFQM and MBNQA models (other criteria)
(Bou-Llusar et al., 2009)

The EFQM model has been developed with the aid of TQM principles which implies that leadership is the driving force that makes other elements of the model work (Gomez et al., 2011).

The studies that analysed quality award models focused on examining their internal structure (see Table 13 & Table 14), adopting a causal approach and testing only isolated organisations between certain criteria while ignoring the interrelationships between all their dimensions; or a factorial approach, when all the elements of the model are inter-correlated, which shows the existence of a common approach to implementing a QMS initiative. However, with the exception of the Curkovic et al. (2000) study for the MBNQA, none of them have analysed whether the internal structure of the models matches the definition of TQM (Bou-Llusar et al., 2009).

Authors	Award	Main purpose of the paper	Main relations found
(Winn & Cameron, 1998)	Malcolm Baldrige National Quality Award 1992	To examine the validity of the proposed relationships among the MBNQA dimensions using data from higher education	They did not validate the all the relationships in the Baldrige framework, and they use exploratory analysis to derive an alternative model that was statistically significant. They present a framework showing the direct effects of leadership on each of the four system dimensions and conclude that leadership affects the results by mediating effects through the system dimensions
(Curkovic et al., 2000)	Malcolm Baldrige National Quality Award 1997	To assess the MBNQA in terms of its ability to capture the major dimensions of the unobserved variable known as TQM	MBNQA criteria could be summarised into 4 constructs: TQM strategic systems, TQM operational systems, TQM information systems, TQM results. TQM is a second order construct that captures the relationships between the four constructs of the MBNQA Wilson and Collier (2000) Malcolm Baldrige National Quality Award 1995 Causal To empirically test the relationships between the Baldrige Award constructs The underlying theory of the MBNQA is supported. Leadership is the most important driver of system performance and affects financial results through systems elements. Information and analysis is the second most important category. Process management affects customer satisfaction much more than it does financial results

(Meyer & Collier, 2001)	Malcolm Baldrige National Quality Award Health Care Criteria 1995	To test the causal relationships in the MBNQA Health Care Pilot Criteria. A measurement model is also validated	Leadership is a driver of all components of the Baldrige System (information and analysis, strategic planning, human resource development and management, and process management). Leadership and information and analysis are linked with organisational performance resources; while human resource development, management and process management link with customer satisfaction
(Pannirselvam & Ferguson, 2001)	Malcolm Baldrige National Quality Award 1993	To analyse the validity of the proposed relationships between the categories in the MBNQA, modifying the framework, separating customer focus and satisfaction into two separate constructs	Leadership significantly directly or indirectly affects all of the systems constructs, except for strategic quality planning and information management, which was not tested in the model. The results also indicate that information management, human resources management and customer focus have a significant effect on customer satisfaction and business results. A strong focus on customers and employees, in addition to effective leadership and information management is clearly shown to be essential for organisation success
(Flynn & Saladin, 2001)	Malcolm Baldrige National Quality Award 1988, 1992, 1997	To test the relationships between constructs underlying categories of the MBNQA in 3 editions of the model, and to assess its development	They found that each of the three models was relatively strong, indicating that the Baldrige frameworks all include robust relationships
(Goldstein & Schweikhart, 2002)	Baldrige Health Care Criteria 1999	To investigate the extent to which the improvement in the 6 first Baldrige criteria leads to improved results	Significant relationships exist among Baldrige categories 1 through 6 (leadership; strategic planning; focus on patients, other customer and markets; information and analysis; staff focus; process management) and each of the 5 results

			between category 7 organisational performance results (patient and customer satisfaction; health care results; financial and market results; staff and work system results; organisation-specific results)
(Ghosh et al., 2003)	Malcolm Baldrige National Quality Award 2000	To propose and test a structural equation model that empirically validates the relationships between categories of the award	Results support the theory underlying the Baldrige award. Leadership is critical in securing a customer and market focus and strategic planning. Customer and market focus is a crucial input to strategic planning. Strategic planning, mediated by the use of information and analysis and by human resources focus, is the driver of process management. Business results are the outcome of this planning process
(Lee et al., 2003)	Adapted the MBNQA 2001 as 7 quality management dimensions	To test the link between MBNQA criteria and performance. A survey instrument was developed based on the specific criteria of the MBNQA	The modified model supports the general theory behind MBNQA criteria. Better quality results can be challenged through “within the-system” quality drivers and quality information and analysis
(Badri et al., 2006)	Baldrige Education Criteria for Performance Excellence Model 2004	To empirically test the causal relationships in the MBNQA Education Performance Excellence Criteria and to develop a comprehensive measurement model	Leadership is identified as a driver for all components in the Baldrige System, including measurement, analysis and knowledge management, strategic planning, faculty and staff focus and process management. All Baldrige components are significantly linked with organisational outcomes as represented by two categories: organisational performance results, and student, stakeholder and market focus

Table 13: Previous empirical studies on the internal structure of MBNQA model (Bou-Llusar et al., 2009)

Authors	Award	Main purpose of the paper	Main relations found
(Dijkstra, 1997)	Dutch adaptation of the EFQM framework	To analyse the empirical internal structure of the enabler variables	The enablers have a common latent factor that causes the positive associations between them
(Eskildsen, 1998)	EFQM Excellence Model 1994	To describes a quantitative measurement tool which can provide management with insightful knowledge with regard to TQM practices	Suggest relationship between people, processes, people results and key performance results
(Eskildsen & Dahlgaard, 2000)	EFQM Excellence Model 1999	To construct a model for employee satisfaction by comparing the EFQM Excellence Model and Hackman & Oldham's Work Design Model	Suggest some linkages between the five-enabler criteria and people results
(Prabhu et al., 2000)	EFQM Excellence Model 1997	To review any possible associations between a company's willingness to implement TQM related practices and its resulting impact on the company's performance	Demonstrated three partial linkages: (a) people and people results; (b) leadership and customer results and (c) people-related issues on operational performance measures (key performance results)
(Eskildsen et al., 2000)	EFQM Excellence Model 1999	To analyse the relationships between the 9 criteria of the EFQM Excellence Model theoretically and then test these relations empirically	Leadership affects People, Policy and Strategy, and Partnerships and Resources. People, Policy and Strategy, and Partnerships and Resources affect Processes. Moreover, People affect People Results, and Partnerships and Resources influences Society Results. Processes affect People Results, Customers Results, and Society Results. People results and Customers results affect Key Performance Results

(Reiner, 2002)	Austrian Quality Award (comparable to the EFQM Excellence Model)	To analyse the dependences between the EFQM criteria	There is a direct dependence between the criteria. Confirms the central position of Policy and strategy criterion and the interrelationships between the enabler criteria, and between the result criteria. There is no direct relationship between Processes and Customer satisfaction or between People management and People satisfaction
(Bou-Llusar et al., 2005)	EFQM Excellence Model 1999	To provides new insight and understanding of the associations between the EFQM criteria	Focus on the interrelationship between all the elements in the EFQM Excellence Model and conclude that the enablers factor, as a whole, improve results

(Calvo-Mora et al., (2005)	EFQM Excellence Model 2003	To analyse the validity and predictive power of the EFQM Excellence Model adapted to the university sphere and to test the relationships implicit in this model	Establishes the relationship (two by two) between the EFQM criteria (result criteria are adapted to university context). The leadership and commitment of the management have a positive influence on people management, policy and strategy and partnerships and resources. Policy and strategy have a positive influence on people management, partnerships and resources and process management. People management has a positive influence on process management. Partnership and resources have a positive influence on process management. Process management has a positive influence on people results and the centre results. People results have a positive influence on the centre results and the student results. Student results have a positive influence on the centre results. The centre results have a positive influence on social results
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Table 14: Previous empirical studies on the internal structure of EFQM model (Bou-Llusar et al., 2009)

Both the MBNQA and EFQM model approaches have the same objective, which is to establish a set of criteria that are used to assess organisational quality and excellence and to recognise role model performance through their award process (Vaxevanidis et al., 2006). They emphasise the application of the criteria as a tool for self-assessment in order to identify strengths and areas for improvement.

Dimension	MBNQA	EFQM
Objectives	<ul style="list-style-type: none"> • To help improve performance practices and capabilities. • To facilitate communication and sharing of best practices among U.S. organisations. • To serve as a working tool for understanding and managing performance, planning, training and assessment. 	<ul style="list-style-type: none"> • To stimulate and assist European organisations in improving customer and employee satisfaction, impact on society and business results. • To support European managers' efforts to initiate total quality management and achieve global competitive advantage.
Quality principles	<ul style="list-style-type: none"> • Companies must have direction and customer focus. • Quality and performance are judged by customers. • Organisational and personal learning are required. • Employees and partners are vital to company success. • Success requires capacity for change and flexibility. • Market leadership requires a future orientation. • Making meaningful change requires innovation. • Management requires factual analysis. • Public responsibility is important. • Performance measurement should focus on results. • A systems perspective is required. 	<ul style="list-style-type: none"> • Customer focus. • Supplier partnerships. • People development and involvement. • Processes and facts. • Continuous improvement and innovation. • Leadership and consistency of purpose. • Public responsibility. • Results orientation.

Criteria	<ol style="list-style-type: none"> 1. Leadership. 2. Strategic planning. 3. Customer and market focus. 4. Information and analysis. 5. Human resource focus. 6. Process management. 7. Business results. 	<ol style="list-style-type: none"> 1. Leadership. 2. Policy and strategy. 3. People management. 4. Resources. 5. Processes. 6. Customer satisfaction. 7. People satisfaction. 8. Impact on society. 9. Business results.
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Table 15: Overview of objectives and criteria of MBNQA & EFQM (Vaxevanidis et al., 2006)

An overview of the objectives and the criteria applied to both MBNQA and EFQM model is presented in Table 15.

2.13 Context of Kuwait

Kuwait is considered one of the richest countries in the Middle East, mainly due to its oil reserves. Kuwait's modern history began in the 18th century when the country essentially consisted of several Bedouin tribes surviving on pastoralism and sea trading for their daily living (Ibrahim, 2009). According to the latest statistics from the Kuwait Central Statistical Bureau (CSB), the total population of Kuwait in 2013 was approximately 3,500,000 of which about 1,160,000 or one third were Kuwaiti citizens (CSB, 2014). Table 16 illustrates Kuwait social profile.

	2003	2008	2013
Population (m)			
Total	2.5	3.4	4.1
Male	1.6	2.2	2.6
Female	1.0	1.3	1.5
Age profile (% of total population)			
0-14	27.9	26.6	25.6
15-64	69.5	70.6	71.2
65+	2.6	2.9	3.2
Labour force (m)	1.4	2.1	2.5

Period averages		2004-08	2009-13
Population growth (%)		6.2	3.7
Working-age population growth (%)		6.5	3.9
Labour force growth (%)		7.9	4.0

Table 16: Kuwait demographic profile (Al-Ajmi S. , 2011)

Kuwait is a small country, covering approximately 18,000 km². Kuwaitis are considered open minded, especially in relation to developed countries. Its main language is Arabic; however, English is widely spoken. The country's religion is Islam and its government type is constitutional emirate. Kuwait is flanked by large or powerful neighbours – Saudi Arabia to the south, Iraq to the north and Iran to the east as illustrated in Figure 25. Its oil fields were first explored in the early 1930s, and since the development of the petroleum industry after World War II and independence in 1961, oil has dominated the economy, making up around 90% of export revenues (BBC, 2015). As a result of oil exploration, the country has been flourishing and has attracted many foreigners to work and take advantage of the high salaries and low cost of living. Kuwaitis and foreigners who live and work in Kuwait do not pay government taxes.



Figure 25: Kuwait map and flag (BBC, 2015)

Kuwait was the first Arab nation in the GCC to have an elected parliament. Endeavours to change the overwhelmingly male political structure culminated in the giving of full political rights to women in 2005. Kuwait is often seen purely as an oil rich nation by Westerners who

fail to see the quickly developing area economy and business opportunities built on a long history of trade.

As indicated by Welsh and Raven, religion and society are the primary factors influencing administration and authority style inside of business associations (Welsh & Raven, 2006). Islam is a religion that has a significant impact on workers as well as managers when considering commitment to tasks and jobs because both the Qur'an and prophet Mohammed (peace be upon him) urge people to be devoted and loyal in everything they do. Notwithstanding, Kuwait is considered as a relaxed Islamic nation due to its openness to different cultures, acceptance of different religions and not having fully implemented Shari'a law (Ali & Al-Kazemi, 2006).

Dawish (1998), in his study on management and leadership styles in the UAE, suggests that when considering management and leadership within a mixed environment in the GCC region, culture can be a complex issue. The author argues that due to its geographical proximity and cultural similarities Kuwait suffers from the same problem.

Communication channels between top management and the lowest level in any manufacturing organisation within Kuwait is a major issue as pointed out by Neal, et al. (2005). Reasons include 1) language barrier for foreigners working in Kuwait, 2) culture barrier as mentioned above, 3) sex discrimination in terms of equal opportunities for jobs (Neal et al., 2005). For example, women cannot join the military as it breaks historical/cultural norms of segregation.

Similarly, connections play an important role in doing business in Kuwait. This affects leadership authority by applying pressure on managers to settle deals, do business, finish a job, and decide recruitment and promotions (Ali & Al-Kazemi, 2006; Abbas et al., 1997). Therefore, culture cannot be downplayed as its impact on all business aspects is huge.

2.14 Chapter Summary

In this chapter an extensive review of literature was outlined to highlight the importance of quality tools implementation in the manufacturing sector worldwide, in the GCC region and

in Kuwait. The earlier studies tackled aspects of quality tools elements and their critical success factors, but the potential impact of culture was not addressed, especially in the context of the GCC and Kuwait. This is one of the gaps addressed in this study. The methodological approach outlined for the study was presented as novel: the mixed methods approach was chosen in order to collect as much information and evidence as possible while minimising any errors and inaccuracy of data, whether from survey questionnaire, interviews or observation. Different models were outlined and analysed which will lead to a new model being developed to successfully serve the purpose of the research. Furthermore, the newly developed model will close the gap in other models such as culture impact, a vital factor in successful implementation of any quality model in Kuwait and, thanks to cultural similarities, the other GCC manufacturing industries.

Chapter 3 Quality implementation model: Kuwait Quality Culture Model (KQCM)

3.1 Introduction

This chapter introduces the quality implementation model (Kuwait Quality Culture Model (KQCM)) developed by the author after carefully reviewing the strengths and weaknesses of the existing models described in chapter 2. As mentioned in chapter 2, Kuwait has not been investigated in previous literature in terms of implementation of QMS. In this chapter, the researcher will introduce culture, the newly added variable, which previous models such as EFQM and MBNQA lack. Culture is considered an important factor when implementing any quality model (Al-Zamany, Hoddell, & Savage, 2002; Anne Bardoel & Sohal, 1999; Detert, Schroeder, & Mauriel, 2000; Marshall et al., 2002; Mellahi & Eyuboglu, 2001; Salegna & Fazel, 2000; Scott, Mannion, Davies, & Marshall, 2003; Shin, Kalinowski, & El-Enein, 1998; Subrahmanya Bhat & Rajashekhar, 2009; Talib & Rahman, 2015; Talib, Rahman, & Qureshi, 2011; Talib, Rahman, Qureshi, & Siddiqui, 2011; Tamimi & Sebastianelli, 1998). Culture, as a factor, has not been addressed in previous literature covering Kuwait or even the GCC region and this is a gap in the literature that the author wishes to address.

The EFQM model was created to cope with intensive competition from Japan and the USA. The EFQM model, however, was designed for Europe and as a result, there will be cultural differences for organisations within the GCC region to consider if implementing the EFQM there. It should also be remembered that the EFQM model was created to assess organisations' readiness to implement QMS (as a self-

assessment tool), whereas the models developed by the Japanese and Americans are purely for the purpose of quality and process improvements. The KQCM model offers both, not only assessing the readiness of organisations but would also act as a process improvement tool. With the presentation of this new proposed model, this chapter further discusses its main components in the context of the Kuwaiti manufacturing sector. The chapter includes the hypotheses developed by the author through examination of the relevant literature.

3.2 Choice and development of implementation model

After an extensive review of the literature on the different quality models relevant to the planned new model (EFQM, SERVQUAL and MBNQA), the author believes that there are similarities in terms of elements of each model. However, this study develops an enhanced framework (KQCM) based on the EFQM model which has been widely praised by different organisations and researchers for its benefits and outcomes (Al-Jalahma, 2012; Calidad, 1999; Eskildsen & Kanji, 1998; European Foundation for Quality Management, 2003; Farrar, 2000; Gomez et al., 2011; Gomez & Gomez, 2010; Iqbal et al., 2014; Osseo-Asare & Longbottom, 2002; Sadeh Ehsan, 2010; Tajri, 2005; Yaqoubi, 2011; Zink & Schmidt, 1995). The proposed model incorporates the culture element lacking in the EFQM model. Therefore, this study uses an enhanced framework in order to investigate SMLEs in Kuwait. The proposed implementation model, carefully developed after a series of revisions, extensive literature review, a case study and the expert views of quality practitioners from Kuwait University and consultancy companies in the field of manufacturing in Kuwait, is depicted below.

Enablers	Results
Leadership	Customer Results
Policy & Strategy	People Results
People	Society Results
Partnership & Resources	Key Performance Results
Processes	
Culture	

Table 17: KQCM elements (author's compilation)

3.3 The KQCM model

The new model, proposed and designed by the researcher, is termed the KQCM model and is illustrated in Figure 26. This model is based on the existing EFQM model, but with the addition of the cultural aspect: culture plays an important role in the initiation and the implementation of any QI, particularly so in an Arabic context (Brandt & Dixon, 2010).

As the name implies, the European Foundation for Quality Management (EFQM) was founded with the aim of promoting cooperation between European companies and improving their business competitiveness (especially in relation to Japanese and US companies) by encouraging management teams to apply their organisation's principles (Ehrlich, 2006; Bou-Llusar et al., 2009).

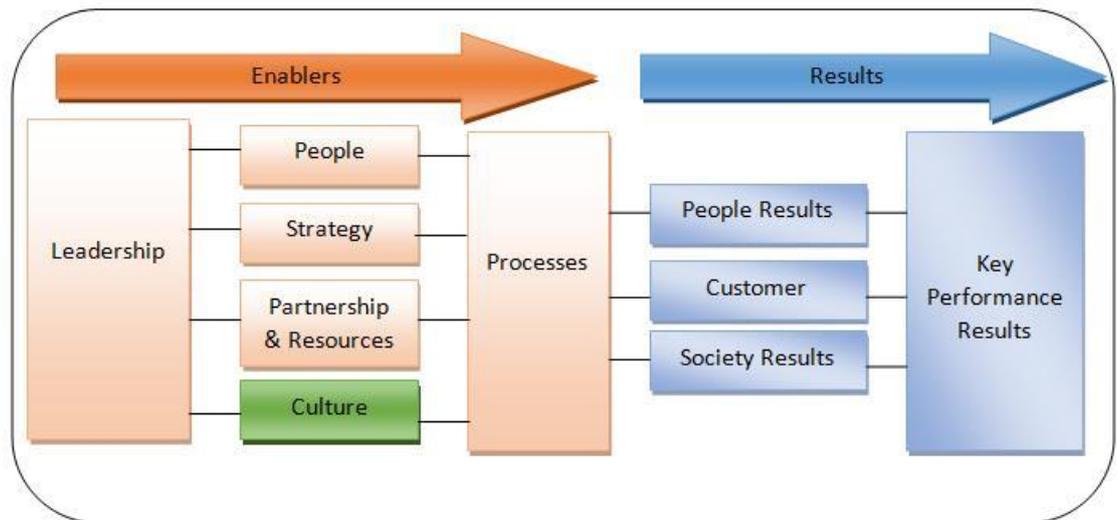


Figure 26: KQCM model (author's compilation based on EFQM, (1999))

Based on KQCM model, this study has both independent and dependent variables as follows:

Independents:

- Leadership is independent for enablers (People, Policy & Strategy, Partnership & Resources and Culture).
- Enablers (People, Policy & Strategy, Partnership & Resources and Culture) are independent for Processes.
- Processes is independent for results (People Results, Customer Results and Society Results).
- Results (People, Policy & Strategy, Partnership & Resources and Culture) are independent for Key Performance Results.

Dependents:

- Enablers (People, Policy & Strategy, Partnership & Resources and Culture) are dependent for leadership.
- Processes is dependent for Enablers (People, Policy & Strategy, Partnership & Resources and Culture).
- Results (People Results, Customer Results and Society Results) are dependent for Processes.
- Key Performance Results are dependent for Results (People, Policy & Strategy, Partnership & Resources and Culture).

1. The enablers of KQCM model

Abu Saada (2013, p. 38), summarising Mora, Leal and Roldan (2006), writes:

Enablers or agents define what organisations do in order to achieve excellence. Specifically, it is to do with activities related to the leadership of the directors and the management of human and material resources, as well as process management. Moreover, these activities are not independent: they must be implemented together and in a coordinated fashion.

The model can help organisations to evaluate each area for improvements, in terms of the strategy and approach they follow (Steed cited in Abu Saada, 2013, p. 38).

Their responsibilities are to make sure the approach and strategy chosen is:

- Effective and efficient in meeting the organisation's objectives;
- Deployed correctly in order to make the most of their benefits and purposes;
- Creating a culture of continuous improvement.

Each criterion is broken down into sub-criteria in the form of statements which helps organisations to successfully implement the model (Abu Saada, 2013, pp. 38-39). Adding culture takes the total number of the model's enablers to six variables which will better assess and question whether there are effective approaches in place to enable the achievement of what the organisation has planned to deliver in terms of its results. The six enablers are presented in the following subsections.

3.3.1 Leadership

Leadership is one of the most important elements of the KQCM model as leaders are the ones initiating the concept or idea of change. Many researchers have emphasised the significant impact of top management (Ab Wahid & Corner, 2011; Abbasi & Hollman, 1993; Abdelghani et al., 2011; Abu Hussin, 2010; Abusa & Gibson, 2013b; Achanga, et al., 2006; Achoui, 2009; Ahuja, 2012).

Excellent leaders develop and facilitate the achievement of the mission and vision. They develop organizational values and systems required for sustainable success and implement them via their actions and behaviors. During periods of change they retain a constancy of purpose. Where required, such leaders are able to change direction of the organization and inspire others to follow. (Dodangeh, et al., 2011, p. 5012)

The KQCM model consists of ten criteria which are divided into two main groups, enablers and results. Based on these criteria, companies can assess their organisational performance or standing. It is believed that by using these criteria, a company can conduct a self-assessment or evaluation of its performance which can lead to improvements in process and quality through reducing variances in processes.

In EFQM, the use of the enablers can be considered as means to self-assess their current status in terms of results which include people, process and performance. Organisational excellence is dependent on organisational results and leadership is one of the key elements involved in achieving in excellence: it does this by incorporating people's participation, improving process and performance and by continuous improvement based on self-evaluation. Furthermore, the EFQM Excellence model illustrates the relationships between the two groups with nine criteria unlike KQCM which illustrates the two groups with ten. The first criterion, Leadership, has a very important role to play in achieving the organisational performance goals. So leadership, one of the main elements of the KQCM model, can be considered as a driving force which drives the organisation on the 'right path'. With actively engaged leaders, who do the right things, an organisation can achieve its goals, aims and objectives by mobilising people, resources and partnerships.

Furthermore, the EFQM model which the author's model builds on also confirms the relationship between leadership and successful organisations: "How leaders develop and facilitate the achievement of the mission and vision, develop values required for long-term success and implement these via appropriate actions and behaviours, and are personally involved in ensuring the organisation's management system is developed and implemented" (British Quality Foundation cited in Osseo-Asare et al., 2005, p. 151; Van Schalkwyk, 2011, p. 146). So, again, leadership is at the heart of EFQM. Leadership shows direction to people by being an example of how to achieve the organisation's mission and goals.

3.3.2 People

People management involves how the company harnesses the potential of its employees in order to continuously improve the business. With the EFQM model covering training, evaluation, effective human resources development, teamwork, empowerment, rewards and recognition, it ensures the effective development of people's skill, time and effort (Dubas & Nijhawan, 2005, p. 2). In order to obtain Excellence outcomes, people management practices should focus on empowerment and involvement (task significance), process ownership (autonomy), job enlargement/rotation (skill variety, and task identity) and performance feedback (feedback from job) (Dale et al., 1997).

Hence, the author hypothesised the following:

H₁: QMS performance is positively associated to commitment and leadership of top management.

3.3.3 Policy and Strategy

Policy and Strategy is defined as the measurement of a firm's future plans and direction in relation to their policy on how to manage their long term quality initiatives by reflecting the concept of total quality management principles used to

determine improvement strategy as perceived by Slack which covers product, service quality and organisational policy and strategy (Slack et al., 1995 and Dubas & Nijhawan, 2005, cited in Oluwatoyin & Oluseun, 2008, p. 27). Strategic planning helps organisations to prioritise their efforts in order to achieve quality targets. For instance, according to Nasseef (2009, p. 33) one of Deming's quality management points is to establish consistency of purpose (Deming, 1986). Nasseef further cited Deming (1986), emphasising linking quality initiatives with organisation's corporate aspirations for performance improvement. Similarly, Thiagarajan and Zairi (1998) consider "attention given to policy development, goal setting and planning and the effective deployment of goals as a critical factor for the success of quality management implementation" (Nasseef, 2009, p. 34).

In addition, Policy and Strategy means a process design that supports leaders in being open to take suggestions and comments about their goals and methods within their organisations from their staff (Allison & Kaye, 2005; Nasseef, 2009, p. 34). Bryson described strategic planning as a disciplined attempt which is "simply a set of concepts, procedures and tests" (Bryson, 1988, p. 512). Wallace (2006) further elaborated strategic planning as an effort designed to promote analytical thinking and take advantage of existing resources for a better future for organisations.

3.3.4 Partnerships and Resources

Partnerships and resource management involves how the resources of the company are disbursed to support quality initiatives. Mutual benefits for suppliers and organisations they deal with are vital, bearing in mind that resources need to be maintained and conserved for the continuity of the organisation's capability (Dubas & Nijhawan, 2005, p. 27). The author believes that it is important for organisations to maintain good relationships with their partners which could be suppliers of materials and training providers.

Similarly, communicating the organisation's mission and vision to partners as well as within the organisation is crucial in achieving the organisation's goals. In addition,

availability and distribution of resources within functional departments of an organisation, such as production and procurement, is vital. Furthermore:

Excellent organisations plan to manage external partnerships, suppliers and internal resources to support policy and strategy and the effective operation of processes. During planning and whilst managing partnerships and resources, they balance the current and future needs of the organisation, the community, and the environment. (Dodangeh et al. 2011, p. 5012)

Hence, the author hypothesised the following:

H₂: Communication between top and bottom management is important.

3.3.5 People and Processes

The efficient managing of processes ensures that business objectives of value creation are achieved. It involves identifying and reviewing the processes involved in production so the organisation's strategy is delivered (Dubas & Nijhawan, 2005).

Excellent organizations design, manage and improve processes in order to fully satisfy, and generate increasing value for customers and other stakeholders...Excellent organizations manage, develop and release the full potential of their people at an individual, team-based and organizational level. They promote fairness and equality and involve and empower their people. They care for, communicate, reward and recognise, in a way that motivates staff and builds commitment to using their skills and knowledge for the benefit of the organization (Dodangeh, et al., 2011, p. 5012).

Hence, the author hypothesised the following:

H₃: Employees' empowerment and relevant processes are crucial to successfully implementing any quality practices.

3.3.6 The impact of culture

Culture is a central requirement for a firm to be successful (Brandt & Dixon, 2010). Kluckhohn, for example, defines culture as consisting of "patterns, explicit and

implicit, of and for behaviour acquired and transmitted by symbols, constituting the distinctive achievement of human groups, including their embodiments in artefacts” (Kluckhohn, 1962, p. 73), while Spencer-Oatey’s definition includes the impact of culture on behaviour: “Culture is a fuzzy set of attitudes, beliefs, behavioural norms, and basic assumptions and values that are shared by a group of people, and that influence each member's behaviour and his/her interpretations of the ‘meaning’ of other people's behaviour.” (Spencer-Oatey, 2000, p. 4). Several researchers have set out to identify sets of dimensions in order to be able to characterise national cultures (Newman & Nollen, 1996; Png, Tan, & Wee, 2001; Schuler & Rogovsky, 1998; Smith, Dugan, & Trompenaars, 1996; Steenkamp, 2001; Taras, Steel, & Kirkman, 2012; Venaik & Brewer, 2013). Hofstede’s influential research in this area (Hofstede, 2001, 2005, 2009) investigated over 100,000 employees of the multinational organisation IBM in 40 countries, in an effort to identify value dimensions that could explain variation among cultures. Fundamental to Hofstede’s model are values, defined as tendencies, which have a strong influence on behaviour and the selection of certain states of affairs over others (Hofstede, 1998).

Hence, the author hypothesised the following:

H₄: Culture plays an important role in the implementation of QMS in Kuwait.

2. The results of KQCM model

Results are described by EFQM as “Excellent results with respect to Performance, Customers, People and Society are achieved through Leadership driving Policy & Strategy, People, Partnership and Resources, and Processes” (EFQM, 1999, cited in Eskildsen et al., 2000, n.p)

The results are the last four criteria of the model. The above mentioned elements in the EFQM model are in the form of results which enables the organisation to monitor its performance in order to make sure that its strategic objectives are met (Steed, 2003).

The criteria of the results section (Customer, People, Society and Performance) of the model challenge the organisation to test what the chosen indicators can actually show, such as:

- Comprehensively measure what is important to customers and others who receive a service from the organisation.
- Demonstrate continuous improvement against targets and results that are linked to and caused by approaches.

The results elements are also used as a benchmarking tool against the best in the market to improve performance (Steed, 2003, cited in Abu Saada, 2013, p. 39).

The four 'results' are explained in the following subsections.

3.3.7 People Results

According to Dubas and Nijhawan (2005, p. 27) “People are supposed to be adequately surveyed, with ideas such as team briefings and suggestion schemes incorporated”. This means that staff within the organisation should be involved and have good communication with the management team. Ishikawa states that quality begins and ends with training (Ishikawa, 1985). Furthermore, Goldstein suggested that organisations are increasingly turning to training as a tool to address work-related issues (Goldstein, 1993). Competition, changing global economies and the demand for advanced skills and knowledge means the need for training and development will continue to increase in the future (London, 1989). Basically, the need for training exists when a particular weakness appears, and management can overcome this by systematic training (Boydell & Leary, 1997). In fact, this highlights the critical role of training and education emphasised by Feigenbaum (1961), Juran & Gryna (1970), Crosby (1980) and Deming (1986).

3.3.8 Customer Results

“Excellent organizations comprehensively measure and achieve outstanding results with respect to their customers” (Dodangeh et al., 2011, p. 5012). This means that customer results are the external customer’s perception of the company’s product.

This requires evaluation of customer satisfaction through surveys and interviews, using measures such as loyalty and market share (Slack et al., 1995). Therefore, customer results are an important element of the KQCM model which complements its purpose. Furthermore, without this aspect, implementation of QMS will be

3.3.9 Society Results

“Excellent organizations comprehensively measure and achieve outstanding results with respect to society” (Dodangeh et al., 2011 p. 5013). In other words, organisations are responsible for making an impact on society with the outcome of their implementation of the model. This can be achieved by keeping up to date with society and its needs.

3.3.10 Key Performance Results

Performance measurement systems (PMS) – can be defined as “a set of metrics used to quantify both the efficiency and effectiveness of actions” (Neely et al., 1995, pp. 80-81). In addition, Zairi and Whymark define performance measurement systems as integrated systems that define everyone’s goals in terms of the organisation’s mission and vision (Zairi & Whymark, 2003).

Key Performance Results reflect what the company is achieving in relation to its planned business. “EFQM requires a ‘balanced scorecard’ type approach, as well as cost of quality, product and process measures in order to allow organisations to better understand the evaluation of their business performance” (Dubas & Nijhawan, 2005, p. 28). In addition, Dodangeh, et al. (2011, p. 5012) stated “Excellent organisations comprehensively measure and achieve outstanding results with respect to the key element of their policy and strategy”. The EFQM literature states: “Excellent results with respect to Performance, Customers, People and Society are achieved through Leadership driving Policy and Strategy, People, Partnerships, Resources, and Processes” (EFQM, 2003). The EFQM model explains the quality of the results part

and how other elements such as process and people can be a useful framework for organisations' benchmarking (Ghobadian & Woo, 1996). This statement is also supported by Gadd who states: "Clearly, the model allows measurement of more than just performance, it also allows for measurement of how the organisation operates" (Gadd, 1995, p. 69).

Hence, the author hypothesised the following:

H₅: The KQCM model will lead to better organisational performance.

3.4 Summary of the KQCM model

The model's ten boxes represent the criteria against which an organisation's progress towards excellence can be measured. Each of the ten criteria is defined. The elements of the model mentioned above will not necessarily be successful without the effort and involvement of the personnel implementing it. The inclusion of the culture element will add value to the model itself, especially when considering an environment different to the one where the adopted model was first developed; it is therefore important to consider all the criteria discussed above to encourage KSMLs interested in implementing quality practices.

3.5 Chapter summary

This chapter described the implementation of a quality model as a method to approach the aims and objectives of the research. The introduction of the researcher's model that serves the context was investigated. Elements of the author's model were presented and explained. Justifications of the proposed model were outlined and explained including the addition of culture and its impact. Hypotheses' development and testing will be discussed in the following chapter (Research Methodology).

Chapter 4 Research Methodology

4.1 Introduction

According to Crotty, research methodology is “the strategy, plan of action, process or design lying behind the choice and use of particular methods and linking the choice and use of methods to the desired outcomes” (Crotty, 1998, p. 3). The methodology is the overall approach to the research process and should not to be confused with the research methods which are the various means by which data can be collected and analysed (Hussey & Hussey, 1997). This study used a deductive approach as well as descriptive and exploratory strategy. A mixed method was adopted in this research in order to collect sufficient data to provide answers for the study’s research questions. In terms of strategy, a sequential exploratory design was followed. Furthermore, a single case study was carried out for the purpose of capturing the general trend in the industrial sector before the stage of actual collection of data.

This chapter describes the methods used to understand the research questions set in section 1.4. It also aims to assess the proposed model within the Kuwait Manufacturing Sector (KMS) to determine its advantages and limitations. The chapter also explains the proposed model which was developed after carrying out the case study.

The research approaches, questions, design, instruments (questionnaire and semi-structured interviews), techniques used for data collection and analysis, choice of methodology and research strategy are outlined. The weaknesses and strengths of different methods and approaches used in other studies are examined in order to

boost the reliability and validity of the research method chosen and finally, the chosen method is discussed.

4.2 Research Approach

In social sciences, the commonly used research approaches are either deductive or inductive. It is crucial to classify the research approach in terms of whether it is inductive or deductive. The following section clarifies these two approaches and explains which approach was used in this study.

The deductive approach implies that a study uses existing prevailing theories on the same topic to shape the main foundation of the study. This type of research approach allows the study to state the questions, which are the foundation for collecting the empirical data. The study uses questions in the survey format and empirical data is collected in order to provide answers for these questions. The findings will then derive from the empirical results and are examined in relation to already existing knowledge to reach conclusions (Zeithaml et al., 2009).

Saunders et al. (2007) consider the deductive approach as testing a theory, in which a study proposes hypotheses and designs a research strategy to test and clarify an already existing theory. The authors also described the approach as a scientific pattern as it transfers from theory to data. Figure 27 illustrates the deductive/inductive approach.

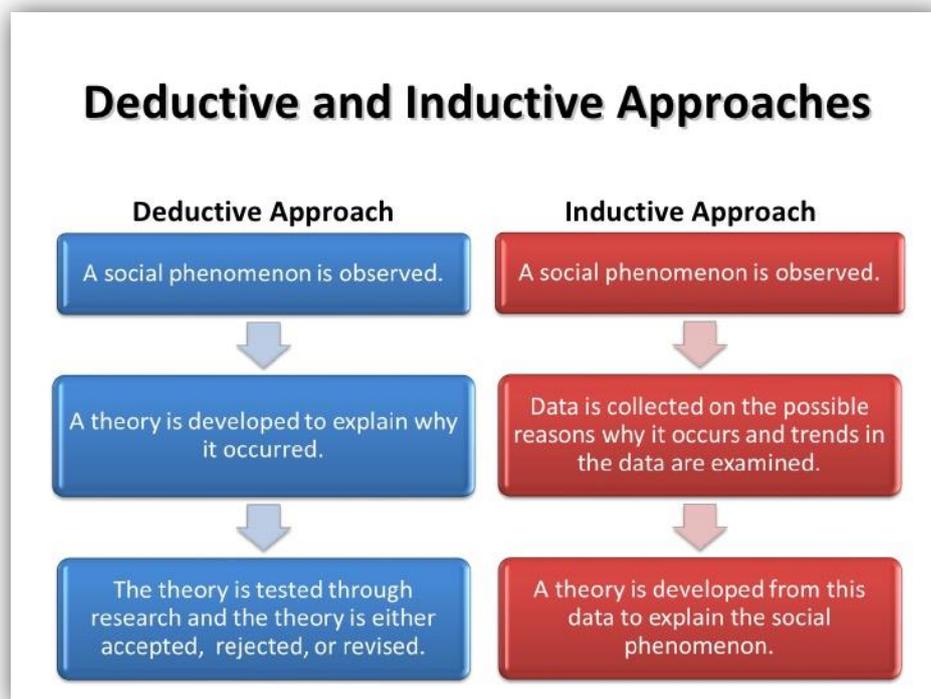


Figure 27: Deductive/Inductive approaches adapted from Saunders et al. (2007)

As shown in Figure 27, the deductive approach starts by reviewing theories, then proposing a research hypothesis. After that, the study collects data which provide observations and findings that either confirm or contradict the existing theory. In this approach, a study reviews various theories in the particular area of the research in order to gather different aspects of the information available before developing the new hypothesis which is then tested against the data collected.

The inductive approach is the opposite of the deductive approach. As shown in Figure 27, this approach starts with a research observation and ends with the possibility of building a theory new to our knowledge. Generally, this kind of approach is the result of limited or few available theories in the particular topic area (Hyde, 2000). Studies explain that this approach is valuable in enhancing our knowledge and understanding of a new phenomenon (Saunders et al., 2003). Using the inductive approach, the research starts with collecting the empirical data and then explores the literature and existing knowledge.

In this study, it is very clear that the research relies on a deductive approach. This is because there are many theories and much literature that explain how firms in the manufacturing sector in Kuwait are targeting manufacturing quality. The study starts by examining the literature and studies that explain various models that explain quality. The study develops a framework and then collects data to provide information that would enhance the existed body of knowledge.

There are two main epistemological approaches to managing research (Crotty, 1998);

1. Positivism.
2. Objectivism/interpretivism.

This research will employ the positivism and interpretivism approaches in addition to the ones mentioned above to critically review current literature in order to design a suitable model for SMLEs in the manufacturing sector of Kuwait and then a business improvement framework based on the proposed index.

“Positivist research is therefore “a systematic and methodological process” (Koch & Harrington, 1998, as cited in Walker, 2005) that emphasises “rationality, objectivity, prediction and control” (Streubert & Carpenter, 1999, p. 7)”, (Kura, 2012, p5). The positivist approach takes into consideration a set of data values and the dimension and its explanations which consists of human casual relations between variables (Halfpenny, 1979). According to Levin (1988) positivists think that reality is constant and can be observed and described from an objective point of view. This approach argues that one can only prove that what he/she can see, hear, taste or

smell. They (Halfpenny and Levin) suggest that phenomena must be isolated and that interpretation should be repeatable.

Furthermore, positivism according to Oliver (1992, p. 106) provides specific and accurate data by engaging links between reality and knowledge obtained from the links. However, positivism has weaknesses which involve oversimplifying the real world problem into experimental situations that are difficult to replicate in real life situations (Kura, 2012).

The methodologies relating to positivist and anti-positivist as suggested by Galliers (1991) are illustrated in Table 18.

<i>Scientific/Positivist</i>	<i>Interpretivist/Anti-positivist</i>
Laboratory Experiments	Subjective/Argumentative
Field Experiments	Reviews
Surveys	Action Research
Case Studies	Case Studies
Theorem Proof	Descriptive/Interpretive
Forecasting	Futures Research
Simulation	Role/Game Playing

Table 18: Methodologies identified by Galliers (1991)

This research will try to avoid what may be characterised as methodological monism, i.e. the insistence on using a single research method. Instead, the research will include elements of both the positivist and interpretivist in order to improve the quality of the research.

4.3 Research Questions

As mentioned in chapter one, three overarching research questions are formulated:

1. Why is QMS implementation in the manufacturing sector (SMLEs) of Kuwait important?
2. Can the proposed model work more effectively than EFQM in implementing QMS in the Kuwaiti manufacturing sector?
3. Is the proposed model a suitable model for QMS in relation to the manufacturing sector?

The questions are further explained and answered within the content of the research in order to follow the thread. They will then be answered in a summarised form in the concluding chapter. The following Table 19 shows the research questions and the appropriate approach used in order to answer them.

#	Question Statement	Approach
1.	Why is QMS implementation in the manufacturing sector (SMLEs) of Kuwait important?	Qualitative
2.	Can the proposed model work more effectively than EFQM in implementing QMS in the Kuwaiti manufacturing sector?	Mix (Qualitative & Quantitative)
3.	Is the proposed model a suitable model for QMS in relation to the manufacturing sector?	Quantitative

Table 19: Research questions approach (author's compilation)

4.4 Choice of Research Methodologies

Research studies can be approached using three different methodologies: qualitative, quantitative and mixed method (Picciano, 2015). In this section, the author reviews the three methodologies in terms of strengths, weaknesses and key features. The final part reviews the adopted method.

4.4.1 Qualitative Research

Studies explain that the qualitative method is the use of participants' 'words' rather than relying on numbers (Saunders et al., 2007). This method is quite attractive in that it allows the display of respondent's views and perspectives which are deemed to provide richness and fullness about the phenomena or the topic. The main goal of using qualitative data is therefore to allow participants to express their perspectives openly, so that they not only answer the research questions but also provide information surrounding the issue. The qualitative method is widely used in social science to address human and organisation issues. The method relies on the use of descriptions and categories unlike quantitative methods. Qualitative studies are structured to assemble the experiences and point of view of the participant. In a qualitative method, reliability of the research relies on a small sample size compared to a quantitative approach that uses a large sample size. The research interaction with respondents is very high, and is considered as having a vital role in directing the interview towards the research goal and objective (Saunders et al., 2007).

4.4.2 Quantitative Research

The quantitative method differs from the qualitative in its reliance on numerical data rather than 'words' (Zeithaml et al., 2009). The quantitative approach therefore depends on using statistical analysis (e.g. correlation and regression) in order to answer the research questions and hypotheses. The research in this approach uses a questionnaire, which addresses all factors or variables used in the research model. The questionnaire was distributed among respondents and the researcher's interaction with them was very limited. The main motive for using the quantitative approach is to collect data from a large number of respondents in order to generalise the findings among the population. The success of the quantitative approach depends on the proper uses of numerical data and statistics tools in order to understand and simplify the results and findings (Saunders et al., 2007). In the quantitative method, there is no personal contact between the researchers and the participants and therefore the responses that are derived are anonymous. The main advantage of this approach therefore is the high potential for generalisation compared to qualitative data. Since the quantitative data is numerical, it is necessary to clarify and explain

the results to make it more comprehensible to the readers. Below, Table 20 summarises the main differences between the two approaches.

	Quantitative	Qualitative
General framework	<ul style="list-style-type: none"> - Seek to confirm hypotheses about phenomena - Instruments use more rigid style of eliciting and categorising responses to questions - Use highly structured methods such as questionnaires, surveys and structured observation 	<ul style="list-style-type: none"> - Seek to explore phenomena - Instruments use more flexible, iterative style of eliciting and categorising responses to questions - Use semi-structured methods such as in-depth interviews, focus groups and participant observation
Analytical objective	<ul style="list-style-type: none"> - To quantify variation - To predict casual relationships - To describe characteristics of a population 	<ul style="list-style-type: none"> - To describe variation - To describe and explain relationships - To describe individual experiences - To describe group norms
Question format	Closed – ended	Open – ended
Data format	Numerical (obtained by assigning numerical value to response)	Textual (obtained from audiotape, videotapes and field notes)
Flexibility in study design	<ul style="list-style-type: none"> - Study design is stable from beginning to end - Participant responses do not influence or determine how and which questions researchers ask next - Study design is subject to statistical assumptions and conditions 	<ul style="list-style-type: none"> - Some aspects of the study are flexible (for example, the addition, exclusion or wording of particular interviews questions) - Participant responses affect how and which questions researchers ask next - Study design is iterative, that is, data collection and research questions are adjusted according to what is learned

Table 20: Comparison of quantitative and qualitative research approaches (Mack et al., 2005)

4.4.3 Mixed methods

It is accepted that all research methods have their limitations; however by triangulating data sources, intersection between the qualitative and quantitative approaches may be found. The mixed method combines both quantitative and

qualitative approaches which can help to minimise the deficits of each method while also taking into consideration their positive aspects. Creswell (2009) argued that a single method (mixed method) can have a synergic effect when it is combined with another. Philip (1998, p. 273) states that “researchers should think beyond the myopic quantitative-qualitative divide when it comes to devising a suitable methodology for their research, and select methods – quantitative and qualitative or a combination of the two – that best satisfy the needs of specific research projects”. This approach is used in this study in order to enable the author to exploit different methods in an attempt to verify, cross-validate or confirm findings within the study and in order to collect as much accurate data as possible to reveal the perceptions of different management levels in the industrial sector in Kuwait in order to achieve significant findings and results.

4.5 Research Strategy

A sequential exploratory strategy was adopted by the author. It is similar to the sequential explanatory strategy in Creswell (2009) except that the phases are reversed. In other words, the sequential exploratory analysis involves an initial phase of qualitative data collection and analysis, followed by a second phase of quantitative data collection and analysis which builds on the results of the initial qualitative phase stage. The purpose for selecting this strategy (see Figure 28) is to use quantitative data and results to assist and better understand the interpretation of qualitative findings.

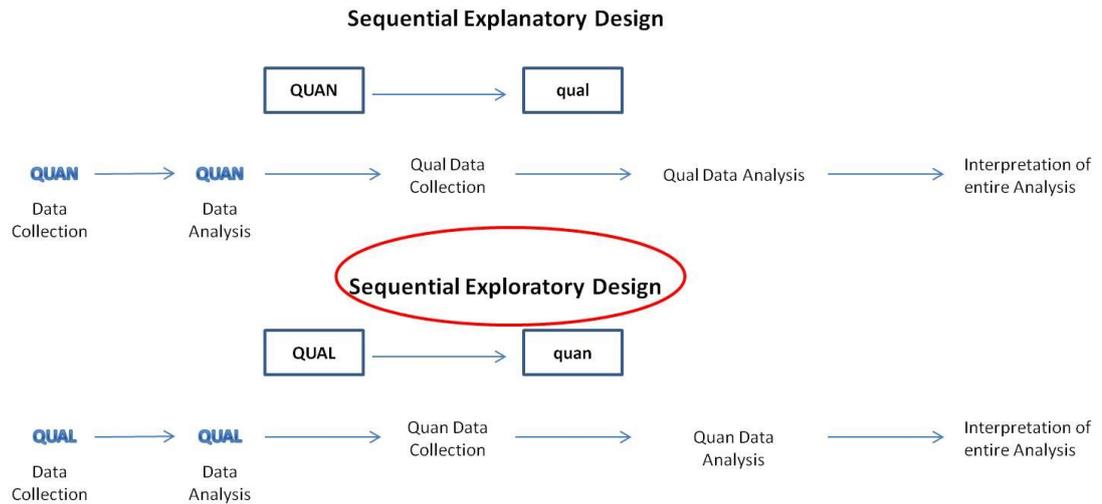


Figure 28: Sequential designs (Creswell, 2009)

4.6 Research Design

The unifying purpose of this research was to identify the enablers and barriers affecting the implementation of QMS within the KMS. This was achieved by assessing the current practices adopted by a number of manufacturing firms in Kuwait and then the gaps or areas that need to be filled were measured. The research of this study was designed using a mixed methods approach involving the use of both quantitative and qualitative research methods.

The sample population for the main survey was drawn from both ISO 9000 companies and non-ISO 9000 companies. The method of sampling combines both random and non-random categories of data. A stratified random sampling method was used to select respondents representing the companies, including top management, middle management and shop floor staff. Under top management, the respondents included owners, quality managers and project managers. Middle level management included supervisors, foremen and quality advisors. Shop floor staff included the workers in workshops, plants, storage facilities and laboratories.

A simple random sampling was used to select the manufacturing companies who participated in this study: survey questionnaires were distributed to all KSMLEs

known to the KIU and an informed decision was used to classify the firms as small (less than 20 employees), medium (20-50 employees) or large (more than 50 employees). This technique was applied in selecting respondents based on local experience of Kuwaiti SMLEs. Furthermore, the random sampling was applied based on the list of the companies provided by KIU. This represents a sampling rate (192 responses out of 308 KSMLMEs) of 62%. According to the Kuwait Industries Union (KIU), there are 308 manufacturing companies in Kuwait including construction, mining, wood, food, textiles, petrochemical, paper, plastics and other industries (KIU, 2015). However, ISO's latest survey (ISO, 2013) indicated that there are 391 manufacturing companies. This discrepancy could lead to confusion in terms of determining the percentage of sampling rate; for the purposes of this research, the researcher decided to use the statistical information provided by KIU, as an official organisation which supplies the government with figures for their annual reports and studies, and the more recent of the two. There are 194 ISO 9000 registered companies,

Figure 29 illustrates the research design stages. The researcher began with a literature review, followed by formulating research questions, and then carried out the case study. Based on this, the researcher chose the appropriate research method (quantitative or qualitative or a mix) for each research objective. A mixed method was adopted which includes both qualitative (case study, semi-structured interviews and observation) and quantitative (survey questionnaire). This method includes identifying the sample by the use of emails, visits (both formal and informal), telephone calls, faxes and social media channels based on informed decision as indicated earlier. After that, a pilot study in the form of the case study research was conducted and based on the results obtained from the pilot study, the design of the questionnaire was developed and, last but not least, the questionnaire was modified as necessary.

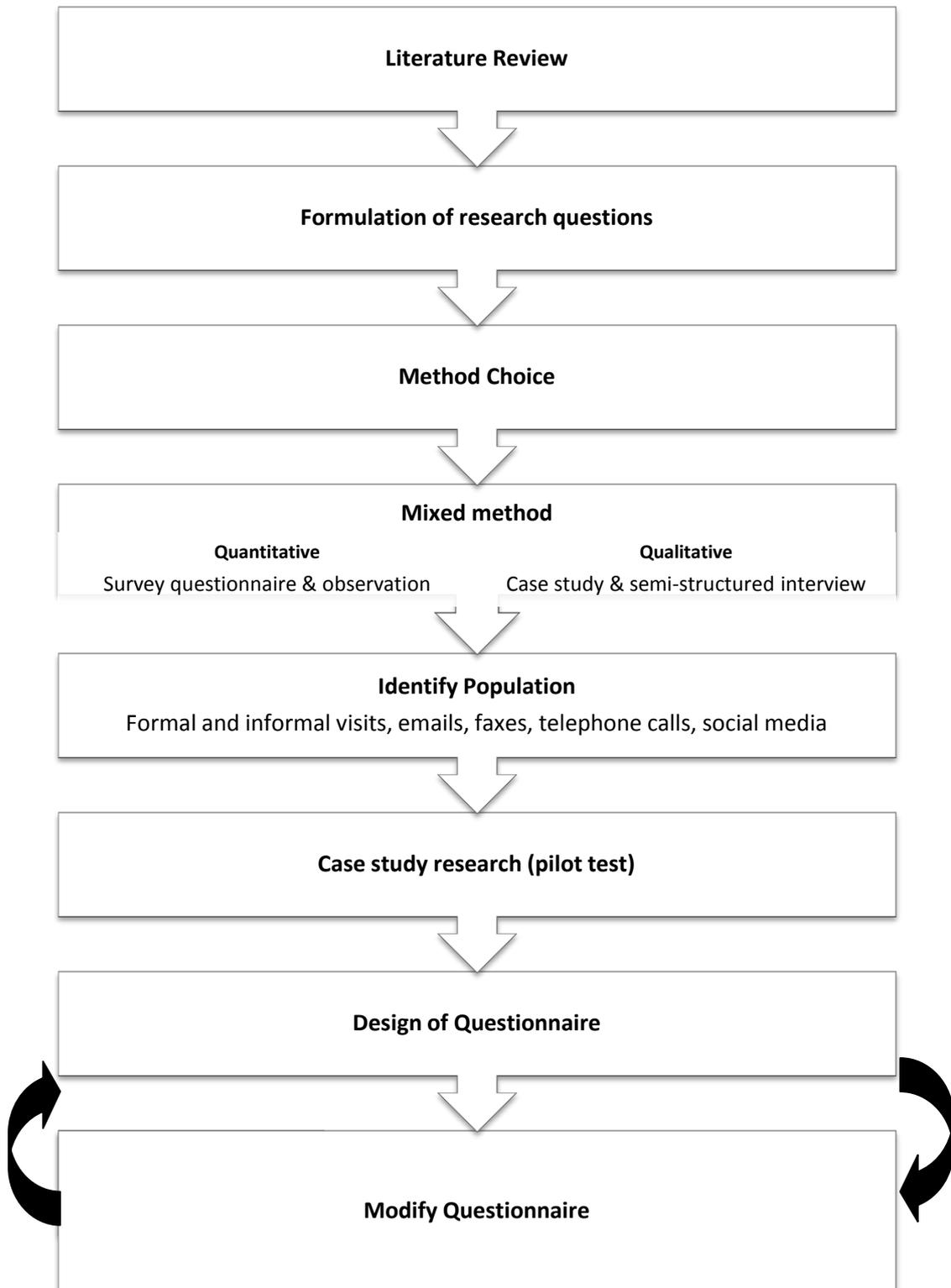


Figure 29: Research design stages (author's compilation)

4.7 Quantitative Research Design

4.7.1 Research Instruments

The European Foundation for Quality Management suggests a number of approaches for self-assessment: questionnaire, matrix chart, workshop, pro-forma and award simulation. In this research study, the quantitative and qualitative methodologies were used which were mainly derived from the literature review and semi-structured interviews. The quantitative approach is considered appropriate for achieving the first, second and third research objectives whilst the qualitative approach is used to deal with the validation of research findings. So the methodology utilises a combination of secondary and primary data. It is one of few quality investigations that have been conducted in the GCC countries and especially in Kuwait. It utilises the research methodology followed by Garza-Reyes et al. (2011) in a similar study carried out in Kuwait, and Al-khalifa & Aspinwall (2000) in Qatar, however, in both studies the context and process were different. Thus, the main approach of this investigation is based on literature review and semi-structured interviews with a prepared questionnaire (mixed method). All information is kept anonymous.

Data were collected via survey questionnaire and case study interviews. Following the data collection, the results were processed and analysed using descriptive statistical methods. A pilot study test was also conducted to validate the accuracy of the questionnaire and to solicit comments and techniques for consideration for the collection of the main survey data. The researcher distributed the survey questionnaire to 15 participants who provided their answers and comments on the topics covered in the questionnaire in relation to manufacturing companies. The pilot study also provided the opportunity to test the content and type of questionnaire to make sure that there were no ambiguous terms or questions.

The questionnaire consisted of a set of statements that examine the current situation of manufacturing companies, quality tools and techniques implemented, and identify the barriers and enablers. Both the survey questionnaire and semi structured

interview questions were classified into closed and open-ended respectively. For questions relating to culture, the model developed by the researcher was used in order to cover all aspects, aims and objectives of the survey questionnaire.

4.7.2 Survey Questionnaire Development

In this study, questionnaire items were adopted from previous studies (e.g. Al-Jalahma, 2012). Including the cover page that explains the purpose of the study, the questionnaire consists of four pages. The self-administered questionnaire consists of three sections (see Appendix A).

The first section of the questionnaire asked respondents to provide information regarding their demographic such as age, gender and managerial position. Such information is vital for classification and comparisons. On the cover page of the survey, it was explained that demographic analysis would be used only for the purpose of the study and it would be treated in strict confidence. Such a statement is important to enhance respondents' honest and accurate participation, thus allowing meaningful results and finding.

The second section focuses on EFQM elements and the third considers the culture of the organisation. The measurement was adopted from several authors (e.g. Barney, 1986). For sections two and section three, the researcher used a 5-point scale, respondents rating their agreement from 1 to 5 as follows: (1) Strongly Disagree, (2) Disagree, (3) Neutral, (4) Agree and (5) Strongly Agree. At the end of the survey, respondents were provided with space to express any other concerns they might have. Table 21 summarises the variables and the number of sets of questions for each variable.

Variables		Author (s)	Set of Items
Enablers	Leadership	Al-Jalahma, R. (2012)	6
	People	Calidad, C. G. (1999).	5
	Policy & Strategy	Eskildsen, J., & Kanji, G. (1998).	5
	Partnerships & Resources	Farrar, M. (2000). Gomez et al. (2011)	6

	Processes		5
	Culture	Barney, J. (1986).Daft, R. (1998). Eker, M., & Eker, S. (2009). Herbert, S. (1997).	5
Results	People Results	Al-Jalahma, R. (2012)	5
	Customer Results	Calidad, C. G. (1999).	3
	Society Results	Eskildsen, J., & Kanji, G. (1998).	4
	Key Performance Results	Farrar, M. (2000). Gomez et al. (2011)	5
			49

Table 21: Summary of the key variables, authors and number of items used (author's compilation)

4.7.3 Population and Sample Size for Survey Questionnaire

The sample population for the main survey was drawn from both ISO 9000 and non-ISO 9000 companies. The study focused on the managerial levels; top management, middle management and shop floor staff.

A combination of simple random sampling (to select) and informed decision (to classify size) were used. A sampling rate of (192 responses out of 308 KSMLMEs) 62% was obtained. It should be noted that the coverage of companies included Small, Medium and Large Enterprises (SMLEs). The respondents of the survey questionnaire were categorised as follow (Table 22):

<i>Management level</i>	<i>No. of respondents</i>
Top managers	41
Middle managers	53
Shop floor managers	98
Total	192

Table 22: Number of respondents category (author's compilation)

4.7.4 Reliability and validity of the measures

In order to be assured about the reliability and validity of this study, a pilot test with 15 respondents was undertaken. The results of the pilot test will be inferred through Cronbach's alpha test (a statistical test used in order to confirm the validity of the measures adopted for this study). According to measurement (survey variables) validity, the author also asked respondents about the clarity of each statement and whether each statement was easy to understand and reflected the variables in the survey questionnaire. It is very important to check that there are no mistakes or errors in the survey in order to ensure validity. The author also reviewed this survey by asking a supervisor to confirm the validity of these measures.

In any study reliability tests are undertaken to ensure that measures used in the study are dependable. Reliability tests certify internal uniformity. For the purpose of this study an alpha value of .70 and above was used to point out reliability (Nunnally & Bernstein, 1994).

4.7.5 Response and non-response rate

Response rates are of serious concern to any research since the greater the response the more probable the research would precisely estimates the variables under investigation of a specific population sampled (Tuten, Urban, & Bosnjak, 2002). A greater response rate would not only offer better findings and the possibility to draw better inferences and analysis, but it would also strengthen the conclusion reached by the researcher based on the collected data (Yin, 2003).

The significance of this issue has driven researchers to underpin the importance of increasing response rate, in other words, to reduce non-response rate (Biemer & Lyberg, 2003). According to Hox and De Leeuw (1994, p. 330) the researchers have emphasis on the necessity of a high response rate and said;

"Research results can be biased if the non-response is non-random, and if it is in some way correlated with the variable measured in the survey. Since the process

leading to non-response is usually unknown, it is often optimistically assumed that when the response is high, there is no serious non-response bias. Thus, a high response rate is viewed not only as desirable, but also as an important criterion by which the quality of the survey is judged".

In self-administered survey, such as this study, there are three response behaviours: 1), a questionnaire is not answered or responded to, 2), the questionnaire is partially completed and returned (there are some missing answers), and 3) a questionnaire is completed in its entirety and returned to the researcher.

According to the first non-response behaviour, it might happen as a result of participants failing to return the response behaviours. This non-response behaviour is called unit non-response (Groves et al., 2004). According to this study, unit non-response was a major concern of this researcher. To reduce such inaccuracy, the researcher provides respondents with his personal contacts numbers and email to facilitate the survey return. The researcher also re-visited locations of industrial firms where respondents feel difficulties to return the survey or submit it on time.

According to the occurrence of the second behaviour, when an individual returns the questionnaire but only partially completes it; it is called item non-response (Groves et al., 2004). The unit non-response error is a very significant issue in hard copy questionnaires. Sometime participants forget to fill in some items, leading to increase of item non-response rate. In order to avoid such behaviour the researcher made the questionnaire's design very easy and friendly so people were able to easily follow the instructions and complete it. However, despite such attempts the study observed a few missing items (<5%) within the data. To deal with the missing value the researcher used Expectation Maximisation (EM) approach, which is statistically test available in the SPSS, in order to deal with missing value. Questionnaires that were left blank or mostly incomplete were eliminated from the analysis.

Groves et al. (2004) have explained four main reasons for the possible reasons for non-response behaviour in questionnaire method. 1) Due to social environment; For instance, in the large enterprise, the respondents might be busy with work and cannot revise their answers to ensure the questionnaire is fully completed. 2) Gender and

education. For example, the researcher clarifies that males tend to generate more refusals than females and that lower education might refuse more compared to educated people. 3) The interviewer's level of experience. Groves et al. (2004) pointed out that more-experienced interviewers obtain higher response rate and compared to those who have less experience. 4) The survey design level; the survey design is friendly to complete and well organised.

Only the last factor can be manipulated by researchers when hard copy questionnaires are conducted. The researcher gave great consecration to the importance of designing a good survey and to make it well organised and easy to the reader. The researcher also asked several respondents to evaluate the easiness and friendly nature of the survey before the actual distribution. According to the soft-copy of the questionnaire, the researcher reduced the length and the complexity in order to make it easy to be filled in and submitted. The following Table 23 indicates the response rate of this study.

Method	Questionnaire sent	Questionnaire returned	Questionnaire used in the analysis
Hard-copy	200	145	148
Soft-copy	200	175	160
Total	400	320	308
Response Rate= (192/308)=62%			

Table 23: Breakdown of survey questionnaire's response rate (Author's compilations)

Non-response bias has no effects on the results and the conclusions of this study.

4.7.6 Data Analysis Techniques

In analysing the collected data the study used Software Package for Social Sciences (SPSS v.20). The study used several statistical methods:

- **Descriptive tools** (cross tabulation, mean, standard deviation, percentage used for descriptive sample).
- **Exploratory Factor Analysis** used to classify items/questions used in the survey based on factors and to make sure that the items used do, in fact, measure the intended variable.
- **Reliability** test used to make sure that the variables used are highly reliable.
- **T-test** and **ANOVA** used to compare between factors. For instance, to indicate how educational groups differ in their perceptions regarding job satisfaction.
- The study uses **Correlation test** to test the association between variables (e.g. the relationship between enablers and results).
- Finally the study uses **AMOS** to investigate the effect of independent factors (e.g. enablers) on the dependent factor (e.g. results).

4.8 Qualitative Research Design

4.8.1 Case Study Design

This study is galvanised by the recommendation of Eisenhardt (1989) and Yin (2014) who stress carrying out a case study in the primary stages of a research. The case study is simply a research strategy that underpins the importance of understanding the dynamics present within single settings (Yin, 2004). Case studies typically combine data collection methods such as records, interviews, questionnaires, and researcher observations. The evidence may be qualitative (e.g., words), quantitative (e.g., numbers), or both, which give more rational to a research to be carried out (Eisenhardt, 1989; Yin, 2004).

This type of research can be used to accomplish various aims: for example, to provide description of a phenomenon, to test existing models, or create and develop a new models (Yin, 2014). The interest in this case is in the latter; developing a new model based on existing TQM models.

In the planning stage, this study focuses on identifying the appropriate research questions that would allow managements to reveal their perceptions regarding various issues related to QMS. The rationale of carrying out such investigation before any data collection (e.g. quantitative and qualitative) is that the researcher can understand his study's strengths and limitations and which approach will suit his research (Yin, 2014). This research carries out a case study investigation after clearly defining the research problem and carrying out a comprehensive literature review and a careful consideration of the research questions and study objectives (Yin, 2004; Eisenhardt, 1989). A comprehensive literature review and related studies enhances the face validity of the study (Dooley, 2002) and is expected to identify relevant gaps in the literature and relate them to the research questions (Darke et al., 1998). Figure 30 shows the case study process.

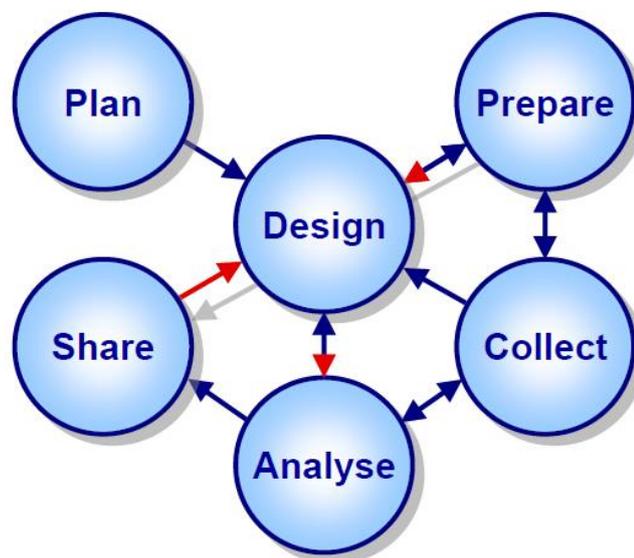


Figure 30: The Case Study Process, adapted from Yin (2009)

For this research, the researcher chose a case study method based on previous researchers' recommendations (Eisenhardt, 1989) in order to determine several

factors that might be incorporated in the KQCM model; the findings obtained from the case study indicate the significance of adding a new variable (culture) into the research framework. The case study method has generally been known as soft study, the properties described above actually make case studies more difficult to implement well (Yin, 2009). Furthermore, while experiments typically control the environment in an artificial context and have many more data points than variables of interest, case studies usually have “many more variables of interest than data points, rely on multiple sources of evidence, with data needing to converge in a triangulating fashion, and benefit from the prior development of theoretical propositions to guide data collection and analysis” (Yin, 2009, p. 18).

Yin (2014, p. 9) also stated “how and why questions are better answered through case studies as such questions deal with operational links needing to be traced over time, rather than mere frequencies or incidence”. The researcher allocated around 2-3 hours for each company and asked questions of how, why, where and what. Managers were found to be highly engaged with this research and provided sufficient answers and examples during the interview. A case study is more appropriate when answering questions like who, what, where, how many, and how much (Dane, 2010).

This study starts with a case that focuses on firms in the manufacturing sector in Kuwait. The researcher carried out interviews with selected personnel from top to shop floor levels. The goal of the case study was to investigate the important issues and factors to be tackled before QMS can be implemented. The case study helped to ascertain the critical factors and barriers that hinder/enable implementation of QMS and allowed the researcher to propose the final shape of the model (Figure 31). The outcome of the case study was shared with the top management in the form of observations on and suggestions regarding the various factors and issues. Based on the results of the case study, this thesis consolidates the outcome and contains some suggestions towards implementation of QMS to implement some improvement initiatives which require changes in the organisational culture, participation and empowerment of people, improved communication process, health and safety environment and production facility lay-out. A model has been proposed for the

implementation of QMS which covers the critical factors, supporting elements and continuous improvement tools for a successful quality implementation project.

4.8.2 Interview development

Yin states that interviews are one of the most important sources of information in case studies (Yin, 1994, p.6). He continues:

Interviews are an essential source of case study evidence because most case studies are about human affairs and these human affairs should be reported and interpreted through the eyes of specific interviewees who can provide important insights into a situation.

With these points in mind, the author paid particular attention to the design and conduct of the interviews in this study. Bardoel and Sohal (1999, p. 265) advise that an interview guide helps to focus the investigation and ensures that a consistent inquiry procedure is followed. Yin (1994) suggests that information received from respondents during interviews with regard to a topic, can be important evidence to support the subject investigated.

Robson (2002) confirms that semi-structured interviews have several benefits over structured interviews, where interviewees feel less formal which in turn eases any pressure and tension when answering the questions during the interview. Since there are no formal settings, the questions and answers sometimes vary. Therefore, attention needs to be paid that accurate information are recorded or noted. Furthermore, semi-structured interviews provide some flexibility to adjust questions based on the situation.

In addition, semi structured interviews involved face to face interaction which proved to be effective in terms of response rate and, for these reasons, the author adopted this technique. Being one of the first such studies in the GCC, it was essential to understand the extent to which quality practices are prevalent in the manufacturing companies and their level of awareness regarding QMS practices. Twenty-five interviews were conducted with different management levels.

The major purpose was to investigate the general state of the manufacturing sector in terms of quality practices and the extent to which they are considered as important factors for the success of QIs implemented in Kuwait. Another aim was to identify the critical barriers to and enablers for the implementation of QMS in their firms as well as their level of awareness regarding ISO 9000 standards, six sigma, TQM and other quality practices. Questions were selected to meet the purpose of the research.

Interviews were conducted with general managers, production managers, quality managers, human resource managers, supervisors and shop floor workers¹. According to Madu et al. (1996), middle management, which comprises production, human resources and quality managers, etc. are considered to be the most effective and important sources of information related to quality related issues in any organisation. They argue that they provide important information due to their awareness and ability in better understanding of quality issues that may affect their organisations, their responsibility for the execution of top management decisions, being in the position where they need to interact with both top management and floor level and their ability to have a better understanding of the company's performance and reactions of staff at floor level. Therefore, different management levels (top, middle & shop floor) were selected as the source of information for this research. The respondents were drawn from 192 large, medium and small manufacturing industries. The following Table 24 summarises the interview questions for each segment of target respondents.

Interview questions	Top Management	Middle Management	Shop floor managers
Q1	To what extent does your company have a policy to ensure customer satisfaction?	To what extent does your company have a policy to ensure customer satisfaction?	To what extent are you aware of the long term vision of your company?
Q2	Can you give an example(s) please?	Can you give an example(s) please?	What are the benefits of QMS?

¹ Shop floor managers/supervisors/workers mean the same thing and in all cases it refers to the lowest level of management and does not include non-management workers.

Q3	How does your company carry out continuous improvement	How much you are aware of the quality tools and practices?	To what extent do you do more than one job when you are asked to do apart from the one assigned to you by your manager?
Q4	How this can be achieved?	What do you know about quality management systems such as six sigma, ISO series and total quality management (TQM)?	How much do you know about quality improvement issues?
Q5	To what extent does the top management of your company follow Quality Management System (QMS) principles?	How can QMS be useful for your company?	To what extent do you have the chance to express yourself in terms of new ideas regarding the improvement of products quality and how?
Q6	Is teamwork encouraged and how?	What are the major drivers of your company business?	How is your work relationship with other employees in the company and is there a reward system?
Q7	To what extent does your company endeavour to empower employees and how?	What is the procedure if there are any defects of products?	How do you feel about your value to the company?
Q8	What are the critical issues of implementing QMS in your company?	What are the barriers to implementing QMS in your company?	When there is a defect, how do you handle it?
Q9	-	-	What do you know about quality management systems such as six sigma, ISO series and total quality management (TQM)?

Q10	-	-	How do you improve the organisational culture of your company?
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Table 24: Interview questions for each segment (author’s compilation)

4.8.2.1 Interview Design

The author considered the following questions when designing the semi-structured interview. What questions to ask the interviewees (i.e. the questions, the content of the interview; how to conduct the interviews (the procedure); who the interviewees should be (this selection took place once the content of the interview had been determined so that appropriate interviewees could be interviewed who would have sufficient knowledge to answer the questions); and finally, when and where to conduct the interviews.

4.8.3 Content Analysis

The qualitative content analysis is a research methodology that aims to analyse collected materials (e.g. interviews) in an organized way (Mayring, 2007). Such a method is a valuable instrument in qualitative research since it seeks to provide procedures and rules that a researcher should use in order to improve the concepts of verifying reliability and validity (Mayring, 2007).

In order to carry out qualitative content analysis, the source material required is to be defined as a first stage. This includes clarification of who was interviewed and how the sample was selected (Mayring, 2003) (see sections 4.7.2 and 4.8).

Moreover, to define the purpose of the analysis and in order to be able to analyse the interviews, the research question must be based on a theoretical background and thoroughly defined and explained (Mayring, 2003). Research questions and the theoretical background were developed in the theoretical part of the thesis and were explained and clarified to the interview participants.

The qualitative content analysis can never be entirely standardised; since this approach always needs to be connected to the individual material (interviews) as well as the research question. Hence, it is strongly suggested that the developed methods and instruments are tested in a pre-test and modified accordingly if necessary (Mayring, 2003) as happened in this study by means of the pilot study (case study).

There are basic forms of interpretation in qualitative content analysis: '*summary*' or the reduction of the collected data, '*explication*' or finding further material (e.g. the case study and questionnaire results), and finally '*structuring*' or filtering important aspects from the data (Mayring, 2003).

For the present qualitative content analysis '*summary*' and data reduction, the study provided a summary for each research question placed at the beginning of each title according to the research questions of this thesis. For '*explication*', the study used the results of qualitative analysis as well as the case study in order to provide further material to carry out the analysis (see discussion section 6.13, chapter 6). Finally, the study carried out '*structuring*' and filtered the relevant content out of the material as a whole and divided it into specified categories (top management results, middle management results and shop floor manager results) as the most appropriate way. Moreover, under each category (e.g. top management), there are several sub-categories (e.g. manufacturing policies and customer satisfaction, manufacturing and continuous improvement, the implementation of Quality Management System (QMS) principles), classified according to interview questions, which also seemed to be the most appropriate way for this research.

Silverman has explained that when coding data, one has to be aware of the possibility of excluding data that does not fit into the categories. Sometimes respondents explain issues that are not related to question under investigation but to previous questions asked during the interview (Silverman, 2000). Therefore, it is crucial to define the categories precisely and to watch for potentially significant data outside the categories. For this research, each category was differentiated into several subcategories and for each subcategory variables were developed.

The next section describes how the transcribed interviews were transferred into analysable contents for this thesis.

Initially, a draft of categories including constructs was defined and coding rules were structured in order to distinguish the categories. The researcher read the transcripts and underlined every statement of the first interview that seemed relevant at first glance. After structuring and defining categories, the content of the transcript was structured using a colour scheme. Statements, opinions and quotes were extracted by order of their colour (e.g. statements in blue, opinions in red); summarising them into their categories. When the contents did not fit in the existing categories, the author created a new one. As depicted in section 6.12, some statements are quoted directly, but most were summarised and paraphrased.

After coding all the interviews, the collected statements were analysed and interpreted (see section 6.12, chapter 6). It should be noted that in order to carry out data analysis the researcher rearranged and merged answers around interview questions to come up with a final outcome as presented in the findings chapter. This for instance, was due to the interrelation between interview questions as often respondents mixed the answers of several research questions. During the analysis and the discussion of the results, it became clearer to the author how to organize respondents' answers. Similarly, it became apparent that interviewees, for example, revealed a strong focus on the importance of culture in their interpretation. Furthermore, the author had to decide which categories provided the most important results for the purpose of the study. Some views seemed less relevant than others and a few categories, e.g. the benefits of QMS for shop floor managers specifically were not answered very clearly which might indicate a lack of awareness regarding QMS in Kuwait.

4.9 Assessment of the KQCM model

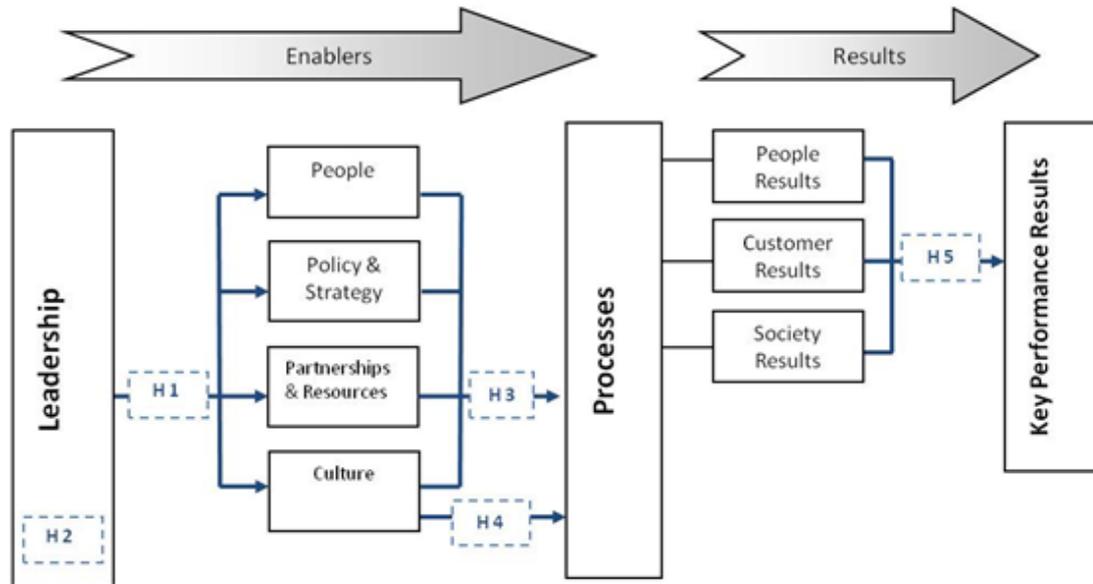


Figure 31: KQCM model including hypotheses (author's compilation)

The research framework of this thesis is originally based on EFQM (European Foundation for Quality Management), a non-profit membership foundation established in 1988 to aid European organisations in increasing their competitiveness. As a consequence, the founding members developed a management instrument in order to attain sustainable excellence. The outcome is known as the EFQM Excellence Model (referred to as the EFQM Model) (EFQM, 2010).

Unlike the EFQM model, the KQCM model uses 10 criteria (see Figure 31) which are divided into two groups; enablers and results. According to Martín-Castilla et al. (2008, p. 138) “enablers are a set of criteria that offer an applicable approach for the achievement of excellence in organisational results”. The cornerstone of the model of this study lies in collaboration; it seeks to support organisations and management of manufacturing companies by focusing on creating customer value through understanding organisational culture in order to implement strategies.

Steed further explains the concepts in the context of implementing them in higher education institutes (Steed, 2003):

Definitions of the main concepts	Interpretation for higher education context
Results Orientation	
Excellence is achieving results that delight all the organisation's stakeholders.	Focusing clearly on and understanding students and other customers' needs, expectations and values, keeping in consideration and valuing their contribution, and the contribution of other stakeholder groups.
Customer Focus	
Excellence is creating sustainable customer value.	Anticipating, balancing and meeting the current and future needs of customers, staff and others, through developing and setting a balanced range of appropriate indicators or targets, tracking performance, benchmarking, and taking appropriate action based on this holistic range of information.
Leadership and Constancy of Purpose	
Excellence is visionary and inspirational leadership, coupled with constancy of purpose.	Clearly demonstrating visionary and inspirational leadership, which is transparent and open, with a constancy and unity of purpose which is shared by everyone in the institution
Management by Processes and Facts	
Excellence is managing the organisation through a set of interdependent and interrelated systems, processes and facts.	Understanding and systematically managing all activities through a set of interdependent and interrelated systems and processes, with decisions based on sound and reliably evidenced information
People Development and Involvement	
Excellence is maximising the contribution of employees through their development and involvement.	Developing, involving and engaging staff, maximising their contribution in a positive and encouraged way, with shared values and a culture of trust, openness and empowerment.
Partnership Development	
Excellence is developing and maintaining value-adding partnerships.	Developing meaningful and mutually beneficial relationships, both internally and externally, in order to gain added value for partners, and

	support the achievement of both strategic and operational objectives.
Corporate Social Responsibility	
Excellence is exceeding the minimum regulatory framework in which the organisation operates and to strive to understand and respond to the expectations of their stakeholders in society.	Understanding, appreciating and considering positively the way in which the institution interacts with and impacts on the local and wider society, from both a practical and ethical perspective
Organisational Culture	
Culture is about symbols, patterns, explicit and implicit of people behaviour which affect the achievement of human groups in their context (Spencer-Oatey, 2000)	In the higher education sector, performance is affected by teamwork, individuals' attitudes and beliefs and their ability to accomplish specific tasks in a specific time framework and to a specific standard and quality.

Table 25: Explanation of model elements (Steed, 2003; Spencer-Oatey, 2000)

Although, Table 25 deals with the higher education sector, the author feels that this can also be applicable to the manufacturing context.

4.10 Development of Hypotheses

As the aims of this study include ascertaining the general situation/status of the Kuwaiti manufacturing sector, it is important to propose a number of hypotheses which will result in a better understanding of the research problem. Furthermore, developing hypotheses will clarify uncertainties that may occur while investigating the subject of implementation of QMS within KSMLMEs. Table 26 provides the references from the review of literature that helped the author to develop the hypotheses.

Hypothesis	References
H₁ : QMS performance is positively associated to commitment and leadership of top management.	[6],[7],[8] & [9]

H₂ : Communication between top and bottom management is important.	[7],[9],[10],[11],[12],[13] & [14]
H₃ : Employees' empowerment and relevant processes are crucial in implementing any quality practices.	[8],[9],[6] & [7]
H₄ : Culture plays an important role in the implementation of QMS in Kuwait.	[1],[2],[3],[4] & [5]
H₅ : KQCM model will lead to better organisational performance.	[7],[9],[15],[16],[17] & [18]
<p>[1] (Kilmann et al., 1985); [2] (Garrity, 1993); [3] (Parmelli et al., 2011); [4] (Gilaninia et al., 2012); [5] (Xie et al., 2014); [6] (Dale et al., 2007); [7] (Dodangeh et al., 2012); [8] (Osseo-Asare et al., 2007); [9] (Dubas & Nijhawan, 2005); [10] (Slack et al., 1995); [11] (Thiagarajan & Zairi, 1998); [12] (Deming E. , 1986); [13] (Allison & Kaye, 2005); [14] (Bryson, 1988); [15] (Gadd, 1995); [16] (Ghobadian & Speller, 1994); [17] (Steed, 2003); [18] (Zairi & Whymark, 2003)</p>	

Table 26: Hypotheses references (author's compilation)

4.11 Ethical Research Design Considerations

The importance of considering ethical questions during research cannot be over-emphasised. This is confirmed by Banister et al. (1994, p.202) who state that “ethical concerns must be part of the fundamental design of any research project”. Important ethical concerns had to be taken into consideration during the study. Methods proposed by Finn et al. (1994) were used to address these concerns as described below.

A declaration of participants' voluntary participation was included. The respondents were assured regarding data privacy and complete confidentiality. Furthermore, respondents were also informed that the information collected from them would only be used for this particular research.

Informed consent and voluntary participation: All managers participating in this study consented to take part in the study. Before carrying out the interviews, and

before visiting any of the selected firms, the researcher informed all participants about the goal of this study, what the research would ask the participants, as well as the anticipated duration of interviews and questionnaire. Participants were also aware of how the findings would be used once they had been collected from them via semi structured interviews and questionnaire. For those interviewees who did not want to participate in this process or refused to give consent, their choice was respected.

Confidentiality and anonymity: confidentiality and anonymity are ethical matters which have to be always respected and followed. Consequently, the author maintained this throughout this research study.

4.12 Chapter Summary

This chapter described the research design and the research methods and results of the selection process. This chapter provides the framework and the research methodology used in this study. The research used mixed method and a deductive approach. Data will be collected through survey and interviews. For the survey, data analysis will be performed using SPSS v.20 and the results will be discussed in chapter six.

Chapter 5 Case Study

According to Stake (1995), case study research is defined as an investigation and analysis of a single case, intended to capture the complexity of the object of study. Case study research is widely used by and increasingly popular with researchers in various disciplines and academic fields (Hsieh, 2002) and sheds light on the dynamics that exist in management situations (Ridder et al., 2009). Hartley (1994) believes that such research is commonly utilised in studies of organisations such as sociology and industrial relations, while according to Hyett, Kenny & Dickson-Swift (2014, n.p) Merriam perceives case study research as a “catch-all design to justify or add weight to fundamental qualitative descriptive studies that do not fit with other traditional frameworks”. Emory and Cooper argue a case study is a very useful way in exploring existing theory (Emory & Cooper, 1991), while Yin advocates that a case study is a story about something unique or interesting and can be about organisations, institutions or processes (Yin, 2003). Boutellier, Gassmann, and Raeder (2011, p.2) describe case study research as “an iterative process with multiple feedback loops” that allows for adaption. In contrast, Johnson claims that case studies lack scientific rigour and reliability and that they do not address the issues of generalisability (Johnson, 1994). However, there is some strength to case study research. For instance, Gummesson suggests that it enables the researcher to acquire a comprehensive perspective of a specific issue under investigation or arrangement of occasions and can give a round picture subsequent to numerous wellsprings of confirmation are utilized (Gummesson, 1991) Another advantage, according to Hartley, is that the case study can be useful in capturing the emergent and immanent properties of life in organisations and the ebb and flow of organisational activity, especially where it is changing very fast (Hartley, 1994, p. 208). Case studies also allow generalisations as a

result of findings using multiple cases which may lead to some form of replication (Noor, 2008).

Correspondingly, this chapter includes an overview on qualitative case study research with regard to its benefits and advantages towards complementing studies involving a mixed methods approach. This chapter presents the findings of a case study conducted at XYZ Ltd (a pseudonym), in Kuwait. The company was originally classified as a Medium Enterprise (ME), but after introducing new products its capacity increased, as did its annual turnover – from KD480,000 to KD2 million. Therefore, it is currently classified as a Large Enterprise (LE), according to the KSPDC (see 2.3 for enterprise classification criterion). The main facts, including the obstacles/issues facing the company are presented. The company's identity and profile of the case study is kept strictly confidential in line with the research ethical considerations of the University of Portsmouth and at the request of the company owner.

The case study included semi-structured interviews with selected personnel from top management to shop floor levels including managers, accountants and technical staff, which allowed investigation of the important issues and factors to be tackled before QMS can be implemented. The case study visit also included plant tours and observation of the manufacturing process which assisted the identification of the barriers and enablers that hinder/enable implementation of QMS.

The outcome of the case study was shared with the top management in the form of observations of and suggestions regarding the various factors/issues. The report presented in this chapter is the consolidated outcome of the case study and contains some suggestions for QMS implementation through improvement initiatives which require changes in the organisational culture, participation and empowerment of people, communication process, health and safety environment and production facility lay-out.

A model was proposed for the implementation of QMS which comprised critical factors, supporting elements, and continuous improvement tools as the requirements for a successful quality implementation project.

5.1 Introduction

QMS is one of the most powerful integrated quality management systems that emphasises to a great extent the culture of continuous improvement. In its simplest terms, QMS is defined as an organisation's structure, procedures, responsibilities and resources to guide and control and control the organisation with regard to quality and to constantly the effectiveness and efficiency of its performance (Sedevich & Leonardo, 2011). It also aims to increase production efficiency and increase profits through the utilisation of its practices, tools and techniques. Process improvement tasks are important keys for continued business success. Amongst the various QMS tools, lean six sigma manufacturing can be a powerful process improvement practice for eliminating waste.

5.1.1 Aims and objective

This case study, on a Kuwaiti manufacturing firm (XYZ Ltd), aimed to investigate the approach to QMS by identifying the barriers and enablers to its execution, then presenting the findings to the top management of the company for their use. It was hoped that this would improve the company's performance and thus act as an example for other manufacturing companies in Kuwait which would be encouraged to use the problem-solving techniques and recommendations suggested.

The prime objective of the study was to create an understanding of and determine how SMLEs can prepare their firms to overcome barriers when implementing QMS. It also included enabling the company to identify its problems and tackle them through implementation of QMS improvement tools and techniques.

5.1.2 Methodology

To gain an in-depth understanding of the critical issues of QMS implementation, the following main tools and techniques were used:

- Semi-structured interviews with various personnel including the General Manager;
- Observation of factory and its various activities;
- Attendance at one of the company's regular meetings;
- Examination of company documents and manuals.

The interviews were focused on the management's approach with respect to QMS practices as well as the general views of key personnel, together with the views of shop floor staff. The results highlighted key issues faced when the implementation of QMS first took place.

Interviews were conducted with key selected personnel who would be responsible for QMS implementation in the future. The questions focused on several factors that are important when implementing QMS, such as how ready the organisation is for QMS, adaptation approach, existing quality initiatives and their effect on QMS and how to overcome barriers.

The reason behind choosing XYZ Ltd was its location, variety of products manufactured and open-mindedness of top management, who were willing to implement quality improvement tools in their firm. They were receptive to new changes and ideas in order to cope with the competitive market in Kuwait.

In addition to the interviews, a thorough observation of the factory's operations procedures through plant tours was carried out.

5.2 XYZ Ltd profile

XYZ was the first to manufacture flexible foam in the GCC. It was founded in the late 1960s and manufactures a wide variety of products ranging from different kinds of mattresses to pillows and living room furniture such as sofas, etc.

XYZ management are striving to upgrade their production lines by adding up to date machinery which would enable them to meet their customers' needs and requirements. They claim that this has helped them to provide their customers with high quality products

at low and competitive prices. They believe that customer satisfaction is the driving force for implementing quality improvement tool(s).

5.3 Current situation

This section outlines the current situation of the case study company. It considers its production process, inventory management, quality initiatives, employee empowerment, current problem-solving system and health and safety standards. The visit uncovered many previously unrecognised issues, such as most of the documented lean waste forms being evident in the factory, for example, unnecessary motions, overproduction and redundancy of skilled people (whether through being laid off or not being fully utilised). However, the promising sign was the top management were willing to overcome those issues. The main pitfalls were the lack of communication between workers and departments: for any improvement tools to be deployed, communications have to be established.

Health and safety issues appeared to be considered as unimportant, which could have a negative impact on workers' performance and efficiency. Finished goods and raw materials were kept in storage rooms without being partitioned, labelled or signed. Finished goods were also kept for a long time in the store.

The company had recently introduced the ISO standard, but purely as a marketing tool to enhance its brand and image.

Furthermore, there are some issues that the company can do little about as they are out of its control, for example the factory space constraint (government controlled) and late delivery of raw materials. The following section highlights the situation at the time of the study and the main findings in the important areas of production and processes.

5.3.1 Product and process

The company produces different types of sponge made from different kinds of foam: the raw materials are purchased from three or four different suppliers based in France, the UK and other countries. The customers are from within Kuwait. Product volumes are dominated by the factory's mixing capacity. Both standard and customised sponges are produced.

The manufacturing process is illustrated in Figure 32. The production capacity of the company was increased when it became capable of manufacturing new products, such as beds, mattresses, pillows and sofas, in all shapes and styles. The arrows and comments in the figure below illustrate the critical processes. The dotted blocks indicate different buildings.

The red dotted block represents the warehouse for storing the raw materials. The green is the plant area where operations including mixing, foaming and conveying² of semi-finished products (blocks of sponge) take place. The black dotted block represents the plant where operations include cutting and curing take place and the yellow dotted one represents the warehouse where the finished products are stored ready for delivery/collection.

² Means transportation on a conveyor.

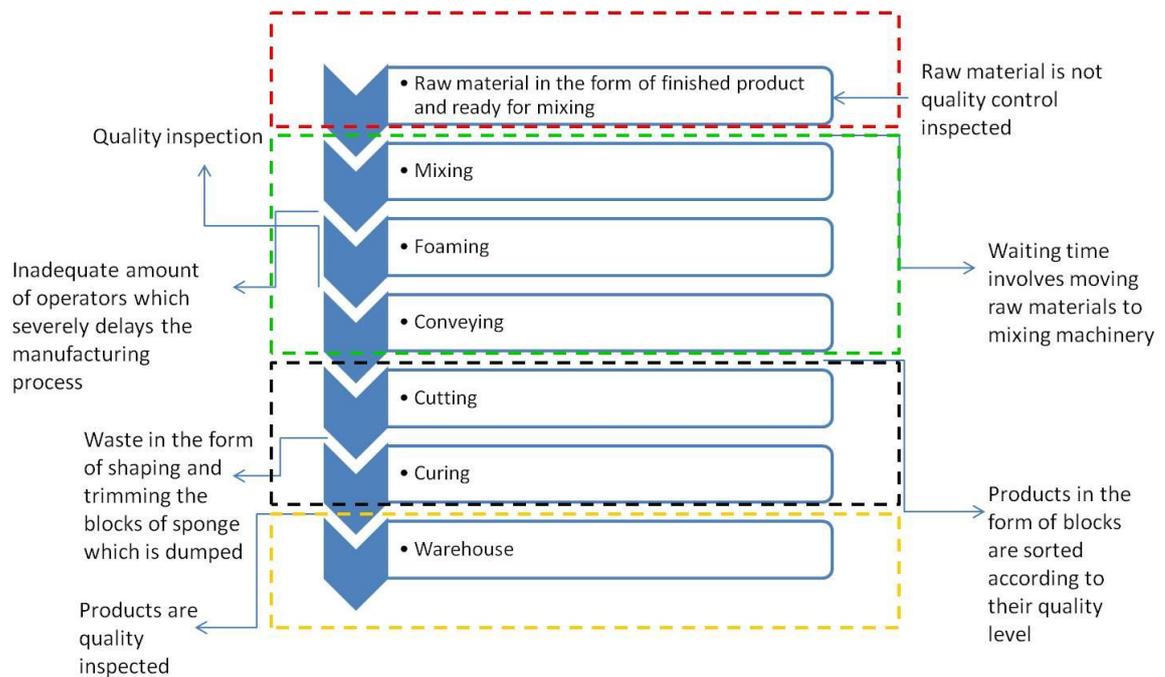


Figure 32: Current production flow chart (author's compilation)

The current flow of production produces many forms of waste including transportation, waiting time and motion when moving raw materials from the warehouse to the plant area for mixing, foaming and conveying. Inventory is one of the major issues as the system used is not understood by technical staff although they pretend that they know how to utilise it. Another form of waste is the lack of empowerment of the workforce (talent); in other words, workers are not cross-trained regularly in case of staff shortages. Also, raw materials are not quality inspected which means that some of the finished products may have inherent defects: this is further compounded by staff shortages in the cutting area where the blocks of sponge are inspected for defects, both of which have the potential to lead to delays for customers.

5.3.2 Inventory management system

The current inventory planning system used by the company's visited is closely related to Materials Requirement Planning (MRP). MRP focuses on end product with close loop

design in the form of Gantt chart sequencing and scheduling rules (Olhager, 2013). By using specialised MRP software, three different levels of planning are involved:

1. Demand planning based on future weekly demand;
2. Capacity planning: the capacity available on the shop floor
3. Distribution planning: how the products are delivered to the customers.

At the time of the case study, a simple Excel programme was used for this which was not sufficient enough to incorporate all the variables.

5.3.2.1 Inventory storage system

It was noticed that there was a large inventory, including both raw materials and finished products. This could incur more costs by, for example, the purchase of extra raw material due to being unable to locate supplies already bought in or over-production as illustrated in figures 33-36.



Figure 33: waste after cutting process Figure 34: finished product of polyester



Figure 35: Inventory of sponge after cutting process Figure 36: store of finished products

5.4 Facility or production layout

Layout decision includes the best placement of machines (in production settings), offices and desks (in office settings) or service centres (in settings such as hospitals or department stores) (Paneru, 2011). An effective layout increases the fluidity of dealing with materials, people and information between areas within the organisation so everyone knows what is what and where parts and materials are kept (Heizer & Render, 2000). Some of them are explained as follows:

1. Fixed Position layout – addresses the layout requirements of large, bulky projects such as ships and buildings (concerns the movement of material to the limited storage areas around the site).
2. Process Oriented Layout – deals with low volume, high variety production (also called ‘job shop’ or intermittent production). It can manage varied material flow for each product.
3. Office Layout – fixes workers’ positions, their equipment, and spaces (offices) to provide for movement of information (locate workers requiring frequent contact close to one another).
4. Warehouse Layout – addresses tradeoffs between space and material handlings (balance low cost storage with low cost material handling).
5. Product-oriented Layout – seeks the best personnel and machine utilisation in repetitive or continuous production (equalise the task time at each workstation) (Heizer & Render, 2000, pp. 336-337)

Currently, the production layout of XYZ is a combination of warehouse and fixed position where materials handling and space is an issue, as is the inflexible position of production processes where heavy machines cannot be moved easily.

Furthermore, although the facilities are arranged according to the process required – from the beginning (mixing) to the end (curing), it was evident that there were a lot of incidences of waste in the form of motion and also large works in progress such as machining, especially in the foaming section. After cutting, the finished products are

transported to the finished product store via a lengthy route. Similar machines are grouped together which is ideal, but there is a bottleneck between foaming and cutting due to the time needed to inspect the semi-finished products and deal with any defects likely to occur. There always seems to be some work-in-process inventories in the cutting area where the sponges are quality classified. The quality level is indicated by the colour of sponge blocks.

It was further observed that the production process at XYZ was further affected due to the following reasons:

- Necessary and unnecessary items mixed together in the work area;
- Tools, supplies, books and materials randomly located;
- Untidy and disorganised workplace areas;
- Minimal attention paid to overall housekeeping;
- Unsafe storage of raw materials;
- Poor health and safety practices in the mixing section; workers did not wear protective masks, suits or boots.

5.4.1 Organisational barriers

After carrying out plant tours, observations and interviews, organisational barriers were identified. These included the following:

- Different perceptions of different management levels; top management claimed to be committed to improvement and change whereas shop floor management said they saw no evidence of this;
- Resistance to change by workers; they are not open to new ideas or changes to the system in use;
- Lack of training;
- Lack of resources;
- Organisational culture barriers;
- Inadequate education and skills.

The manager of the company shared his desire to foster a quality culture throughout the company; however, the commitment was not reflected by other managers and shop floor workers, perhaps because people were sometimes afraid to report problems because they thought it could have personal repercussions. For example the production manager claimed that the products and processes were excellent, but in reality they were not.

5.4.2 Quality improvement initiatives

The quality system and quality procedures are ruled by ISO 9000 certification. ISO 9000 had recently been introduced by the company, but it appeared that not everyone was involved in the process of achieving this award and the objective of the registration had not been properly communicated to all staff. It was noticed that there was some resistance from the workforce to the implementation of this quality system. Most interviewees complained that it took far too long to fill in the forms required by ISO 9000. The general impression received was that staff were not fully behind the ISO 9000 registration and there was also resistance from a senior manager. There was a feeling (noted after interviewing some of the staff during the tour visit) that management was forcing them to accept the idea of implementing the ISO standard and some were worried that this might lead to job losses. Top management, however, claimed to be fully committed. The lack of any quality improvement tools which could help the organisation to improve its business performance and increase production capacity was also noted: staff, when interviewed by the author, revealed no knowledge of quality improvement tools such as six sigma and 5Ss and their benefits. Consequently, this reflects culture constraints and gaps between communication channels among different managerial levels by imposing new ideas, reinforced by their managerial power.

5.4.3 Employee empowerment and communication

People facing cultural change and challenges due to the implementation of new quality initiatives need to understand the reasons for change first. This requires having a clear communication plan and channels, motivating individuals and educating senior managers, employees and customers about the benefits of quality initiatives. Communication is vital as organisational members need to communicate from top to bottom and vice versa in order to accomplish their tasks efficiently. This can be achieved by increasing the number of regular meetings, briefings and group discussions so that top management have to involve their staff in order to create a communication channel between them. Another suggestion would be cross-training their employees to prevent potential production delays due to absences.

5.4.4 Problem-solving technique

Currently, it is apparent that there is no coherent system that helps managers at any level solve production or quality related problems as they arise. See 5.4.4.1 suggests a problem-solving technique which could be used by the top management of XYZ.

5.4.4.1 Force field analysis

Any programme of change involves factors which can affect it. This was investigated by Lewis (1951) who examined the relationship between driving and hindering forces for change. The driving factors/forces are the ones that the organisation/top management intends to implement and the restraining/opposite forces are the obstacles/problems hindering their implementation.

Figure 37 illustrates this for XYZ. The driving force includes:

- Desire for better quality of products;

- Increasing competitive pressure;
- Change the old production layout;
- Increase skills and knowledge of workforce.

Whereas the restraining force includes:

- Anxiety of middle management, as well as shop floor workers, about job security because of implementing new technology, e.g. QMS;
- Low educational level of workforce at lower levels;
- Costs of implementing new quality tools;
- Both background and workplace cultural differences and their effect on the area within the company where the new change will take place.

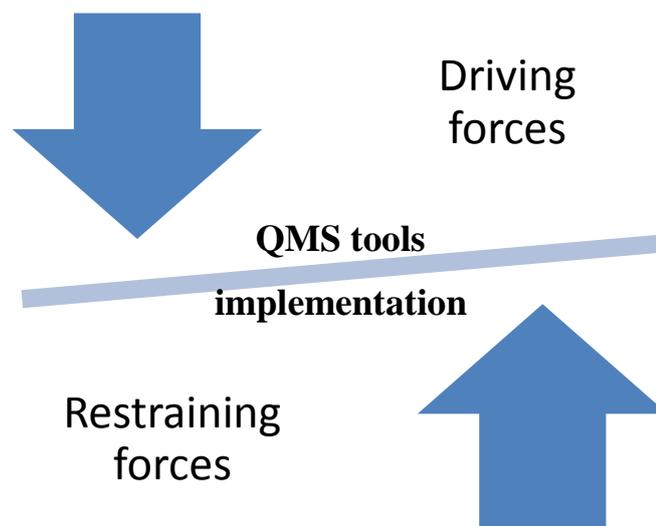


Figure 37: Force field analysis for XYZ Ltd based on Lewin (1951)

5.4.5 Health and safety

Workers' safety, accident prevention and environmental protection should be of paramount importance to any company. It was observed that the plant area was not clean and tidy and

some workers failed to wear their masks during the mixing process as shown in the following photographs as shown in figures 38-40.



Figure 38: Unsafe sponge shaping plant



Figure 39: Unprotected sponge manufacturing machine



Figure 40: Incorrect way of mixing materials for manufacturing the sponge

5.5 General recommendations

This section outlines the main improvement plans/techniques that could be applied in order to tackle the issues discussed in section 2. The following recommendations are only

applicable to the overall results based on the interviews conducted during the author's visit. Moreover, other recommendations are mentioned in chapter 7 based on the results obtained using the mixed method approach.

5.5.1 Vision and mission

The vision (the ideal state of the organisation in the future), mission (why the organisation exists) and strategy (how to achieve the ideal state of the vision) of the company are useful tools which guide the organisation. It was realised during the case study visit that the company's vision, mission and strategy were not publicly stated. A clear statement of where the company would like to be needs to be communicated to all stakeholders in the company to motivate them to achieve the vision. An away vision/mission day for all managers where the company's vision, mission and strategy would be clearly explained was suggested. An experienced consultant could be utilised to facilitate the event.

5.5.2 ISO 9000 certification

ISO 9000 had recently been introduced by the company (February 2013) but it seemed that not all staff were involved in the process of achieving it and the objective of the registration had not been properly communicated. It was noticed that there was some resistance from the workforce to the implementation of this quality tool. It is important that the top management communicate to all levels of its workforce the reason behind the application for ISO 9000 registration. Once the benefits of ISO are communicated, workers will understand that ISO is not a form-filling exercise for the sake of it, but a tool which can reveal hidden problems in manufacturing and maintenance. Additionally, it could help to increase customer demand which could positively reflect on the company's performance in terms of sales and productivity.

The ISO 9000 series can be used to control and direct an organisation in order to improve the effectiveness and efficiency of performance with an emphasis on continuation of

improvement. To make ISO 9000 successful requires effort from all levels of the workforce. Therefore, it is imperative that its benefits are communicated to them. Announcing the results of the ISO project, including successes and challenges, will help future projects to avoid making similar mistakes and in adopting best practice. Employee empowerment is an important aspect of any quality initiative.

It is also important that the company use ISO 9000 as one of their main instruments for communicating quality to their customers.

ISO requires top management dedication and contribution of resources and effort. The author's discussion and meeting with the top management clearly shows that they are committed to this which is an important step forward for the proposed QMS implementation.

5.5.3 Training

Training is a vital tool in preparation for QMS implementation as it will enable personnel to understand the importance and necessity of change in general in any organisation. It will also refresh their minds in terms of managing their newly implemented tool, which in turn will increase the performance and quality of products and processes within their firm.

5.5.4 Problem identification and solving

Implementation of QMS philosophy requires a lot of effort. The first thing it requires is changing the mindset of people to be receptive to the intended change, in XYZ's case, to prepare for the implementation of QMS tools.

QMS and quality improvement tools:

- A. PDCA (plan-do-check-act) cycle
- B. Ishikawa's diagram (cause and effect diagram)

C. 5S (sort-set-shine-standardise-sustain)

5.5.4.1 PDCA cycle

The method involves four steps – Plan, Do, Check, and Act (Figure 41) – which are repeated until a project's output attains its targeted objective the length of a PDCA cycle depends on the human factor and the complexity of the problem being investigated. A cycle can vary from one day to one week, one month or longer.



Figure 41: PDCA and Deming's wheel (Deming, 2000)

Applying the PDCA cycle to the current problem would initiate productivity improvement by improving workplace safety in the first place. The implementation phases of PDCA can be summarised as follows (Deming, 1982):

1. Given a work assignment (improving workplace safety), a selected team makes a concrete action plan for the first cycle. At this stage it is necessary to obtain thorough knowledge of the problem, determine the people involved and define the role of each member (**Plan**).
2. The team registers the Plan in the system where a timed PDCA mechanism is implemented. The team will execute the planned action during the cycle (**Do**). At this stage, the established plan should be followed carefully.
3. At the end of the cycle, the team is requested by the PDCA system to check if the planned actions were done and any progress was made or not (**Check**). At this

stage, progress can be measured by using selected indicators (comparing the results with the targets).

4. After step 3, the system prompts the team to analyse the weekly performance, identify causes of any issues, and answer questions specifically based on the answer in Check phase (**Act**). At this stage, if any negative causes are found, root cause analysis (using the fish bone diagram) can be performed.

Finally, the team is requested to present the revised plan for the coming week in the system, thus entering into the second round of the PDCA cycle. To come up with a solution for the specified problem might take several weeks. By repeating such cycles, the team can achieve the targeted objective (improvement of work area safety) which will allow an increase in productivity.

5.5.4.2 Ishikawa's diagram

Ishikawa's diagram, also known as the cause and effect diagram, can be used to represent major problems seen in the production process. Here, the problems mentioned in section two are used to prepare the cause and effect diagram to represent the major causes which are preventing successful implementation of QMS improvement tools. The cause and effect diagram helps to visualise and convey the important relationships between the seemingly disconnected elements (Jayswal et al., 2011).

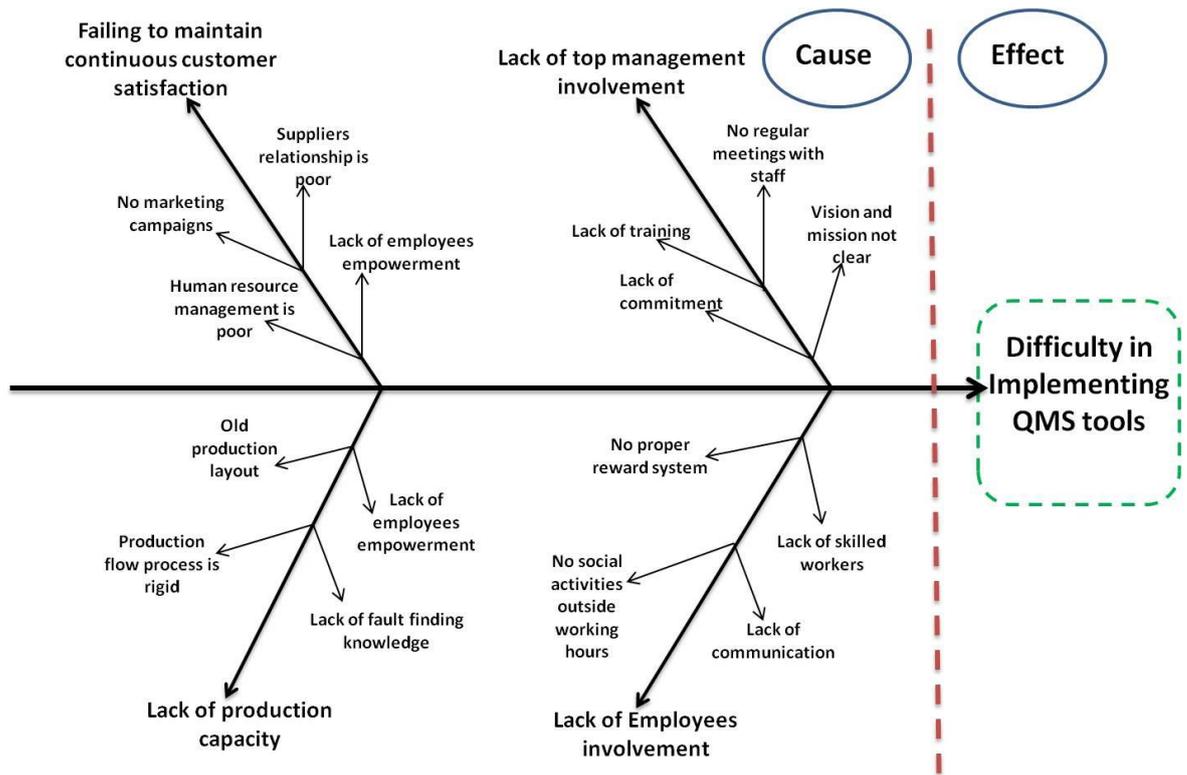


Figure 42: Cause and effect diagram for XYZ Ltd (author's compilation)

Figure 42 shows the cause and effect diagram representing major causes that might cause QMS implementation difficulty, the four overall sectors being failure to ensure customer satisfaction, and lack of top management involvement, production capacity and employee involvement.

5.5.4.3 Implementation of 5S

5S can act as a most effective and useful tool to start the QMS journey. Understanding and implementation of 5S creates better surroundings through good housekeeping. The visual change brought about by 5S can be seen by all workers and they will feel better when working in a tidier, cleaner and safer environment (Chitre, 2010; Cooper, Keif, & Macro, 2007).

Skaggs (2009) recommends the 5S technique as the first QMS method organisations should consider implementing as it helps to reduce waste, make the best of productivity and optimise it through maintaining an orderly workplace by using visual signals that will help achieve more consistent operational results.

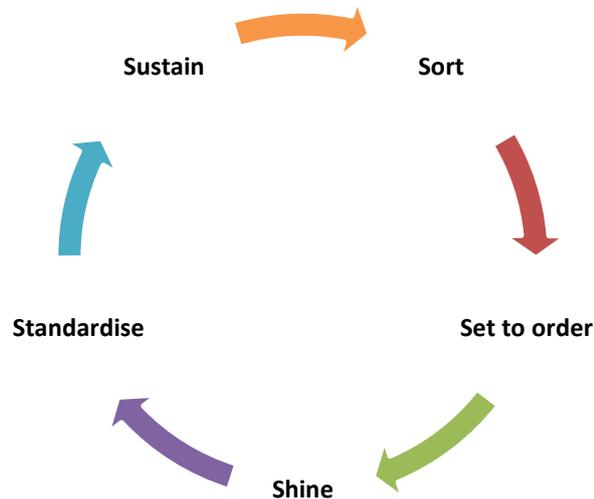


Figure 43: 5S cycle (Skaggs, 2009)

“A typical 5S implementation would result in significant reductions in the space needed for existing operations. It also would result in the organising of tools and materials into labelled and colour coded storage locations, as well as "kits" that contain just what is needed to perform a task” (Shinde & Shende, 2014, p. 141). It is a simple learning activity that can be organised in any department of the organisation. From the management perspective, 5S is the first activity that will test organisational readiness for QMS and the management commitment to implement change.

5.5.4.3.1 Benefits of 5S:

- Positive impact on workers’ morale and reducing defective equipment/items.
- Make the delivery time faster by reducing lead time in terms of equipment downtime, cycle time and maintenance. Its implementation also means that workers will not need to search for missing items.

- Reduce the changeover time as well as the shift start-up time; post-5S implementation, shifts can start their work straightaway.
- Reduce space needed for storage and inventory which can save money.
- Make waste more visible and easy to tackle.

5.5.4.4 Implementation of six sigma

Six sigma continuous improvements can complement the implementation of 5S by maintaining the quality of performance in terms of process and finished products (productivity). It is a statistical quality improvement tool which helps to improve business processes by reducing costs and waste, and by improving efficiency and effectiveness of processes (Breyfogle, 1999). Six sigma also aims to reduce the variation around the mean value of the process which is one of the vital dimensions of business process (Kanji, 2008).

5.5.4.4.1 Benefits of implementing six sigma

It has been argued by researchers that six sigma can be implemented in many sectors other than manufacturing. The DMAIC application is mentioned quite frequently and has been focused on by six sigma researchers (Hung & Sung, 2011). DMAIC involves:

- **Define:** It is the responsibility of the top management to identify customer requirements according to their feedback, the company's strategy or mission and set goal.
- **Measure:** The refining of the problem and search for the root cause of it to help the project team move on to the next step.
- **Analyse:** The project team analyse the problem using data analysis tools and techniques in order to verify root causes, develop hypotheses and finally validate those hypotheses.
- **Improve:** This is the most important stage, when the project team finds and implements solutions that will prevent the problem from recurring and eliminates waste by developing ideas to remove root causes and set standardised solutions.

- **Control:** Without control the process will start reverting to its previous state so it is necessary for the project team to establish measures and standards and conduct those measures routinely.

5.5.5 Process lay-out design

At the time of the visit, the process lay-out was not efficient and there was a lack of information regarding lead times, changeover times and so on. After implementing 5S, process control could measure the performance of processes and how good the finished product is in terms of defects and quality. Figure 44 illustrates the suggested production layout which transforms the production process from isolated batch manufacturing to a cellular shape; this would reduce the waiting time and motion of transporting the raw materials, and the mixing, foaming and conveying processes since the latter three processes would take place in one area. Another benefit of cellular manufacturing is the multiplicity of jobs which the worker can take responsibility for once suitably trained. Furthermore, cellular manufacturing would enable workers to switch from one task to another due to their physical proximity; in theory, this would also engender a sort of ‘feel good’ factor as they are not doing one job all the time. The figure below shows the suggested enhanced system of quality inspections at various stages in the manufacturing process. Operators of foaming machines must be trained on how to operate, fault find and troubleshoot, techniques which are crucial to reducing Work in Process (WIP) time. Last but not least, the waste which occurs after cutting the blocks of sponge must be cleared and recycled in order to reduce costs which will in turn increase XYZ’s profits.

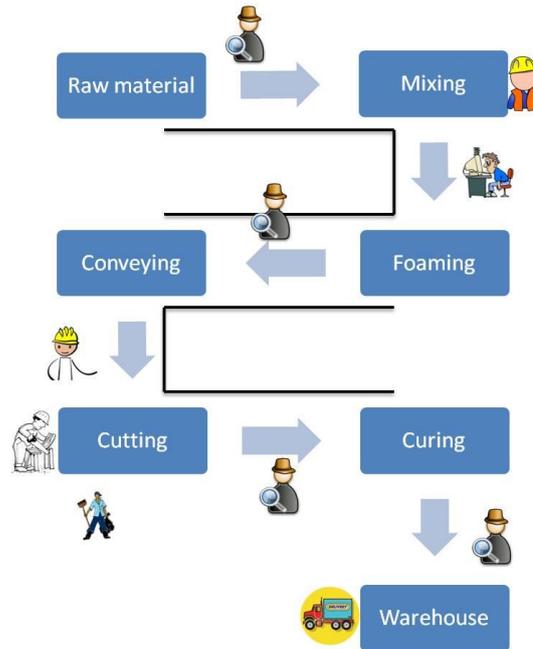


Figure 44: Suggested production layout (author's compilation)

5.5.6 Job specification

It is important that the role and responsibility of each employee is clearly defined through written job and person specifications. This will help employees evaluate their work and understand what they are supposed to do.

5.5.7 Communication, people's participation and empowerment

During the course of the case study, it was found that there were many employees who had specific skills in quality and improvement plans. However, their knowledge was not utilised because there was no environment in which they could openly share their views. Untapped talents such as these can be employed if there is a system where people can share or contribute. This can be very helpful in problem solving. The best way to get people

involved is by creating and forming a problem-solving group, continuous improvement group, focus group, etc.

Quality initiatives such as Total Quality Management (TQM) cannot be successfully implemented in the absence of good communication. Communication and people's participation is important for QMS success where people depend on one another for effective flow of information. People's empowerment is another key to implementing a QMS tool. In the empowerment process, the shop floor staff's authority should be increased in terms of decision-making.

5.6 Stages of QMS implementation:

The author suggested that XYZ follows the QMS sequence described below.

Phase 1: Initial investigations

In the first step, the following three requirements are assessed and the company is tasked with finding the answers to these basic requirements for QMS implementation:

1. Is there a crisis? (sales, profit, defects, etc.);
2. Is there a level of commitment by management and a change agent who has the knowledge, skills and tools to help organisations create radical improvement; and
3. Is there sufficient QMS knowledge to apply the tools and techniques in terms of the capability and resources?

Phase 2: Preparation

1. Gap assessment and strategic planning
2. Understanding various forms of waste
3. Establishing the objective
4. Getting the organisational structure right
5. Finding a change agent
6. Creating an implementation team
7. Awareness and training the staff in teambuilding and QMS principles

8. Involvement of suppliers and customers in the process
9. Recognising the need for change

Phase 3: Design

1. Mapping the value streams
2. Analysing the business for improvement opportunities
3. Planning the changes
4. Identifying key indicators to measure performance
5. Creating a feedback mechanism

Phase 4: Implementation

1. Starting with a pilot project (in a small area)
2. Starting the next implementation projects (expand)
3. Evaluating and sustaining changes
4. Selling the benefits of the QMS mindset
5. Pursue perfection
6. Expand the scope.

5.7 Summary of case study research

This case study investigated the critical issues of QMS in a Kuwaiti Large Enterprise as part of a study of QMS and critical issues within Kuwaiti SMLEs. The case study results show that XYZ exhibited lean wastes such as over-production, inventory, waiting, transportation and motion. There were also issues regarding the inventory system and storage which could be resolved by using quality tools and continuous improvement techniques.

The case study observation and findings also suggest that there is great potential for QMS to be implemented in Kuwait. However, to change the organisational culture currently prevalent in most of these companies (not implementing any quality initiatives); to one that does use quality systems, requires a structure that comprises strategic vision of the management, leadership commitment and skilled people (critical factors). Use of funding,

organisational culture, expertise and empowerment of people (supporting elements) play an equally important role for QMS implementation followed by the use of continuous improvement tools such as 5s and six sigma, the PDCA cycle, Ishikawa's diagram, SPC and QFD (quality continuous improvement tools), which will eventually lead to successful implementation of QMS practices (a successful QMS project).

5.7.1 Learning from the case study

Carrying out a case study was a very useful addition to the research in order to visualise the manufacturing sector in Kuwait. Several issues were highlighted and documented by the researcher as learning outcomes from the case study. First of all, the researcher noticed that many employees who work in Kuwaiti manufacturing firms are from different nationalities, backgrounds and cultures. This led to asking how firms can manage their production and at the same time make sure that cultural differences will not be an obstacle. Based on the researcher's observations, employees are also facing organisational cultural changes and challenges due to the implementation of new quality initiatives. The researcher asked several managers about how organisational culture affected production and quality management; all managers reported that it sometimes led to negative outcomes.

Another learning outcome from the case study is the importance of communications; the researcher noticed that top management have different perceptions regarding quality issues from the middle management which also have different perceptions to those of the floor managers. Several questions were raised by the case study: for example, 'Are quality issues understood differently by different management levels?', 'How do different management levels communicate?' 'Are the communication channels accepted by all and clear?' These questions require more investigation as they are based on the researcher's observation that the communication channels are not clear. The researcher believes that communication is vital as organisation members need to communicate from top to bottom back and forth in order to accomplish their tasks efficiently.

The next learning outcome from the research is the issue of workforce motivation, engagement and empowerment. The researcher believes that most of the employees are part of the lower-paid workforce, which raises the question of why firms seek a low-paid workforce and whether and how they motivate and incentivise them? These questions were also considered in the survey questionnaire and interviews so the researcher could properly assess job satisfaction and motivation in this sector. After the researcher's visit to XYZ and informal interviews with the three management levels there, it became apparent that there was a discrepancy between what top management said and the reality as reported by shop floor management. The researcher believes that this must be resolved in order to achieve a successful implementation of QMS.

The case study revealed that although firms in the Kuwait manufacturing industry reported that they are not encountering difficulties or barriers actively being put forward by the government and managers reported that local authorities are supporting the development of local firms in Kuwait, this was not enough and further support is needed from the government's representatives. The Industrial Bank of Kuwait (IBK) provides sufficient loans and support in order to protect Kuwaiti investment and projects, and since all firms receive government support, this factor will not be considered in the investigation. Thus, the researcher will focus on the firms' internal issues rather than the external factors.

The final learning outcome is the community result and how firms in the manufacturing sector are contributing to society. Based on the case study, the researcher did not see anything of significant importance to community work: the overwhelming impression was of the focus on customer satisfaction. Further questions such as 'Are firms considering community well-being?' require both quantitative and qualitative research in order to determine the final conclusion.

5.7.2 Implications of the KQCM model

The KQCM framework can be referred as an enhanced version of the EFQM Excellence Model: KQCM considers culture as one of the most important enablers expected to

contribute to a firm's performance. This enhanced model reveals how different levels of management can support QMS initiatives in terms of organisational culture's impact. Most importantly, issues such as culture, communication and motivation (case study learning) should be considered. Hence, the KQCM framework would allow managers and researchers to see if manufacturing firms have adequately addressed their enablers in order to successfully achieve their outcomes. The implementation of the KQCM framework in Kuwait would allow different management levels to assess whether they have enablers such as Leadership, People, Strategy and Policies and Partnership that are required in order to reach their desired goals while taking into consideration the culture impact that might hinder achieving those goals. Using KQCM would allow leaders to develop and facilitate the achievement of their missions and visions. In this study, the KQCM framework was restricted to the manufacturing sector in Kuwait; however, it could be implemented in other sectors since the model it is derived from has been successfully used in different countries and sectors. KQCM is expected to allow enterprises to reach their organisational excellence by identifying the areas which require improvement (with regard to continuous improvement), and their strengths and weakness through conducting self- assessment tools in their organisations as well as considering the significant effect of culture on their overall performance. The KQCM model is expected to improve areas, strengthen the position of firms, reduce weaknesses and keep improvements going at a continuous pace.

5.7.3 Follow on to the qualitative and quantitative methods of the main research

Based on the case study, the research concludes that there is an urgent need to carry out both qualitative and quantitative research. For quantitative research, the survey must address several factors that contribute to firms' key performance results such as Leadership, People and Process. Moreover, there is a need to develop a new measurement for 'culture' as a new variable to be incorporated into the new framework (KQCM). Furthermore, and in order to provide in-depth information, the researcher suggests a need to carry out a qualitative approach. Interviews would provide further details and

information that might not be covered in the survey questionnaire. Most importantly, interviews would provide information that support/contradict the primary data source, the survey questionnaire. The researcher emphasises that interviews will allow different management levels to express their opinions and reflect on their experiences which eventually would provide information that supports this research's aims and goals.

Chapter 6 Results Analysis and Discussions

6.1 Introduction

The organisation of this chapter is as follows: this section presents the overall organisation of the chapter; the next describes respondents' profiles. The results of measurement assessments, such as normality assessment test, reliability test, and factor analysis for the study variables are then presented, followed by a discussion of the results of descriptive analysis such as the mean, standard deviation and frequencies. The results of the correlation test provide quantitative answers to the research questions and hypotheses and the interview results are discussed. The final section examines the results obtained from this study compared with the existing literatures identified in chapter two.

6.2 Response rate

The sample population for the main survey was drawn from both ISO 9000 and non-ISO 9000 companies in Kuwait. The method of sampling combines both random and non-random categories of data. A stratified random sampling method was used to select respondents representing the companies, including top management, middle management and shop floor managers.

Using an electronic copy of the survey, the study sent out and received back 308 electronic surveys; however, only 192 of the responses received were completed. When importing the data from the surveys into SPSS, a few cells (less than 2%, almost one empty cell in different variables) were found to be missing; the study thus uses Expectation Maximisation (EM) approach in order to deal with these.

6.3 Respondents' and firms' characteristics

The 192 survey respondents work for manufacturing firms in Kuwait. The survey included demographic questions that were used to collect information about each respondent's profile. Basic information including gender, age, education level, and years of experience was collected. The respondents were managers, including senior executives and quality engineers, middle managers and shop floor managers and workers. In the top management category, respondents included owners, quality managers and project managers. The middle management level included supervisors, foremen and quality advisors. Shop floor managers included the supervisors in workshops, plants, storage and laboratories (see research design in chapter 4). The summary of characteristics of respondents is presented in Table 27.

6.3.1 Gender

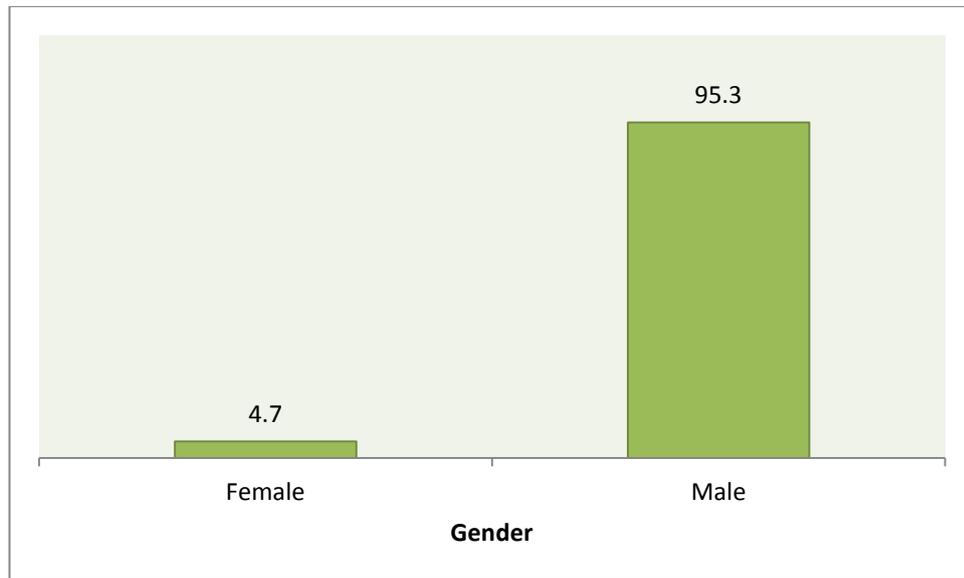


Figure 45: Demographic: Gender of respondents (author's compilation)

As illustrated in Figure 45, the respondent gender breakdown was 95.3% males, and 4.7 % females. The result indicates that the majority of people who work in the manufacturing sector in Kuwait are male; this reflects the cultural aspects and social preferences of providing females with a work situation that avoids direct contact with males. Most females in Kuwait work in public institutions such as schools and social security institutions.

6.3.2 Age

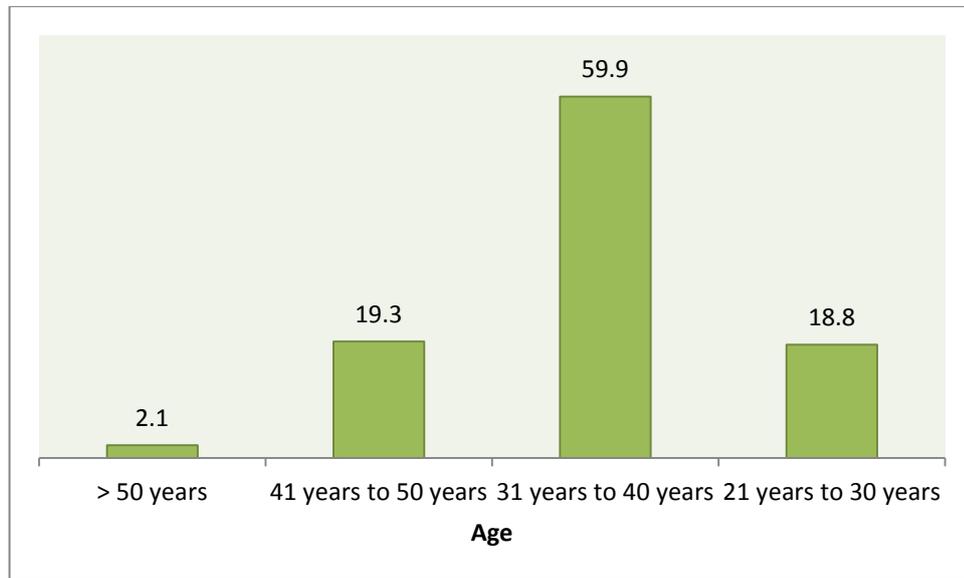


Figure 46: Demographic: Age of respondents (author's compilation)

In terms of age, as shown in Figure 46, respondents grouped as: 18.8% were between 21 to 30 years old, 59.9% were between 31 and 40 years old, 19.3% were between 41 and 50 years old and 2.1% were over 50 years old. The result shows that the majority age group is 31 to 40, which typically represents the young age of Kuwaitis. According to the Central Statistical Bureau (2014), Kuwait is a relatively young society with most of the population in the 25-54 age group.

6.3.3 Education level

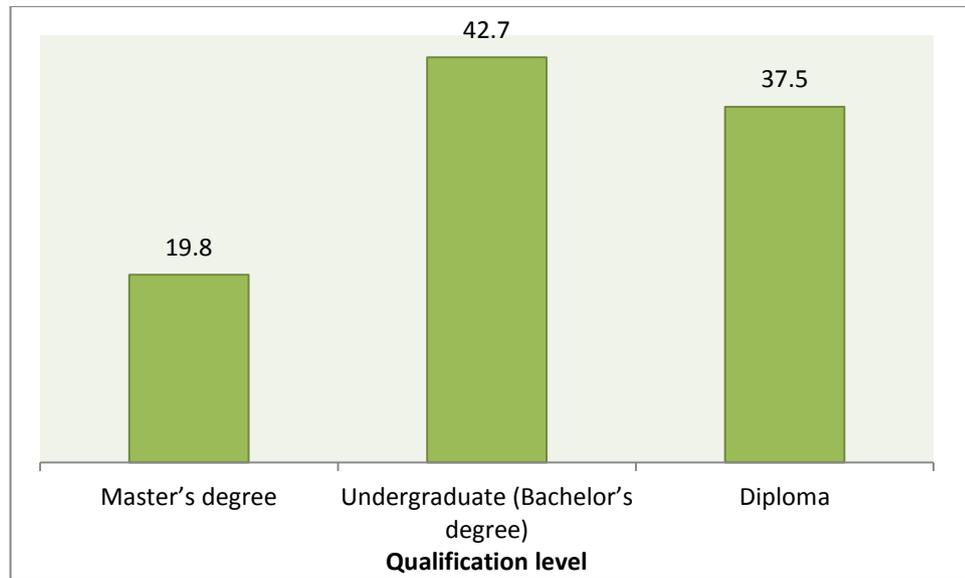


Figure 47: Demographic: Educational level of respondents (author's compilation)

Education levels are shown in Figure 47: 37.5% have a diploma (UK equivalent approximately HNC/HND), 42.7% a bachelor's degree and 19.8% a master's degree. The result shows that the majority of top management working in manufacturing have degrees. This implies that top management employs quality personnel as well as focusing on human capital investment in this sector. Moreover, this also can be seen as reflecting the country's strategy in promoting education: according to the Central Statistical Bureau, Kuwait spends around 3.8% of its GDP on education to enhance skills in diverse sectors (CSB, 2014).

6.3.4 Years of experience

The respondents have different years of experience: 8.9% of respondents have less than three years, 46.4% have between three and five years, 25% of respondents have from six to ten years and finally, 19.8 % have more than ten years of experience as shown in Figure 48.

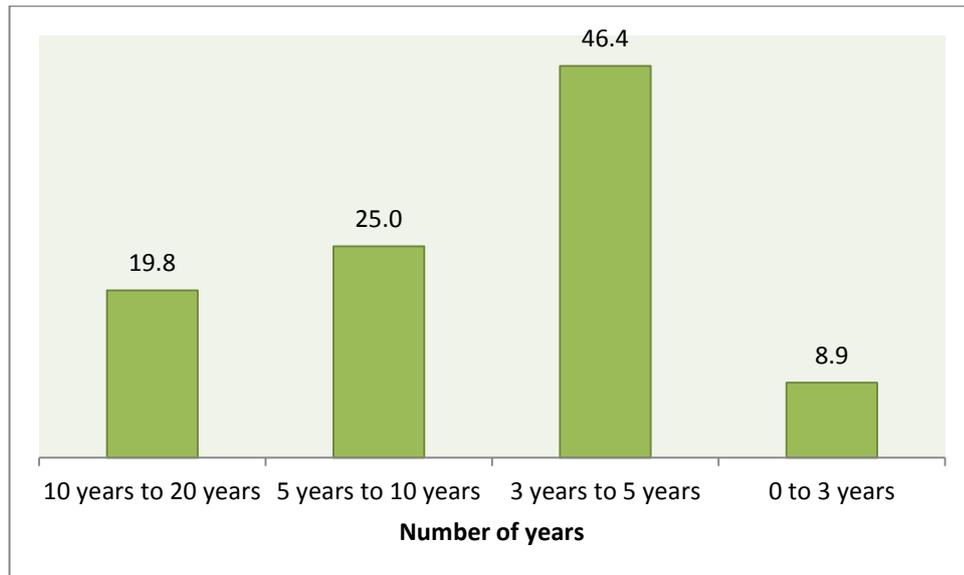


Figure 48: Years of experience of respondents (author's compilation)

The result also reveals that the majority (46.4%) of personnel have between three to five years of experience, which may reflect the high rotation and labour movement across sectors reported in interviews.

6.3.5 Management level

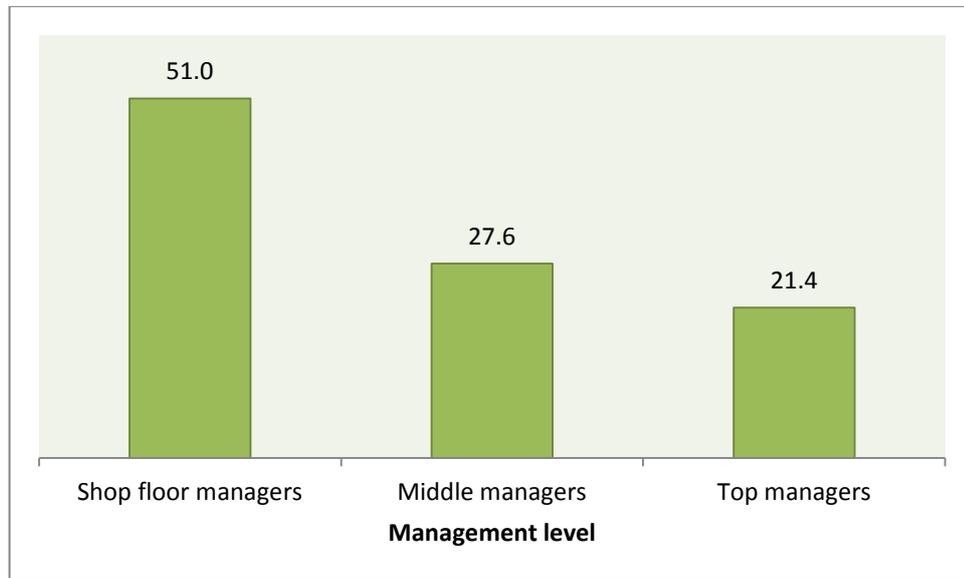


Figure 49: Management level of respondents (author's compilation)

Approximately half of the sample work as shop floor managers (Figure 49). It should be noted that this study encountered difficulties in obtaining responses from top managers; this was due to various reasons – some stated that they were too busy, others were on vacation and some did not want to contribute for fear of revealing confidential information. The perceptions of top managers, middle managers and shop floor staff are compared in the discussion section.

6.3.6 Sector/specialist

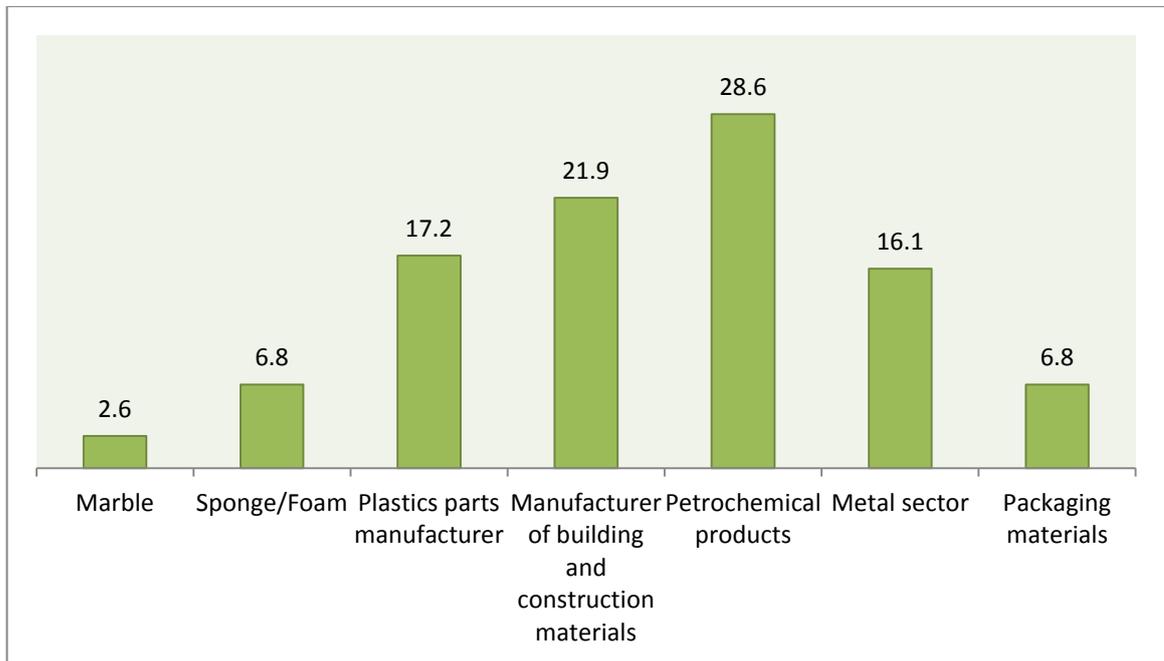


Figure 50: Demographic: Sector/specialist (author's compilation)

In terms of firms' specialism (Figure 50), most respondents work in the petrochemical products (28.6%) and manufacturing of building and construction materials (21.9%) sectors. These two sectors represent the majority of manufacturing firms in Kuwait, since Kuwait's economy revolves around oil. The buildings and construction sector is vital, due to the constant expansion of cities, roads, bridges and infrastructure in Kuwait.

6.3.7 Capital

The annual turnover or annual sheet of enterprises illustrated (see Figure 51). Over 60% of respondents indicated that their firm's capital is between KD 150,000 and 200,000 (Small). (29.7%) reported KD 200 – KD 500,000 (Medium) and (9.9%) more than KD 500,000.

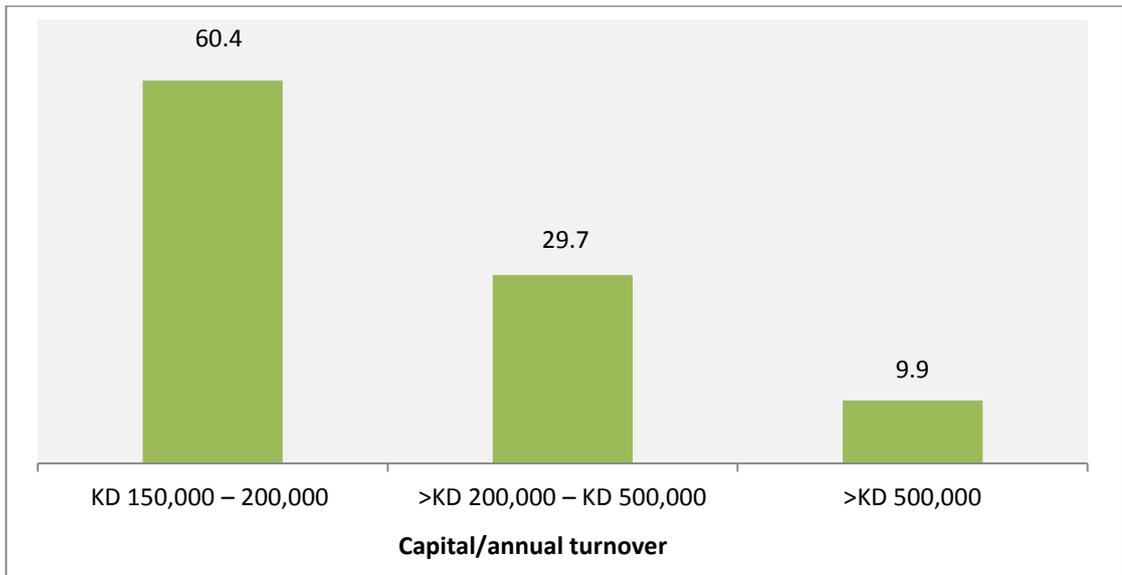


Figure 51: Demographic: Capital/annual turnover (author’s compilation)

6.3.8 Number of employees

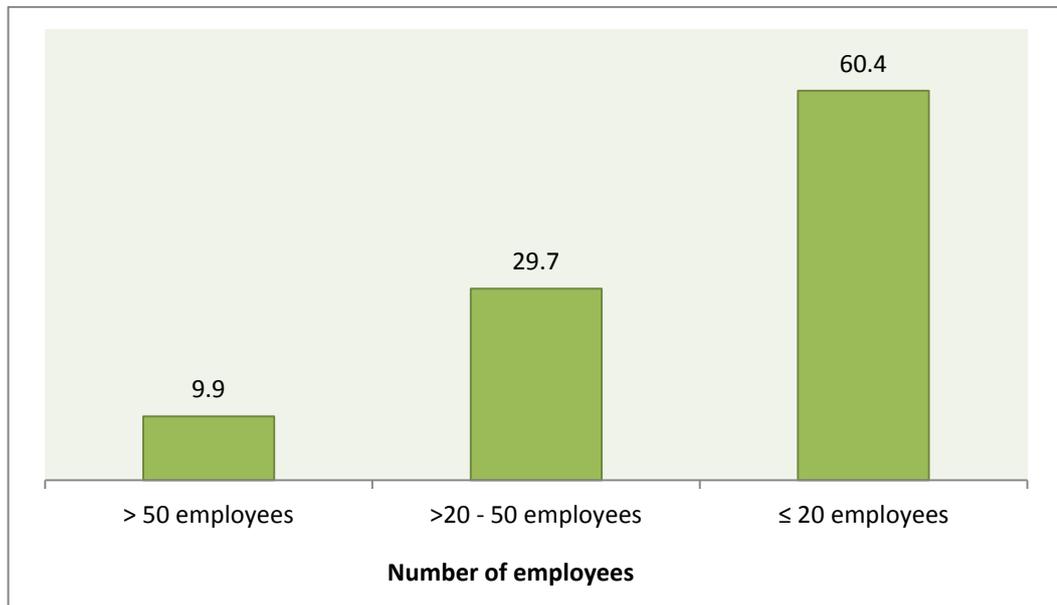


Figure 52: Demographic: Number of employees (author’s compilation)

Over 60% of respondents (see Figure 52) indicated that their firm has less than 20 employees (Small), 29.7% reported 20 to 50 employees (Medium) and 9.9% more than 50

employees (Large). Hence, the result reflects the preponderance of small and medium sized firms in Kuwait. Such result was expected since manufacturing within the country in general is at its infant stage as most of the industrial firms in Kuwait were established after the discovery of Petroleum in the early 1930s.

6.4 Summary of demographic information

Table 27 summarises the demographic information of the respondents followed by a detailed presentation of the overall respondents' characteristics.

Gender	Frequency	Percent
Male	183	95.3
Female	9	4.7
Total	192	100.0
Age	Frequency	Percent
21 - 30 years	36	18.8
31 - 40 years	115	59.9
41 - 50 years	37	19.3
> 50 years	4	2.1
Total	192	100.0
Education	Frequency	Percent
Diploma	72	37.5
Undergraduate (Bachelor's degree)	82	42.7
Master's degree	38	19.8
Total	192	100.0
Year of experience	Frequency	Percent
0 to 3 years	17	8.9
3 - 5 years	89	46.4
5 - 10 years	48	25.0
10 - 20 years	38	19.8
Total	192	100.0
Management level	Frequency	Percent
Top managers	41	21.4
Middle managers	53	27.6
Shop floor managers	98	51.0
Total	192	100.0
Firm sector	Frequency	Percent
Packaging materials	13	6.8
Metal sector	31	16.1
Petrochemical products	55	28.6
Manufacturer of buildings and construction materials	42	21.9
Plastics parts manufacturer	33	17.2

Sponge	13	6.8
Marble	5	2.6
Total	192	100.0
Capital	Frequency	Percent
KD 150,000 – 200,000	116	60.4
>KD 200,000 – KD 500,000	57	29.7
>KD 500,000	19	9.9
Total	192	100.0
Number of employees	Frequency	Percent
≤ 20 employees	116	60.4
>20 - 50 employees	57	29.7
> 50 employees	19	9.9
Total	192	100.0

Table 27: Sample Demographics (author’s compilation)

6.5 Examining the measurement model

This section aims to assess the results obtained from the research model of this thesis using Exploratory Factor Analysis, reliability test, and normality assessment.

6.5.1 Exploratory Factor Analysis

It is very important to assess the measurements before carrying out the analysis. This section presents the result of factor analysis as well as reliability for each factor included in the KQCM conceptual framework. The conceptual model of this study consists of the following key factors: Leadership, People, Policy & Strategy, Partnerships & Resources, Processes, Culture, People Results, Customer Results, Society Results and Key Performance Results. Factor analysis explains “the variance in the observed variables in terms of underlying latent factors” (Habing, 2003, p. 2) hence, factor analysis enables users to a) get a clear view of data and b) use the output of analysis in subsequent order (Field, 2000; Rietveld & Van Hout, 1993). This study uses Exploratory Factor Analysis (EFA) in order to check the uni-dimensionality of the items used in the survey and to what extent these items reflect the true measures.

The sample size of this study is 192 and there are a total of 55 items in the questionnaire. Nunnally points out that “A general rule of thumb regarding sample size for principal components analysis is that the number of cases should be at least ten times the number of items in the analysis” (Nunnally, 1978, p. 421). This was also supported by Moons, Royston, Vergouwe, Grobbee and Altman (2009). Therefore, measures were checked separately because the ratio of number of cases to items was less than 10:1. Hair et al. (2006) pointed out that in factorial analysis a cut-off value of 0.5 is considered as satisfactory loading.

Reliability has been defined as “the degree to which measurements are free from error and, therefore, yield consistent results” and “The result minimum coefficients alpha scored is in fact exceeding the recommended cut off point (0.7)” (Easterby-Smith et al., 1991, p24).

6.5.1.1 Enablers of KQCM model

Exploratory Factor Analysis was performed on each enabler separately, and is presented in Table 28. A minimum cut-off of 0.45 was used to indicate a satisfactory loading. Table 28 illustrates that all items load satisfactorily on their respective components but not on any other components according to the 0.45 cut-off value. The measurement model therefore has satisfactory convergent and discriminant validity.

Leadership	Component
	1
Leadership1	.799
Leadership2	.836
Leadership3	.894
Leadership4	.827
Leadership5	.864
Leadership6	.766
People	Component
People1	.773
People2	.832
People3	.737
People4	.765
People5	.731
Policy Strategy	Component

Policy Strategy1	.876
Policy Strategy2	.848
Policy Strategy3	.893
Policy Strategy4	.888
Policy Strategy5	.882
Partnerships Resources	Component
Partnerships Resources1	.810
Partnerships Resources2	.873
Partnerships Resources3	.850
Partnerships Resources4	.855
Partnerships Resources5	.840
Partnerships Resources6	.778
Culture	Component
Culture1	.826
Culture2	.900
Culture3	.852
Culture4	.887
Culture5	.819
Processes	Component
Processes1	.805
Processes2	.812
Processes3	.892
Processes4	.902
Processes5	.802

Table 28: Components Analysis Results for enablers construct (author's compilation)

The study measures the factor analysis for each set of items of the six enablers separately and the results indicate that each set of items of each dimension are interrelated and achieve factor loading above 0.7 which indicates a high association among these items to shape each construct of enablers.

6.5.1.2 Results of KQCM model

Exploratory Factor Analysis was performed on the results variables separately, and is presented in Table 29. A minimum cut-off of 0.45 was used to indicate a satisfactory factor loading, meaning that if an item scored factor loading < 0.45 it might not be interrelated

with other items that measure a variables. For example, the factor loading of Processes1=0.805, Processes2=0.0812, Processes3=0.892, Processes4=0.902 and Processes5=0.802, this indicates all processes items/question are high interrelated to each other to shape the variable that the research aim to measure, which is Processes. In the case that one of these items scored factor loading < 0.45 it will be eliminated from the analysis as it does not reflect the indented variable. Table 29 illustrates that all items load satisfactorily on their respective components but not on any other components according to the 0.45 cut-off value. The measurement model therefore has satisfactory convergent and discriminant validity.

People Results	Component
	1
People Results1	.864
People Results2	.888
People Results3	.881
People Results4	.885
People Results5	.860
Customer Results	Component
	1
Customer Results1	.869
Customer Results2	.888
Customer Results3	.886
Society Results	Component
	1
Society Results1	.879
Society Results2	.858
Society Results3	.867
Society Results4	.853
Business Key Performance	Component
	1
Business Key Performance1	.893
Business Key Performance2	.885
Business Key Performance3	.641
Business Key Performance4	.819
Business Key Performance5	.887

Table 29: Principal Components Analysis Results for results (author's compilation)

The study measures the factor analysis for each set of items of the four results separately and the results indicate that each set of items of each dimension are interrelated and achieve factor loading above 0.8 which indicates a high interrelatedness among these items to shape each construct of results.

6.5.2 Reliability test

The second step of data analysis used in this study was the testing of the reliability of the measures. Reliability analysis is a measure of the internal coherence of factors for a construct (Hair et al., 2006). The main purpose of the reliability test is to examine how well a set of items of each variable taps into some common source of variance; this is frequently measured with Cronbach's coefficient alpha (Viswanathan, 2005) as in this study. According to Nunnally and Bernstein, Cronbach's coefficient alpha is defined as "the ratio of the sum of the covariance among the components of the linear combination (items), which estimates true variance, to the sum of all elements in the variance-covariance matrix of measures, which equals the observed variance" (Nunnally & Bernstein, 1994, p. 522).

The acceptable level of reliability-coefficient-alpha is 0.70 or greater (Hair et al., 2006). Table 30 illustrates the coefficient alpha scores for all the variables used in this study: Leadership, People, Policy & Strategy, Partnerships & Resources, Processes, Culture, People Results, Customer Results, Society Results and Key Performance Results. Each of the ten variables had between three and six items/questions.

Therefore any alpha coefficient that is below 0.70 must be dropped from the analysis as unreliable (Hair et al., 2006). As shown in Table 30, the alpha coefficients for the twelve variables were more than 0.70.

Variables		Set of Items/questions	Alpha result
Enables	1. Leadership	6	0.908
	2. People	5	0.824

	3. Policy & Strategy	5	0.925
	4. Partnerships & Resources	6	0.913
	5. Culture	5	0.908
	6. Processes	5	0.898
Results	1. People Results	5	0.923
	2. Customer Results	3	0.854
	3. Society Results	4	0.887
	4. Key Performance Results	5	0.847

Table 30: Alpha result (author's compilation)

The internal consistency among each set of items is essential to ensure that the variables used in the study are highly reliable. The result of this analysis shows that the lowest alpha value is 0.824, which exceeds the recommended cut-off point. This indicates that the variables/factors used in this study were highly reliable and acceptable. Therefore, the study could rely on the questionnaires when carried out numerical examination that would answer the research hypotheses.

Validity is one of the issues that must be checked with the measurement instrument. To ensure content validity, the measures used in a piece of research should be based upon previously validated measures whose reliabilities were considered acceptable (Venkatesh & Morris, 2000). This study used valid measures based on previous literature as well as carrying out a pilot study in order to make sure that all statements were clear and free from errors.

6.5.3 Assessing normality

According to Hair et al. (2006) normality is checked by statistical testing, graphical presentation or both. In this study, the statistical testing method was used to assess normality, addressing issues such as skewness and kurtosis. The main benefit of this was to ensure that the data set was well-structured by a normal distribution and this is achieved by selecting the best statistical tools that can be used to deal with the data accordingly. For

example if the data was normally distributed the researcher must use parametric test (e.g. ANOVA test) to examine the data, and if the data was not normally distributed a non-parametric tools (e.g. Shapiro-Wilk and Chen-Shapiro) must be used.

According to Hair et al. skewness measures the symmetry of the distribution, for instance, the mean is in the centre of distribution while the kurtosis test measures the flatness of the data distribution compared with the normal distribution. In an absolutely normal distribution data, the value results of skewness and kurtosis would be or equal to zero. In this study, the value of skewness and kurtosis for each item is calculated in order to check the normality of the data (Hair et al., 2006).

Hair et al. clarify that normality is assumed when the value results of skewness and kurtosis are less than 2 (Hair et al., 2006). Table 31 shows the value of skewness and kurtosis of the study variable, which is less than 2, therefore, the data is assumed to be normally distributed.

Factor/Item		N	Skewness		Kurtosis	
			Stat.	Std. Error	Stat.	Std. Error
Leadership	Leaders develop and communicate mission, vision, and values	192	-.039	.175	-.832	.349
	Leaders are actively involved in ensuring management systems are developed, implemented and continuously improved	192	-.124	.175	-1.075	.349
	Leaders measure organisational performance and translate results into improvement	192	-.393	.175	-.402	.349
	Leaders are actively involved with customers	192	-.191	.175	-.856	.349
	Leaders are actively involved with stakeholders	192	-.265	.175	-.727	.349
	Leaders create an environment for empowerment, innovation, learning and support	192	-.256	.175	-.718	.349
People	People resources are planned, managed and improved	192	-.059	.175	-1.092	.349
	People's knowledge and competences are identified, developed and sustained	192	-.164	.175	-.687	.349
	People are involved and empowered	192	-.239	.175	-.862	.349
	People and the organisation have a dialogue	192	.141	.175	-.868	.349
	People are rewarded, recognised and cared for	192	.230	.175	-.757	.349
Policy & Strategy	Presence of strategic planning or thinking	192	-.649	.175	-.149	.349
	Strategic planning is a systematic process	192	-.847	.175	.160	.349
	Strategic planning is based on gathering of data and information and reflects customer and stakeholder needs and requirements	192	-.721	.175	-.221	.349

	Strategic plans and objectives are communicated throughout the organisation	192	-.617	.175	-.416	.349
	Monitoring mechanisms and /or measures exist to tackle strategic deployment at corporate and operational levels	192	-.641	.175	-.380	.349
Partnerships & Resources	Partnerships & supplier relations are planned	192	-.419	.175	-.208	.349
	Partnerships & supplier plans are controlled and managed	192	-.376	.175	-.103	.349
	Partnerships & suppliers are planned based on their needs, contributions and a teamwork culture	192	-.665	.175	.276	.349
	Financial resources are planned and managed	192	-.432	.175	-.235	.349
	Physical operational resources (e.g. material and equipment) are planned and managed	192	-.779	.175	.480	.349
	Physical long-term resources (e.g. buildings and land) are planned and managed	192	-.297	.175	-.280	.349
Culture	People work in teams	192	-.044	.175	-.861	.349
	There is a strong sense of belonging	192	-.115	.175	-.624	.349
	Employees socialise outside office hours	192	-.087	.175	-.924	.349
	Work environment is open and friendly	192	-.082	.175	-.751	.349
	Ideas and new concepts are freely suggested and discussed	192	.068	.175	-.753	.349
Processes	Processes are identified and designed.	192	-.583	.175	-.303	.349
	Processes are clearly communicated to staff and stakeholders	192	-.569	.175	-.117	.349
	Processes are implemented and controlled	192	-.509	.175	-.427	.349
	Processes are updated and improved	192	-.537	.175	-.303	.349
	Process design is based on customers and stakeholder needs and requirements	192	-.544	.175	-.418	.349
People Results	People resources and capabilities are planned, managed and improved.	192	-.272	.175	-.394	.349
	Healthy and safe work environment exists.	192	-.334	.175	-.153	.349
	People are communicated with, involved and empowered	192	-.409	.175	-.266	.349
	People are motivated, rewarded and recognised	192	-.253	.175	-.564	.349
	Teamwork is encouraged and enabled	192	-.317	.175	-.214	.349
Customer Results	Systematic identification and monitoring of customer requirements and needs	192	-.854	.175	.156	.349
	Translation of customer requirements and needs into actions and expressed in organisation's products/services	192	-.453	.175	-.537	.349
	Organisation staff are actively involved with customers	192	-.511	.175	-.278	.349
Society Results	Protection of environment has improved	192	-.057	.175	-.933	.349
	Noise levels have decreased	192	-.448	.175	-.697	.349
	Pollution levels have decreased	192	.019	.175	-1.008	.349
	The organisation has a positive impact on society	192	-.441	.175	-.771	.349

Key Performance Results	Financial performance (e.g. profits, sales, liquidity).	192	-.472	.175	-.563	.349
	Non-financial performance (e.g. market performance, organisation image, flexibility).	192	-.724	.175	-.082	.349
	Employee satisfaction	192	-.783	.175	-.074	.349
	Partner and supplier satisfaction	192	-.776	.175	.100	.349
	Customer satisfaction	192	-.511	.175	-.681	.349

Table 31: The results of normality testing (author's compilation)

The result confirms that the data is normally distributed. Thus, this study used parametric tests.

6.6 Descriptive statistics

This section displays the finding of Descriptive Statistical Analysis with the intent of explaining respondent's perspectives with regards to the key variables under investigation. It is very important to clarify that this study utilises a five-point agreement scale (scale 1 indicated strongly disagree while scale 5 indicated strongly agree). It is also necessary to check the average mean of each variable in order to have better insight about the sample agreement in terms of survey questionnaire items. Table 32 contains the descriptive statistics for the key variables, including both enablers and results. The table separate elements of enablers and results so to check which variables scored high agreement and why. For researchers, it is vital to provide detailed description for the pattern followed by respondents when answering the survey questionnaire (Hair et al., 2006).

Key variables		N	Mean	Std. Deviation
Enablers	Leadership	192	3.60	0.84
	People	192	2.93	0.91
	Policy & Strategy	192	3.48	1.01
	Partnerships & Resources	192	3.55	0.84
	Culture	192	2.90	0.98
	Processes	192	3.41	0.94
Results	People Results	192	2.91	0.97

	Customer Results	192	3.69	0.93
	Society Results	192	3.26	1.025
	Business Key Performance	192	3.61	0.98
Enablers overall			3.31	0.92
Results overall			3.37	0.98

Table 32: Descriptive Statistics for the key variables (author’s compilation)

Note: The 5-point scale used in this study is as follows: 1-Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree and 5= Strongly Agree.

The results of descriptive analysis indicate that in general all key variables scored above 3, indicating the importance of the key variables. The results of the study reveal that People Results scored the lowest average (2.9) while Customer Results scored the highest average (3.69). The overall score of the six enablers is 3.31, lower than that of the results overall (3.37). Compared to other variables, the results indicate low agreement on cultural aspects (2.9) and a high level of agreement on leadership (3.6). Table 33 illustrates the result of each variable separately. This table provides further details of what items scored high/low agreement for each variable.

Leadership	N	Mean	Std. Deviation
Leaders develop and communicate mission, vision, and values	192	3.46	1.00
Leaders are actively involved in ensuring management systems are developed, implemented and continuously improved	192	3.65	1.00
Leaders measure organisational performance and translate results into improvement	192	3.66	0.98
Leaders are actively involved with customers	192	3.67	0.99
Leaders are actively involved with stakeholders	192	3.60	0.96
Leaders create an environment for empowerment, innovation, learning and support	192	3.57	1.02
People	N	Mean	Std. Deviation
People resources are planned, managed and improved	192	2.99	1.28
People’s knowledge and competences are identified, developed and sustained	192	3.06	1.12

People are involved and empowered	192	3.13	1.22
People and the organisation have a dialogue	192	2.76	1.20
People are rewarded, recognised and cared for	192	2.72	1.14
Policy & Strategy	N	Mean	Std. Deviation
Presence of strategic planning or thinking	192	3.47	1.11
Strategic planning is a systematic process	192	3.67	1.14
Strategic planning is based on gathering of data and information and reflects customer and stakeholder needs and requirements	192	3.56	1.17
Strategic plans and objectives are communicated throughout the organisation	192	3.26	1.17
Monitoring mechanisms and /or measures exist to tackle strategic deployment at corporate and operational levels	192	3.44	1.17
Partnerships & Resources	N	Mean	Std. Deviation
Partnerships & supplier relations are planned	192	3.62	1.00
Partnerships & supplier plans are controlled and managed	192	3.51	0.98
Partnerships & suppliers are planned based on their needs, contributions and a teamwork culture	192	3.58	1.00
Financial resources are planned and managed	192	3.63	1.08
Physical operational resources (e.g. material and equipment) are planned and managed	192	3.83	1.01
Physical long-term resources (e.g. buildings and land) are planned and managed	192	3.11	1.04
Culture	N	Mean	Std. Deviation
People work in teams	192	2.91	1.19
There is a strong sense of belonging	192	2.94	1.07
Employees socialise outside office hours	192	2.96	1.21
Work environment is open and friendly	192	2.91	1.09
Ideas and new concepts are freely suggested and discussed	192	2.79	1.15
Processes	N	Mean	Std. Deviation
Processes are identified and designed.	192	3.35	1.14
Processes are clearly communicated to staff and stakeholders	192	3.47	1.05
Processes are implemented and controlled	192	3.39	1.14
Processes are updated and improved	192	3.39	1.11
Process design is based on customers and stakeholder needs and requirements	192	3.44	1.11

People Results	N	Mean	Std. Deviation
People resources and capabilities are planned, managed and improved.	192	2.95	1.15
Healthy and safe work environment exists.	192	2.93	1.11
People are communicated with, involved and empowered	192	2.85	1.03
People are motivated, rewarded and recognised	192	3.00	1.19
Teamwork is encouraged and enabled	192	2.82	1.04
Customer Results	N	Mean	Std. Deviation
Systematic identification and monitoring of customer requirements and needs	192	3.72	1.11
Translation of customer requirements and needs into actions and expressed in organisation's products/services	192	3.62	1.08
Organisation staff are actively involved with customers	192	3.73	0.98
Society Results	N	Mean	Std. Deviation
Protection of environment has improved	192	3.16	1.1
Noise levels have decreased	192	3.39	1.1
Pollution levels have decreased	192	3.15	1.17
The organisation has a positive impact on society	192	3.37	1.21
Key Performance Results	N	Mean	Std. Deviation
Financial performance (e.g. profits, sales, liquidity).	192	3.59	1.16
Non-financial performance (e.g. market performance, organisation image, flexibility).	192	3.73	1.12
Employee satisfaction	192	3.57	1.11
Partner and supplier satisfaction	192	3.61	1.06
Customer satisfaction	192	3.66	1.15

Table 33: Descriptive Statistics for each variable in the KQCM (author's compilation)

6.7 Descriptive analysis

6.7.1 Leadership

In the leadership variable, six items/questions were used. The results of descriptive analysis show all items scored an average above 3; the responses given to the statements ranged from neutral to agreement according to the scale.

The statement “Leaders are actively involved with customers” (3.67), scored the highest average (see Figure 53) which indicates that leaders in the manufacturing sector are aware of the importance of being involved with customers in order to follow trends, changes in preferences and customer needs. This in turn is vital towards ensuring competitiveness and survival of their enterprises.

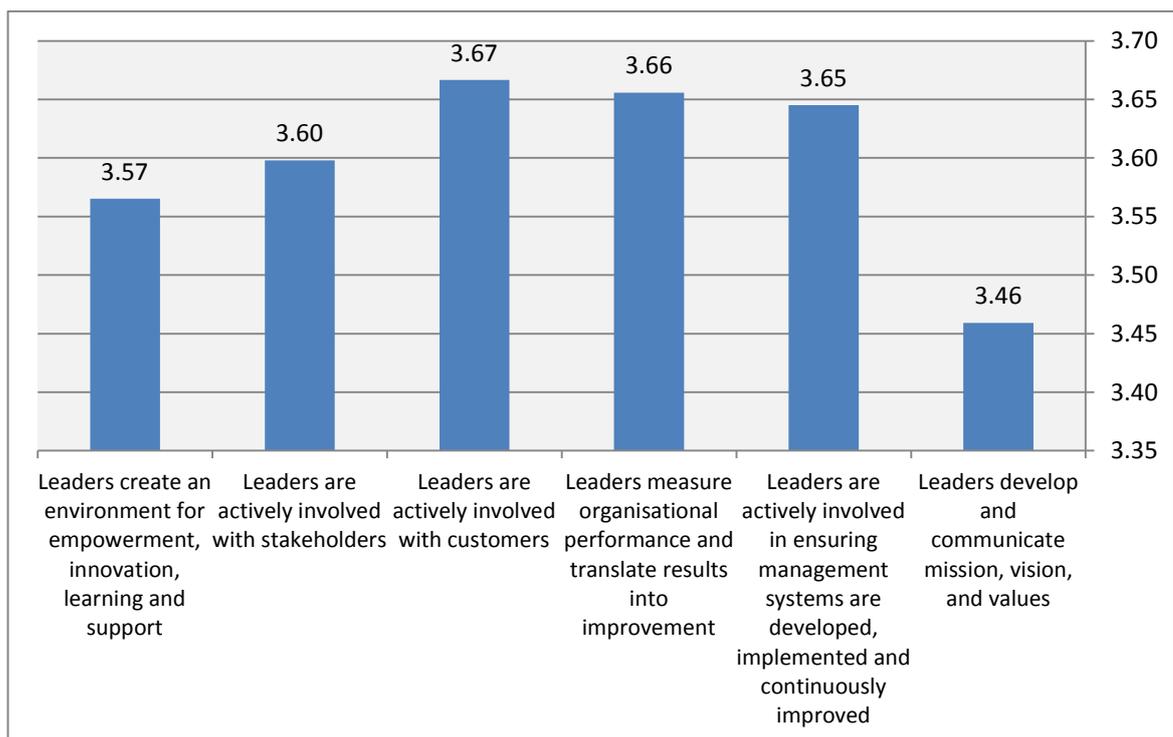


Figure 53: Descriptive Analysis: Leadership (author's compilation)

The statement: “Leaders measure organisational performance and translate results into improvement”, scored the second highest average (3.66) which is close to agreement according to the scale. This was expected since leaders focus on enhancing the competitiveness of the enterprise. Leaders who involve themselves with customers are setting examples that employees can follow in order to enhance service and manufacturing quality. The lowest average scored was for the statement “Leaders develop and communicate mission, vision and values” (3.46); this is quite close to neutral according to the scale. This result implies that firms are using inappropriate communication channels, and that respondents think that their leaders are not developing or communicating the objectives. This may indicate that leaders focus more on developing better relationships with customers and suppliers than with their personnel.

6.7.2 People

Figure 54 shows the five items used to measure the People dimension. The results of descriptive analysis reveal all items scored an average of below 3, meaning that responses to the statements ranged between neutral and disagreement according to the scale.

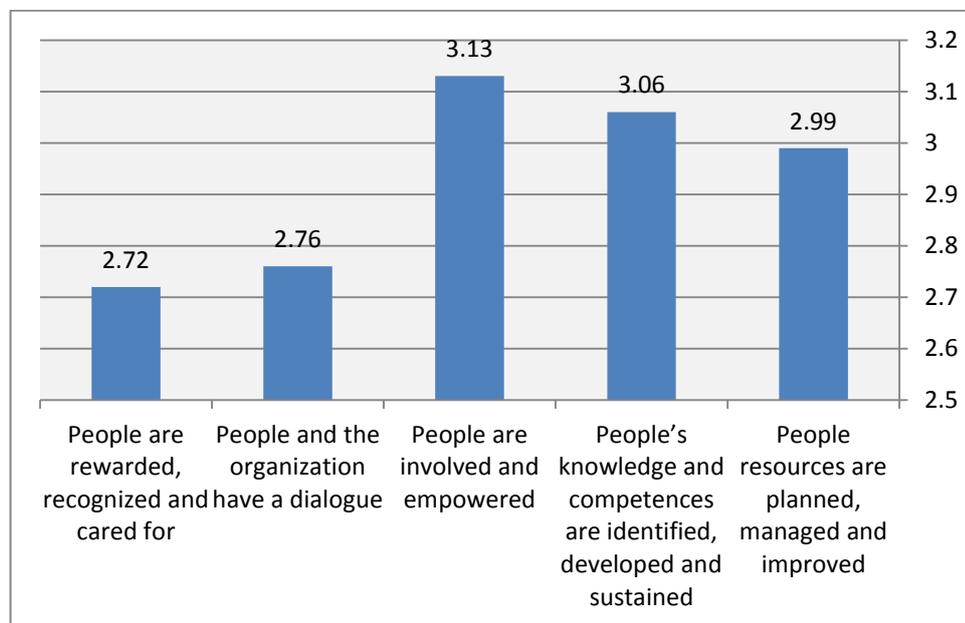


Figure 54: Descriptive Analysis: People (author’s compilation)

The statement “People are involved and empowered” scored the highest average (3.13), followed by “People’s knowledge and competences are identified, developed and sustained” (3.06). Respondents gave the lowest average to “People are rewarded, recognised and cared for” (2.26). The results indicate that there is less agreement between employees and the organisation dialogue and people feel that their efforts are not appreciated by the management.

6.7.3 Policy & Strategy

Figure 55 shows the five items used to measure policy and strategy dimension. The results of descriptive analysis show all items scored an average above 3, meaning that responses to the statements ranged between neutral and agreement, according to the scale.

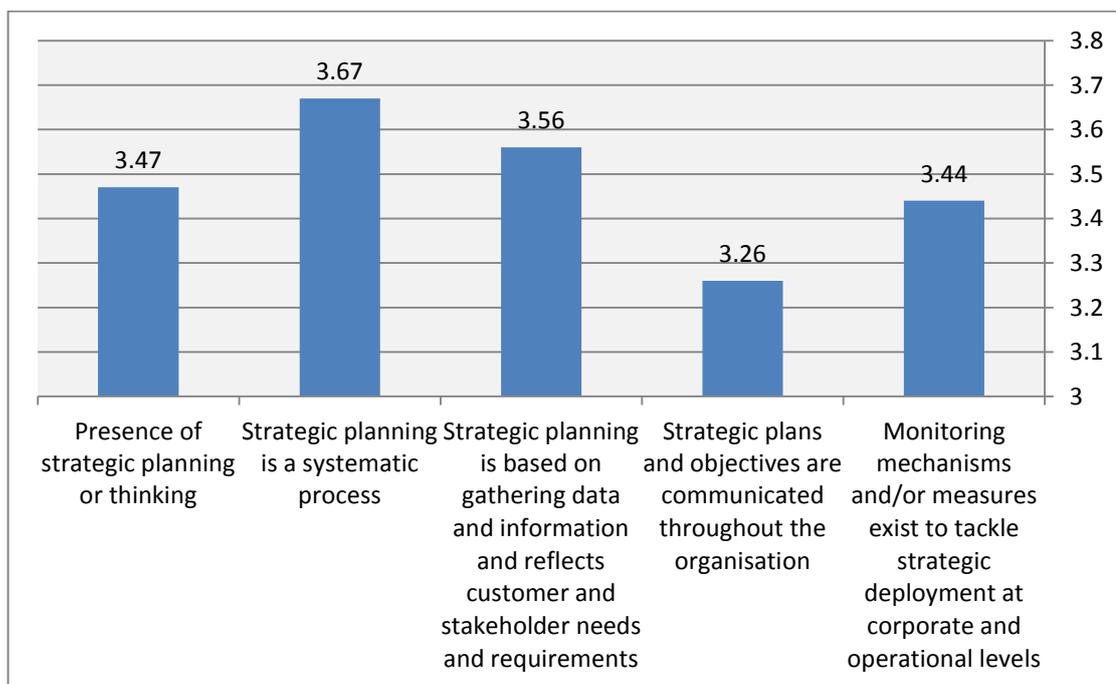


Figure 55: Descriptive Analysis: Policy & Strategy (author’s compilation)

The statement “Strategic planning is a systematic process” scored the highest average (3.67), followed by “Strategic planning is based on gathering of data and information and reflects customer and stakeholder needs and requirements” (3.56). Respondents gave the

lowest average to “Strategic plans and objectives are communicated throughout the organisation” (3.26). The result indicates that the two main issues in the policy and strategy variable are those of the statements “Strategic plans and objectives are communicated throughout the organisation” and “Monitoring mechanisms and/or measures exist to tackle strategic deployment at corporate and operational levels”. The lack of smooth communication throughout the organisation might be explained by sudden changes in objectives caused by reacting to market changes. Furthermore, the management focuses on customer and financial returns rather than investing in enhancing internal channels.

6.7.4 Partnerships & Resources

Figure 56 shows the six items used to measure the partnerships and resources variable. All items scored an average of more than 3 and sometimes close to 4, indicating responses ranged between neutral and agreement according to the scale.

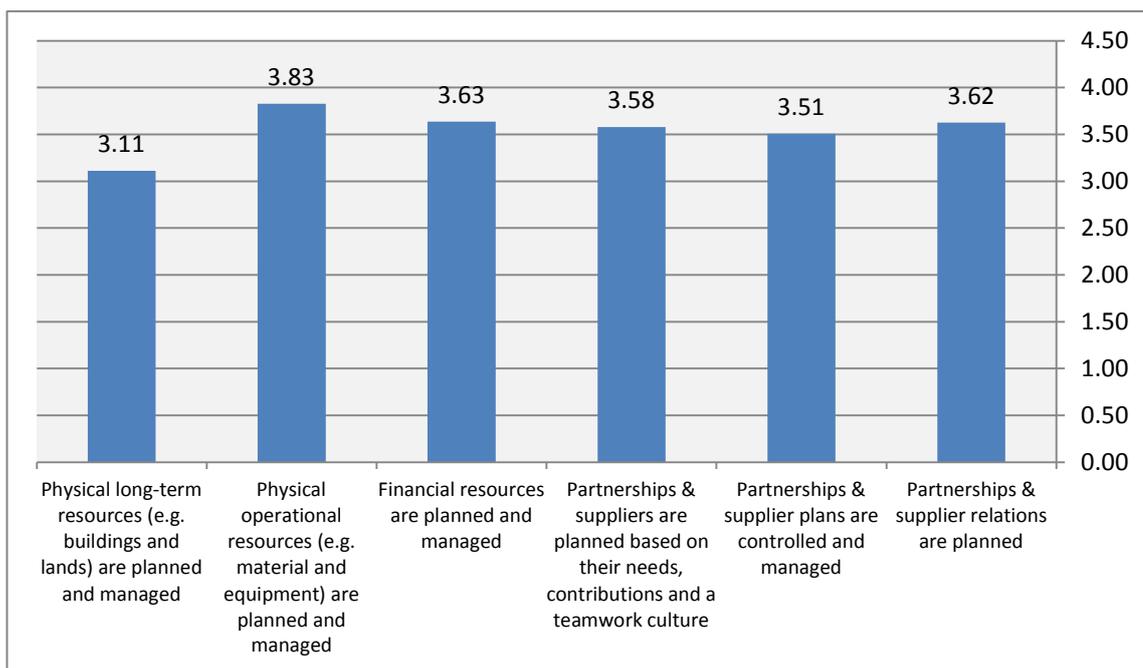


Figure 56: Descriptive Analysis: Partnerships & Resources (author’s compilation)

The statement “Physical operational resources (e.g. material and equipment) are planned and managed” scored the highest average (3.83), followed by “Financial resources are planned and managed” (3.63) and “Partnerships & supplier plans are controlled and managed” (3.61). Respondents gave the lowest average to “Physical long-term resources (e.g. buildings and lands) are planned and managed” (3.11). The results indicate that the main issues in the partnerships and resources variable are those of the statements “Physical long-term resources (e.g. buildings and lands) are planned and managed” and “Partnerships & supplier plans are planned and managed”. Respondents also think that firms seek to maintain good relationships with partners/suppliers, but find it difficult to control and manage such relationships due to various changes in the market such as the level of competition and competition from new suppliers.

6.7.5 Culture

Figure 57 shows the five items used to reflect culture for manufacturing firms in Kuwait. All items scored an average of less than 3, indicating disagreement with the idea that there is a ‘good’ culture within their enterprises.

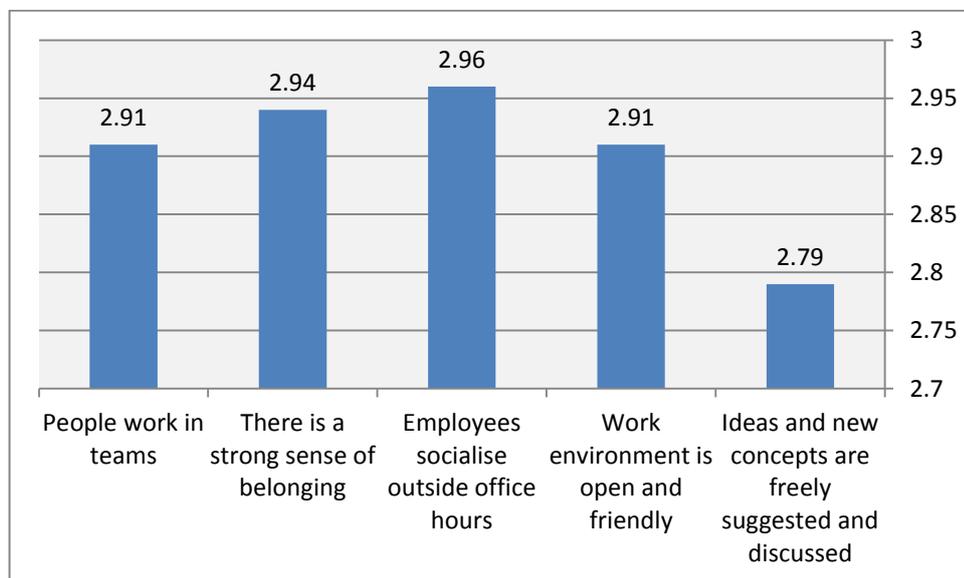


Figure 57: Descriptive Analysis: Culture (author’s compilation)

The statement “Employees socialise outside office hours” scored the highest average (2.96), followed by “There is a strong sense of belonging” (2.94). Results suggest that people do not work in teams and that the work environment is not friendly. In addition, people think that ideas and new concepts are not freely suggested and discussed.

6.7.6 Processes

Figure 58 shows the five items used to reflect processes. All items scored an average of more than 3, indicating that responses to the statements ranged between neutral and agreement according to the scale.

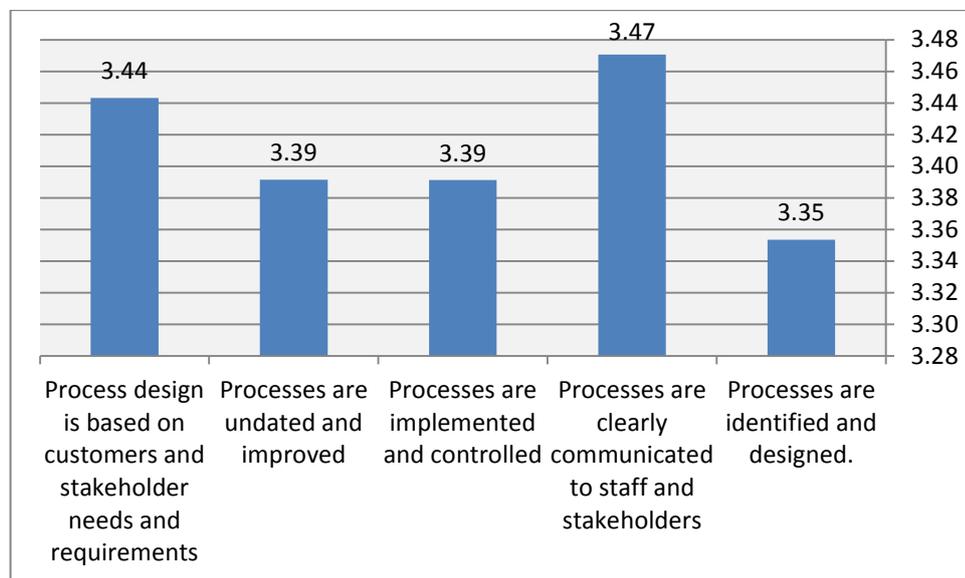


Figure 58: Descriptive Analysis: Processes (author’s compilation)

The statement “Processes are clearly communicated to staff and stakeholders” scored the highest average (3.47) followed by “Process design is based on customers and stakeholder needs and requirements” (3.44). The result also shows that the statement “Processes are identified and designed” scored the lowest average (3.35). This implies that there is miscommunication between staff and the top management level which contradicts what managers said in terms of good design of processes.

6.7.7 People Results

Figure 59 shows the five items used to explore People Results for manufacturing in Kuwait. All items scored an average of 3 or less, which is either neutral or disagreement according to the scale used.

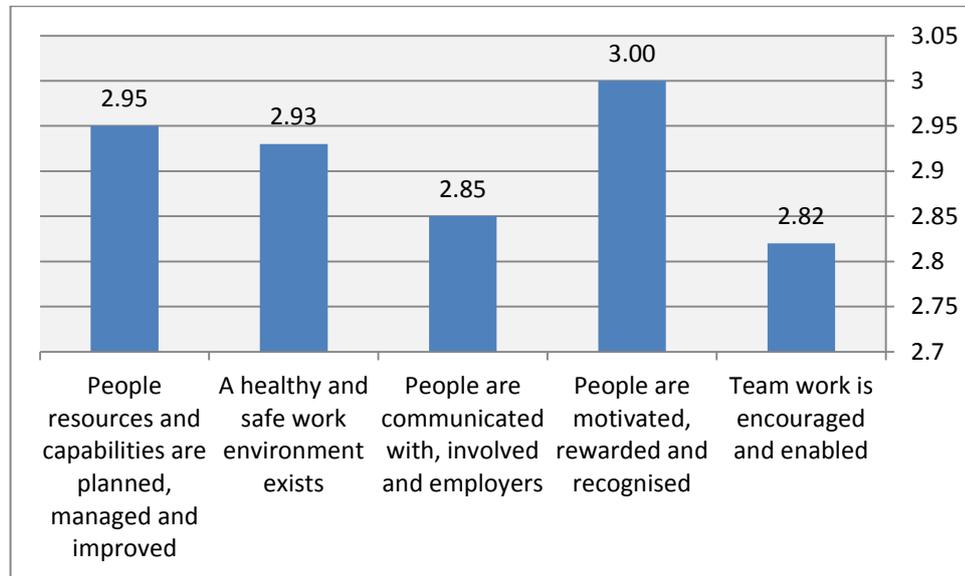


Figure 59: Descriptive Analysis: People Results (author's compilation)

The statement “People are motivated, rewarded and recognised” scored the highest average (3), followed by “People resources and capabilities are planned, managed and improved” (2.95) and “A healthy and safe work environment exists” (2.93). The results also show that “Teamwork is encouraged and enabled” scored the lowest average (2.82), which reflects unhappiness and dissatisfaction in terms of the way workers are structured, rewarded and communicated with in their enterprises. Furthermore, the result based on managerial perspective suggests that firms focus more on customer and financial outcomes rather than investing in people.

6.7.8 Customer Results

Figure 60 shows the three items used to reflect customer results. All items scored an average of 3 or more, which is either neutral or agreement according to the scale used.

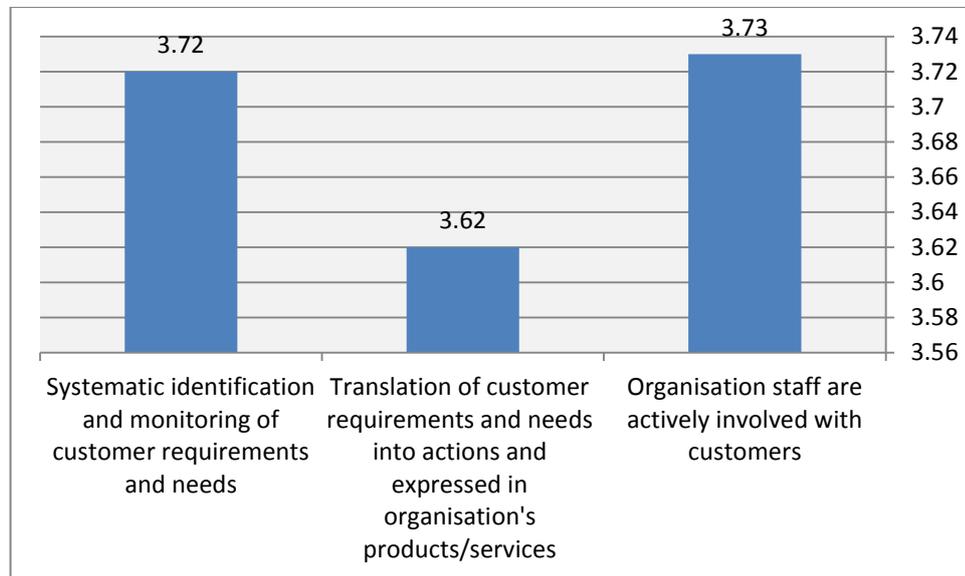


Figure 60: Descriptive Analysis: Customer Results (author’s compilation)

The statement “Organisation staffs are actively involved with customers” scored the highest average (3.73) which reflects on top management’s prompt responses to customer needs and requirements. “Translation of customer requirements and needs into actions and expressed in organisation’s product/services”, however, scored the lowest average (3.62) which suggests that there could be an internal issue within organisations that leaders try to hide from customers.

6.7.9 Society Results

Figure 61 shows the four items used to reflect society results. All items scored average of 3 or more, which is either neutral or agreement according to the scale used.

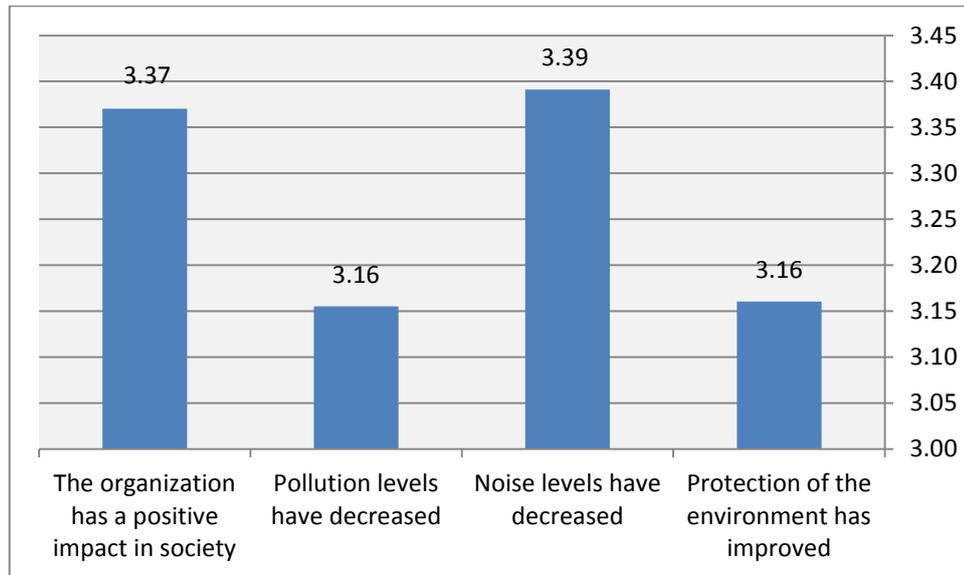


Figure 61: Descriptive Analysis: Society Results (author’s compilation)

The statement “Noise³ levels have decreased” scored the highest average (3.39) followed by “The organization has a positive impact on society” (3.37). The result also shows that the statements “Protection of the environment has improved” and “Noise levels have decreased” scored the same (3.16). The results imply that firms have a positive effect on society, especially in decreasing the noise level.

6.7.10 Key Performance Results

Figure 62 shows the five items used to reflect the key performance results for manufacturing in Kuwait. All items scored an average of well above 3, which is between neutral and agreement according to the scale used.

³ Noise refers to manufacturing noise which is made by factories.

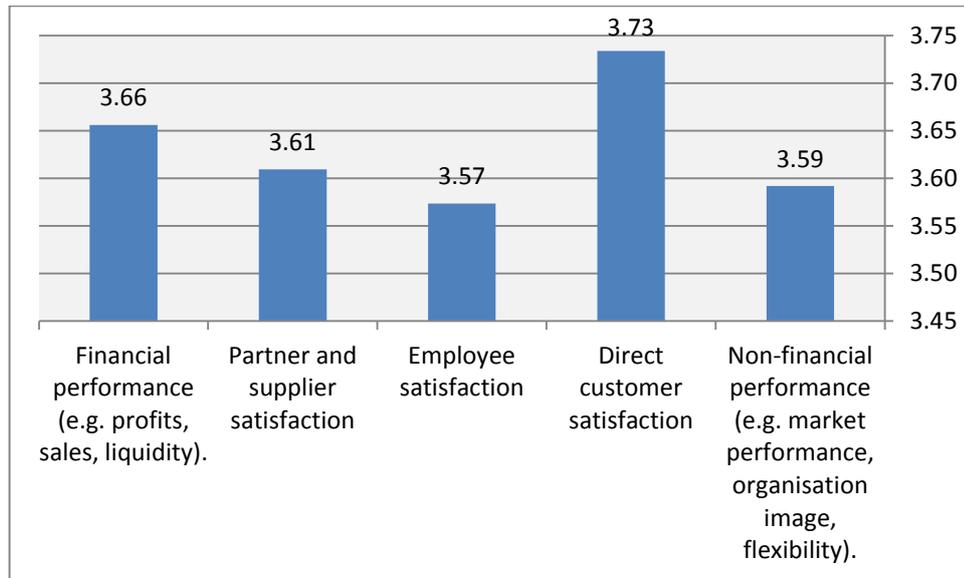


Figure 62: Descriptive Analysis: Key Performance Results (author’s compilation)

The statement “Customer satisfaction” scored the highest average (3.73), followed by “Financial performance (e.g. profits, sales, liquidity)” (3.66) and “Non-financial performance (e.g. market performance, organisation image, flexibility)” which scored the second highest average (3.59). The result also shows that “Employee satisfaction” scored the lowest (3.57), which means that firms focus more on customer satisfaction, non-financial and financial performance than employee satisfaction. The author contends that employees’ commitment has an equal effect on customer satisfaction as happy employees are highly motivated and loyal to their work, which in turn produces greater performance and higher quality of products and services for the organisation.

6.8 One-way ANOVA

Using the demographic information from the analysis, the study aimed to examine if the differences between age groups in the sample are significantly different regarding the study variable. The study performed one-way ANOVA for all demographics. The results show that demographic factors were insignificant apart from one variable, age, which was found to be significant with some of the variables used in this study.

The one-way ANOVA test was used to analyse the opinion of the sample with respect to their age groups. By using the one-way ANOVA test, the study also examined whether there were any significant likenesses or differences in the perception of the sample based on their management levels regarding key performance of the company. The significant level used in this test was less than 0.05 and less than 0.01, which indicates that there is significant difference between groups (Hair et al., 2006). The following Table 34 & Table 35 present the findings of the one-way ANOVA test.

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Top managers	41	4.676	.26347	.041	4.59	4.75	1.00	5.00
Middle managers	53	3.626	.83210	.114	3.39	3.85	1.00	5.00
Shop floor managers	98	3.161	.90265	.091	2.98	3.34	1.00	5.00
Total	192	3.613	.98199	.070	3.47	3.75	1.00	5.00

Table 34: One way ANOVA for Business Key Performance (author's compilation)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	66.368	2	33.184	53.234	.000
Within Groups	117.815	189	.623		
Total	184.183	191			

Table 35: ANOVA results (author's compilation)

The result of the one way ANOVA test reveals that top management agreed more with key performance than middle managers and shop floor managers. The results indicate there is a significance of less than 0.01 meaning that the higher the management level, the more positive the perception of the firm's performance.

6.9 Correlation analysis

This thesis performs Correlation Matrix, for an exploratory purpose, in order to check the association among the key variables and the direction of the association. It's very important that a researcher checks the association among the variables under investigation before carrying out the regression analysis (Hair, et al., 2006). Correlation matrix provides a good insight of how variables are connected by checking the direction and strength of association with each other. Another reason why this research carries out correlation test is to measure the multicollinearity. Multicollinearity is an unfavourable situation which occurs when two or three independent variables are highly associated among each other ($R > 0.9$), which would lead to a wrong data interpretation (hair et al., 2006). According to Hair et al., (2006) the negative effect of multi-co linearity is that it makes it difficult to determine the contribution of each independent factor in its relationship with the dependent variable. (Pallant, 2000) Also supported that Multi-co linearity occurs when the relationship among the independent variables is very high, this is the case if the Pearson correlation score is equal to 0.9 or above. Table 36 contains correlations between the key variables. The table indicates both the association and direction between the key variables.

		1	2	3	4	5	6	7	8	9	10
1.Leadership	<i>p</i>	1	.600**	.728**	.723**	.689**	.762**	.613**	.793**	.653**	.800**
	Sig.		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2.People	<i>p</i>	.600**	1	.606**	.557**	.629**	.572**	.523**	.631**	.590**	.725**
	Sig.	0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3.Policy & Strategy	<i>p</i>	.728**	.606**	1	.677**	.708**	.755**	.620**	.778**	.652**	.803**
	Sig.	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000
4.Partnerships & Resources	<i>p</i>	.723**	.557**	.677**	1	.612**	.745**	.552**	.759**	.679**	.699**
	Sig.	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000
5.Culture	<i>p</i>	.689**	.629**	.708**	.612**	1	.732**	.648**	.733**	.660**	.807**
	Sig.	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000

6.Processes	<i>p</i>	.762**	.572**	.755**	.745**	.732**	1	.642**	.791**	.662**	.796**
	Sig.	0.000	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.000
7.People Results	<i>p</i>	.613**	.523**	.620**	.552**	.648**	.642**	1	.691**	.586**	.786**
	Sig.	0.000	0.000	0.000	0.000	0.000	0.000		0.000	0.000	0.000
8.Customer Results	<i>p</i>	.793**	.631**	.778**	.759**	.733**	.791**	.691**	1	.712**	.852**
	Sig.	0.000	0.000	0.000	0.000	0.000	0.000	0.000		0.000	0.000
9.Society Results	<i>p</i>	.653**	.590**	.652**	.679**	.660**	.662**	.586**	.712**	1	.756**
	Sig.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		0.000
10.Business Key Performance	<i>p</i>	.800**	.725**	.803**	.699**	.807**	.796**	.786**	.852**	.756**	1
	Sig.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

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

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

Table 36: Correlation test (N=192) (author's compilation)

Table 36 illustrates that the results show that all the key variables have positive and strong associations with Key Performance Results. Multi-collinearity occurs when the relationship among the independent variables is very high, which is the case if the Pearson correlation score is equal to 0.9 or above (Pallant, 2000). According to Hair et al., (2006) the negative effect of multi-collinearity is that it makes it difficult to determine the contribution of each independent factor in its relationship with the dependent variable. This occurs mostly because the independent variables are mixed and their predictive power may 'overlap', as multi-collinearity makes 'shared' variance among variables. Table 36 indicates that all variables scored $r < 0.9$.

Moreover, the result also indicates that business key performance is positively associated with Leadership ($r=0.8$. $p < 0.01$) People ($r=0.725$. $p < 0.01$), Policy & Strategy ($r=0.803$. $p < 0.01$), Partnerships & Resources ($r=0.699$. $p < 0.01$), Culture ($r=0.807$. $p < 0.01$), Processes ($r=0.796$. $p < 0.01$), People Results ($r=0.786$. $p < 0.01$), Customer Results ($r=0.852$. $p < 0.01$) and Society Results ($r=0.756$. $p < 0.01$). Among all variables, customer results found to be the highest in association with key performance. This finding is expected since industrial firms are profit seeking and strongly considers the needs and

wants of the customers. To be competitive in the market it is a must to follow customer's needs and wants.

6.10 Results for the multidimensional structural model

The ten variables obtained from the scale validation process were used to estimate the multidimensional structural model. This section presents the findings of the goodness-of-fit indices of the model, followed by a description of the estimated parameters. The study used AMOS 10.0 incorporated into the SPSS software in order to carry out this analysis. The main purpose of this test was to examine whether the proposed model is suitable for QMS in the Kuwaiti manufacturing sector and to examine if the KQCM is fit and applicable for the manufacturing sector generally.

6.10.1 Model fit

Figure 63 illustrates the goodness-of-fit indices of the multidimensional structural model. Several statistics were used to evaluate the goodness-of-fit of the model (Browne & Cudeck, 1993), and the values of all the items show the adequacy of the model for the sample data. The estimates on relationship among variables in Figure 63 represent the power of effect on how each variable affects the other according to the conceptual model (KQCM). For example, Leadership was found to have high impact on Policy and Strategy (estimate 88%) compared to other enablers. Moreover, e1, 2, 3, 4, 5, 6, 7, 8, 9 represent the errors incurred in the model. These results suggest that the internal structure of the KQCM proposed by the MDSM is thus supported by the data set.

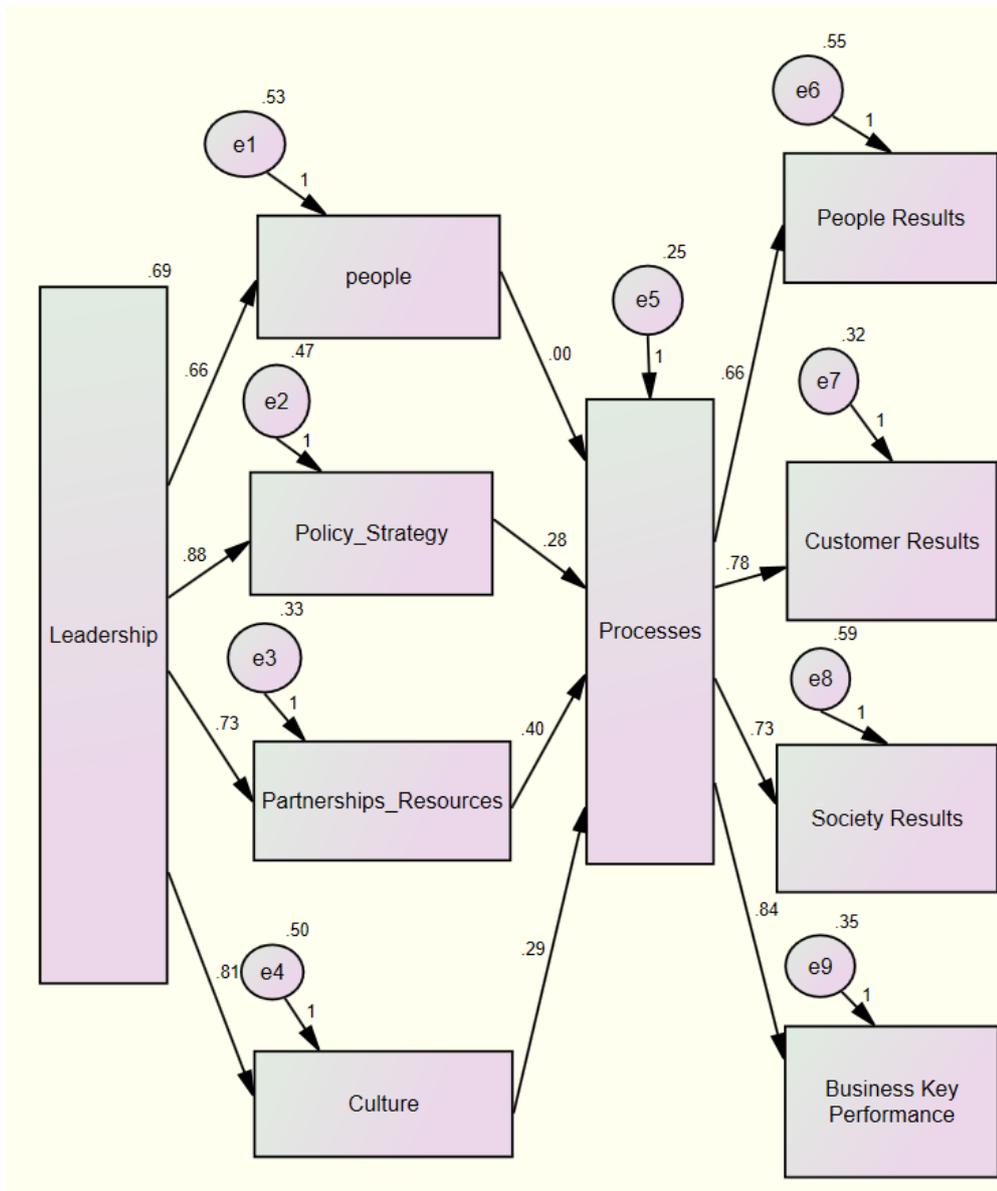


Figure 63: Goodness of fit for KQCM (author's compilation)

6.10.2 Item-factor loadings

The estimated parameters, standard errors and t-tests are shown in Table 37.

			Estimate	S.E.	C.R.	P	Label
People	<---	Leadership	.659	.064	10.364	***	
Policy & Strategy	<---	Leadership	.880	.060	14.670	***	
Partnerships & Resources	<---	Leadership	.725	.050	14.476	***	
Culture	<---	Leadership	.809	.062	13.144	***	
Processes	<---	People	.004	.046	.086	.931	
Processes	<---	Policy & Strategy	.279	.046	6.095	***	
Processes	<---	Partnerships & Resources	.400	.055	7.279	***	
Processes	<---	Culture	.285	.046	6.206	***	
People Results	<---	Processes	.663	.060	11.001	***	
Customer Results	<---	Processes	.784	.046	16.983	***	
Society Results	<---	Processes	.725	.062	11.622	***	
Business Key Performance	<---	Processes	.836	.048	17.302	***	

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

Table 37: Parameter estimates, standard errors and t-test for the KQCM (author's compilation)

The first part of Table 37 shows the loadings (coefficients) of the enabler and result excellence factors, respectively. In the enabler domain all loadings are high and statistically significant, ranging from 0.659 for 'Leadership' to 0.279 for the 'Process' criterion. Only People was found to be not significantly related to Process (sig=0.931). The outcomes of the analysis as presented in Table 38 indicate the solid psychometric properties of the scales used and a good overall fit of the model ($df=55$; RMSEA=0.02; NFI=0.73; IFI=0.722; and CFI=0.720).

Model	NFI	RFI	CFI	RMSEA
Default model	.709	.603	.720	.0285
Saturated model	1.000		1.000	-
Independence model	.000	.000	.000	.460

Table 38: Model FIT (author's compilation)

To assess the relationships between the enabler excellence construct and its dimensions, Figure 63 and Table 37 show the coefficient of determination (R^2) for each enabler criterion and KQCM dimension. The high values indicate that the enabler excellence construct explains a high degree of variance in every case. To assess the overall relationship between the enabler excellence construct and the TQM dimensions, the author also calculated the total (multivariate) coefficient of determination (R^2_m), which represents the amount of variance in the set of dependent variables (TQM dimensions) explained by the independent variable (enabler excellence). An R^2_m value of 0.979 indicates that the enabler excellence construct explains almost 98% of the variation of the social and technical dimensions.

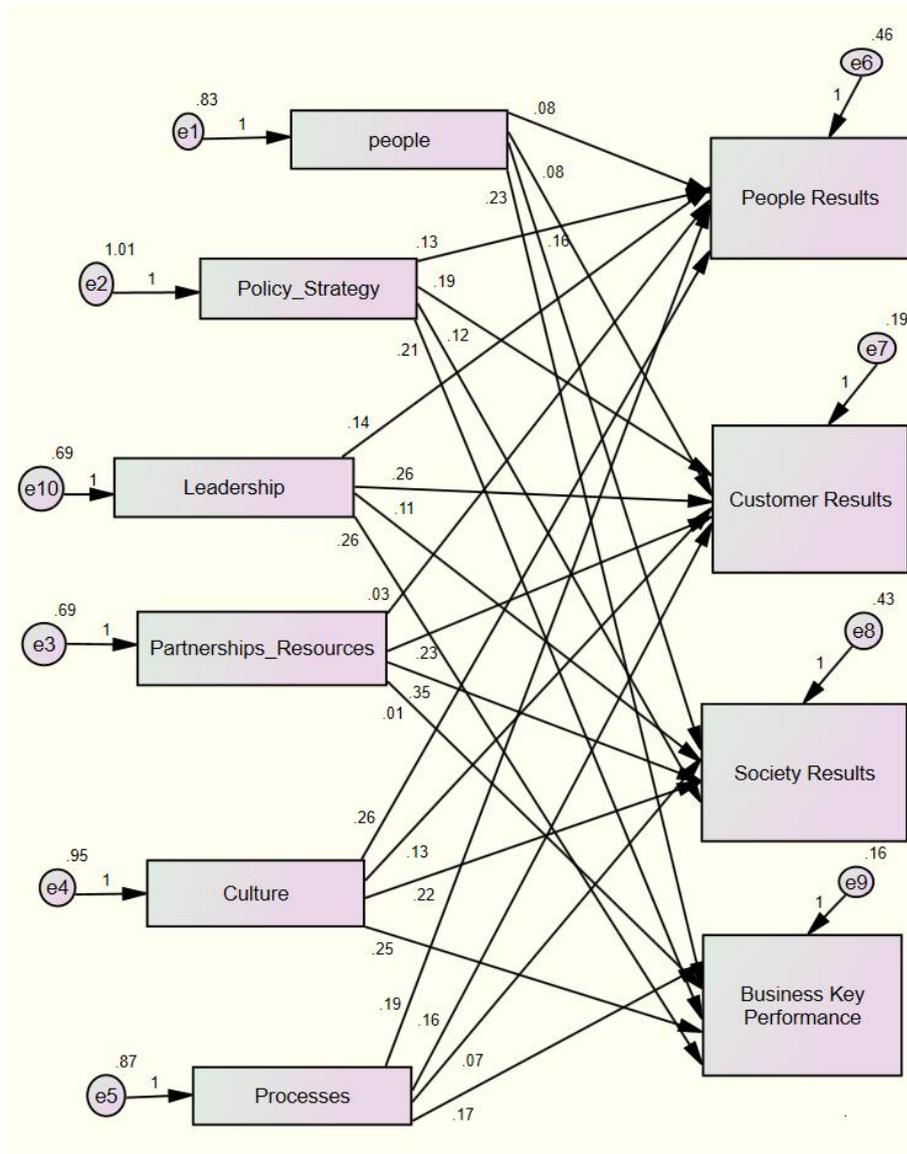


Figure 64: Enablers and results for goodness of fit of KQCM (author’s compilation)

The same procedure was applied to evaluate the adequacy of the result excellence construct. Figure 64 shows that all loadings are statistically significant, the coefficients of determination for the result criteria show that result Table 37 excellence construct explains a high percentage of variance in all result criteria except for “Society Result” (37%). By calculating the total coefficient of determination ($R^2 = 0.710$), it can be seen that the result excellence explains more than 70% of the variance of the result criteria.

			Estimate	S.E.	C.R.	P
Customer Results	<---	Processes	.163	.034	4.792	***
Society Results	<---	Processes	.069	.051	1.355	.175
Society Results	<---	People	.159	.052	3.067	.002
Customer Results	<---	Leadership	.256	.038	6.716	***
Society Results	<---	Leadership	.106	.057	1.860	.063
Customer Results	<---	Partnerships Resources	.230	.038	6.037	***
Customer Results	<---	Culture	.128	.033	3.938	***
Customer Results	<---	Policy Strategy	.190	.032	6.004	***
People Results	<---	Policy Strategy	.131	.049	2.697	.007
Business Key Performance	<---	Policy Strategy	.208	.029	7.228	***
Society Results	<---	Policy Strategy	.117	.047	2.482	.013
People Results	<---	People	.084	.054	1.564	.118
Customer Results	<---	People	.075	.035	2.170	.030
Business Key Performance	<---	People	.228	.032	7.212	***
Business Key Performance	<---	Leadership	.258	.035	7.430	***
People Results	<---	Partnerships & Resources	.028	.059	.480	.631
Business Key Performance	<---	Partnerships & Resources	.006	.035	.186	.853
People Results	<---	Culture	.260	.050	5.181	***
Business Key Performance	<---	Culture	.254	.030	8.587	***
Business Key Performance	<---	Processes	.165	.031	5.337	***
People Results	<---	Processes	.193	.052	3.683	***
Society Results	<---	Culture	.219	.049	4.511	***
Society Results	<---	Partnerships & Resources	.349	.057	6.124	***
People Results	<---	Leadership	.144	.059	2.445	.014

Table 39: Parameter estimates, standard errors and t-test for the direct effect of enablers and results (author's compilation)

Table 39 further indicates that the enabler excellence construct has a statistically significant effect on the result excellence. The high value of the regression parameter (0.841) implies that there is a strong causal relationship between the two domains in the KQCM model. The coefficient of determination is also high ($R^2 = 0.707$), reflecting that the enabler domain explains 70% of the variance of the result domain. These results

support the positive influence of enabler excellence on result excellence, as the KQCM model proposes. The table above shows the indirect effect of enabler excellence on each of the result criteria. The effect of the enabler excellence is high and statistically significant for all criteria, although it varies between them, being higher for “Key Performance Results” (0.853) and lower for “Society Results” (0.349).

6.11 Hypotheses testing

H₁ QMS performance is positively associated to commitment and leadership of top management.

The first research hypothesis (H₁) assumes QMS performance (in managing People, Policy & Strategy, Partnerships & Resources, and Culture) is positively associated to commitment and leadership of top management. The results of the descriptive analysis show that leadership scored an average of 3.6, which is close to ‘agree’ on the scale. This indicates that employees agree that leaders develop and communicate mission, vision, and values. Employees also agree that leaders are actively involved in ensuring management systems are developed, implemented and continuously improved. Leaders are found to measure organisational performance and translate results into improvement and are actively involved with customers and stakeholders. The correlation results indicate that leadership is significantly and positively associated with People (sig<0.01, P=0.597), Policy & Strategy, (sig<0.01, P=0.726), Partnerships & Resources (sig<0.01, P=0.690) and Culture (sig<0.01, P=0.789), meaning that the more leaders create an environment for empowerment, innovation, learning and support, the higher the QMS performance. **Hence based on the results, the study accepts H₁.**

H₂ Communication between top and bottom management is important.

The second research hypothesis (H₂) assumes that communication between top and bottom management is important. The results of descriptive analysis shown below (Table 40) indicate that the statement “Leaders develop and communicate mission, vision, and values” scored an average of 3.636 which is close to ‘agree’ on the scale. For further analysis the

study compared the perception of the three managerial levels (Table 41); the results indicate that there is no significant level (sig=0.096). The results conclude that the different managerial levels are of a similar opinion on the importance of communication in the company.

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
					Top managers	41		
Middle managers	53	3.768	.7995	.1098	3.548	3.988	2.0	5.0
Shop floor managers	98	3.499	.8540	.0863	3.328	3.671	2.0	5.0
Total	192	3.636	.8967	.0647	3.509	3.764	2.0	5.0

Table 40: Descriptive statistics for importance of communication (author's compilation)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.757	2	1.879	2.370	.096
Within Groups	149.814	189	.793		
Total	153.571	191			

Table 41: One way Anova results for leaders develop and communicate mission, vision and values (author's compilation)

Hence, based on the results, the study accepts H₂.

H₃ Employees' empowerment and relevant processes are crucial to successfully implementing any quality practice.

The third research hypothesis (H₃) assumes employees' empowerment and relevant processes (People, Policy & Strategy, Partnerships & Resources, Culture) are crucial to successfully implementing any quality practice.

	N	Minimum	Maximum	Mean	Std. Deviation
People	192	1.00	5.00	2.9319	.91488

Policy & Strategy	192	1.00	5.00	3.4784	1.00691
Partnerships & Resources	192	1.00	5.00	3.5470	.83520
Culture	192	1.00	5.00	2.9039	.97815
Processes	192	1.00	5.00	3.41	.94

Table 42: Descriptive statistics for enablers

The results of descriptive analysis reveal that Partnership & Resources scored the highest average (3.54) compared to People and Policy & Strategy, The results indicate that the sample agreed that partnerships and suppliers are planned based on the firm's needs, contributions and a teamwork culture, and that financial resources are planned and managed. Moreover, they agreed that physical operational resources (e.g., materials and equipment) are planned and managed. The correlation results indicate that implementing any quality practice (processes) is significantly and positively associated with People (sig<0.01, P=.572), Policy & Strategy, (sig<0.01, P=0. 755), Partnerships & Resources (sig<0.01, P=0. 745), and Culture (sig<0.01, P=0.732). **Hence, based on the results, the study accepts H₃.**

H₄ Culture plays an important role in the implementation of QMS in Kuwait.

The fourth research hypothesis (H₄) posits that culture plays an important role in the implementation of QMS in Kuwait. The results of descriptive analysis indicate that culture scores an average of 2.9 which is very close to Neutral, meaning that people are neutral towards working in teams as well as gathering for social activities outside office hours. The results of correlation testing indicate significant and high positive association between culture and processes (sig<0.01, P=0.732), meaning that the successful implementation of QMS in Kuwait requires a 'good' culture in the manufacturing firm in which there is understanding, employees work in teams and there is a strong sense of belonging. **Hence based on the results, the study accepts H₄.**

H₅ The KQCM will lead to better organisational performance.

The fifth research hypothesis (H₅) posits that the results part of the KQCM (including People, Customers, Society and Performance) would lead to better Results. The results of

the descriptive analysis indicate that the results scored a higher average compared to enablers.

	N	Minimum	Maximum	Mean	Std. Deviation
People Results	192	.00	5.00	2.9087	.96604
Customer Results	192	1.00	5.00	3.6902	.92799
Society Results	192	1.00	5.00	3.3591	1.03778

Table 43: Descriptive statistics for results

Moreover, the results indicate that customer results scored the highest average (3.69). The sample results agreed with their companies' systematic identification, monitoring of customer requirements and needs. They also agreed with translation of customer requirements and needs into actions and expressed in their organisations' products/services and that staff are actively involved with customers.

The correlation results indicate that implementing any quality practice (process) is significantly and positively associated with People Results (sig<0.01, P=0.786), Customer Results, (sig<0.01, P=0.852) and Society Results (sig<0.01, P=0.801). **Hence, based on the results, the study accepts H₅.**

6.12 Qualitative results (interviews)

The main purpose of qualitative analysis is to provide in-depth and detailed information regarding quality management systems, its implementation and awareness in Kuwait private industrial sector. The results are expected to further contribute to the finding of quantitative analysis. The mixed method research used in this study (qualitative and quantitative) may be divergent or contradictory, which could lead to extra reflection and further research. Therefore, provided the data is collected and analysed correctly, such divergence can generate new theoretical insight. As presented in chapter 4, Table 19, this qualitative analysis provides answers for the following initial two research questions:

- Why is QMS implementation in the manufacturing sector (SMLEs) of Kuwait important?

- Can the proposed model work more effectively than EFQM in implementing QMS in the Kuwaiti manufacturing sector?

It is important to explain that the qualitative analysis cannot provide answers for research hypotheses, since this study required numerical examination. Quantitative approach only allows the researcher to give specific answers for questions that underpin relationships between variables using a numerical examination. This in fact highlights the differences between quantitative and qualitative analysis.

According to the sequential exploratory strategy adopted by the researcher, three initial (qualitative) interviews were conducted with managers (two top and one middle) from three different KSMLMEs. Two of these managers (one top, one middle) agreed with the following statement created by the researcher: “The general state of manufacturing within GCC countries is closely tied to the extent to which quality practices are considered important factors in the success of quality initiatives in the GCC region”.

The two managers also strongly agreed that the region is still in the process of developing with regard to manufacturing, and that this is due to the lack of skilled people who could raise the level of quality practices implemented in GCC firms to the required standards which, they felt, should have been reached before now. The researcher also supported the statement that the general state of manufacturing in the GCC in terms of quality practices should be considered in the process of developing stage, as do other scholars (Al-Jalahma, 2012; Jaafer, 2013); All consider that the economy and incentive programmes from their governments have been increasing gradually since 1997.

In the process of identifying the general state of manufacturing sector in Kuwait, one of the general managers that were interviewed stated that the managements of most manufacturing companies in Kuwait lack the knowledge required in order to make them aware of the quality tools and techniques that suit their firms (Manager A, interview, August 15, 2013). In addition, according to the operations and production manager of company B, there is a severe lack of skilled workers in manufacturing companies, especially in Kuwait; he criticised the Ministry of Social Affairs and Labour, responsible for rules and regulations with regard to limits and restrictions on the number of employees that each company can employ (Manager B, interview, August 15, 2013). A quality

engineer from company C in the UAE agreed, stating that the UAE system is far better than that which is followed in Kuwait. He said that a permit for setting up a manufacturing company in the UAE takes only two days whereas in Kuwait, it may take as long as two years (Manager C, personal communication, August 17, 2012). The point made by the two Kuwaiti interviewees is that there is a huge difference in labour law between GCC countries is valid and studies in Saudi Arabia (Al Turki & Faris, 2010) and Oman (Ashrafi & Bashir, 2011) support this. Less importance, however, should be given to Manager C's words as the company he works for in the UAE was originally founded in Grenoble, South France and, as such, is not classified as a national company.

The interviewees from the two Kuwaiti manufacturers were reluctant to reveal any information regarding their sales and investments or information used by most empirical studies to identify the size of firms to ascertain if it has an impact on quality practices implementation. Manager B justified his refusal by saying that generally family businesses tend keep this information confidential due to the intense competition in the GCC region and the fear that a firm's weakness could be revealed (Manager B, interview, August 15, 2013). He also mentioned that imports from Iran, China and India are cheaper than the equivalent domestic ones despite the home advantage of lower transport costs and low tax rates – a matter of concern to most manufacturing firms in Kuwait. This reluctance meant that it was extremely difficult to classify companies in order to ascertain whether the size of firms affects the level of implementation of quality tools and techniques.

Manager A reported that Kuwaiti manufacturers pay nominal monthly fees for gas, electricity and water, the subsidy being a form of support from the government to encourage manufacturers and help them compete in the market (Manager A, interview, August 15, 2013). Manager B (interview, August 15, 2013), praised the support from the Kuwaiti Public Authority for Industry (responsible for incentive programmes to support the manufacturing sector in Kuwait) in setting a zero per cent tax rate on manufacturing companies' income. He added that a good relationship with suppliers was a critical success factor when implementing QMS, especially in his company where raw materials were quality inspected by suppliers before delivery in order to avoid any delays that might occur. Manager C on the other hand, emphasised the importance of getting certification of

quality standards; he described the benefits of being certified as lucrative in terms of business, and a critical factor in successful implementation of QMS, as well as a way of increasing sales and profitability based on his experience of dealing with clients in Dubai, UAE. He believed that customers seek manufacturers that are ISO standard certified and registered before entering negotiations to do business with them.

Furthermore, government involvement and supplier relationships are key enablers in implementing QMS in GCC firms suggested by all managers.

As mentioned by both Managers A and B, the lack of skilled workers – mainly due to low pay – is an issue in the Kuwaiti manufacturing industry, something that the Ministry of Social Affairs and Labour is well aware of, but has yet to do anything about. Another barrier is the lack of up to date knowledge in senior management which in turn, decreases the level of awareness amongst their employees with regard to implementation of quality tools and techniques (Manager A, interview, August 15, 2013; Manager B, interview, August 15, 2013). Moreover, Manager C expressed his views by saying that another barrier – the lack of employees' empowerment – was also the result of this lack of senior management's knowledge. He went on to criticise the Kuwaiti government bureaucracy that delays manufacturers being able to obtain factory permits, comparing it unfavourably to the UAE (up to two years in Kuwait and only two days in the UAE). Consequently, all three interviewees agreed with Mady (2009) that the scarcity of land to build on was a major issue, which the author believes it answers Manager C's frustration with regard to obtaining factory permit in Kuwait.

Lack of up-to-date knowledge, availability of skilled workers, plant size and poor labour law were the most critical barriers mentioned by the interviewees. Manager B also cited organisational culture as a barrier, the multi-cultural background of employees making it difficult to successfully implement benchmarking techniques (Manager B, Interview, August 15, 2013).

The researcher argues that efforts by the GCC governments should not be played down or overlooked; many scholars have mentioned the support of each country's government (Al Turki & Faris, 2010; Al-Saadi, 2010; Al-khalifa & Aspinwall, 2000; Salaheldin, 2009a).

Findings from the researcher's initial interviews in Kuwait revealed a slightly different picture to that of the literature review. This may be due to the accuracy of face to face interviews (qualitative method) before actually conducting survey questionnaires (quantitative) for a larger sample size. Another reason could be difference in research circumstances which could also account for such contradictions.

The second phase of the sequential exploratory strategy conducted with different management levels: six top managers, six middle managers and thirteen shop floor managers in the manufacturing sector in Kuwait. A summary of their demographic is presented in Table 44.

#	Participant aliases	Managerial Position	Age	Education/ Experiences	Company Name
1	Waleed	Top management	32	MBA in business, 23 years of experience.	A
2	Mohamad		30	MBA, 12 years of experience.	B
3	Ahmad		45	PhD in chemical engineering, 12 years of experience.	C
4	Sultan		31	PhD in environment, 15 years of experience.	D
5	Jasem		26	BA in business, 15 years of experience.	E
6	Ali		34	Chemical engineering degree, 6 years of experience	F
7	Essam	Middle managers	37	BA in business, 20 years of experience.	G
8	Othman		30	BA in Marketing, 15 years of experience.	H
9	Naser		54	BSc, Chemistry, Kuwait University.	I
10	Khalid		45	BSc, in environmental management, 7 years of experience.	J
11	Fahad		50	BA in business administration, 13 years in the field Chemistry.	K
12	Hamad		53	BA in business administration, 15 years of experience.	L
13	Abdulrahman	Shop floor	53	BA in Economics, 13 years of experience.	M
14	Abdullatif		53	Diploma, 8 years of experience.	N
15	Nawaf		53	BA in business administration, 11 years of experience.	O
16	Mukhtar		45	2 year diploma, 15 years of experience.	P
17	Salem		48	2 year diploma, 15 years of	Q

		Managers		
18	Zaid Omer		experience.	
19	Mubarak	35	2 year diploma, 8 years of experience.	R
20	Jaber	33	2 year diploma, 9 years of experience.	S
21	Omar	30	2 year diploma, 7 years of experience.	T
22	Zaid Nader	27	Bachelor in Finance, 2 years of experience.	U
23	Thamer	40	2 year diploma, 15 years of experience.	V
24	Zahed	35	BA in business administration, 3 years of experience.	W
25	Samer	31	Diploma, 3 years of experience.	X
		36	2 year diploma, 10 years of experience.	Y

Table 44: Interviewees' Demographic Information (author's compilation)

The author conducted the interviews, during which he encouraged participants to speak freely. The following section presents the result of interviews with the top management.

6.12.1 Top management level

This section presents the summaries of interviews that were conducted with six top managers who work in the manufacturing sector in Kuwait.

6.12.1.1 Manufacturing policies and customer satisfaction

The first interview question asked the top managers whether their companies have policies regarding customer satisfaction. The results concluded that the majority of firms in Kuwait have such a policy. All agreed that such a policy is established and is vital for the work of manufacturing firms in Kuwait.

Waleed explained that his company has policies that clearly emphasise customer satisfaction and the company dedicates a lot of time to understanding customer needs, wants and tastes: "This is achieved by systemising and standardising the work". He also

said that before launching a new product, a team in the company would research how customers would perceive this new product. The team surveys customers, in this case, usually housewives as they are the target segment.

Similarly, Mohamad explained that his customer service department carry out two pre and post procedures that ensure customer satisfaction; for the pre stage, there is a pilot study as to whether the product matches customer needs and requirements and for the post stage, the department carries out a survey that asks people about their satisfaction regarding their products.

Mohamad added: “The challenge we face is that customers in Kuwait are not engaged with suppliers and firms and hence we always think to provide something for customers in order to reveal their opinion. Customers in Kuwait, if they do not like your product, they just switch to another service provider”.

Ahmad, Sultan, Jasem and Ali, all agreed that the use of ISO, six sigma, and total quality management (TQM) and similar policies is vital for their firms as well as for manufacturing firms in general in order to compete in the market. They said that such policies standardised the work, providing an opportunity to enhance processes at their firms.

6.12.1.2 Example of firms’ policies

The second question asked respondents to provide examples of policies that ensure customer satisfaction. Waleed mentioned “ISO 9001:2008, as well as 14001, can be good examples because in order to be certified you need to have a system and standard for your work”. Jasem said that his company uses ISO 9001:2008 and that their “quality management offers the ability to formalise an organisation's processes and to provide assurance that process requirements are being met. Our firm defines what their quality objectives are, in most cases focused on customer/stakeholder satisfaction”.

Mohamad added, “Our Company depends on their customers and therefore should understand current and future customer needs, should meet customer requirements and strive to exceed customer requirements. As we use ISO 9001:2008; it clearly places much

emphasis on customer focus”. Ahmad stated that as well as the TQM system, his firm conducts “user satisfaction survey results. And supplier performance records should also be collected in the data and analysis process so as to make sure our stakeholders are happy about what we offer. This also gives the top management an indicator in case there are any problems/issues that require urgent solution”.

6.12.1.3 Manufacturing continuous improvement

The third and fourth questions asked top management how their firms carry out continuous improvement. The results concluded that the majority of firms in Kuwait agree that it is important to improve the quality of products and services, process and procedures within their organisations. Most importantly, top management emphasises the importance of communication, teamwork, the learning process, feedback process and listening to customers as significant tools.

Waleed explained that continuously improving products, processes and services is one of the challenges that face firms. Most importantly, in order to survive in the market “improving the quality of products and services is essential”. Waleed said to achieve this they “need the involvement of top management. We have scheduled meetings with the owner of the company and we have targets to achieve for each financial year”. Jasem also agreed that his firm ensured constant improvement as it focuses on products and services development; to achieve this “there must be good communication between team members, between managers and leaders, we must encourage our customers to express their opinions and follow up with them and bring a gift, we must have the courage to do acts”.

Similarly, Mohamad agreed that continuous improvement is a great challenge, which requires a good team that works efficiently with customer focus in mind. “Everybody must know that without constant improvement, you might lose sales and your market competition. For us, we carry out several marketing strategies in order to follow trends and take advantages from opportunities”, adding “I’ve been continuously improving the firm’s project management system and with each new project, I learn more and modify the systems we follow”.

Ahmad focused on learning from customers as a vital tool in constantly improving: “I always encourage middle managers and floor managers to listen to the client's voice. It is only after listening to the client's voice, needs and dreams that we can improve our services and products. When we listen with awareness throughout, our clients and suppliers will guide us to success. The problems that may disrupt our work and possibly become a nightmare will be [dealt with] before they become a difficulty. When we are listening carefully, people will tell us what we need to know”.

Sultan focused on process and procedures as the best way to ensure firms' continuous improvement: “Top management, middle management, everyone in this organisation must contribute to enhancing the process and procedures in one way or another”.

Jasem said “to manage expectations and keep our stakeholders informed”. To make sure our firms are improving, “we provide each of our stakeholders with a written description of each phase and an estimated timeline for our products and services launching. Every meeting is followed up with written minutes, we explain what was discussed and inform what should next be expected. When our stakeholders know what to expect, they are better and projects are more successful”.

Ali said that “I think that the main benefits of implementing QMS such as ISO 9000 are the improvements of our reputation and image locally in the Kuwaiti market. I am sure that ISO 9000 certification makes the revision of the procedures easier for us so we can focus more on quality”. He also added that QMS would create some sort of unification of performing tasks and procedures, and the internal audits helped to highlight defects in the production system early on and allowed corrective actions to be taken swiftly.

He added, “When we talk about continuous improvements we mean the quality system itself, and to do so we need to focus on internal key process indicators (KPIs) that estimate the system reaction to problems. Here again, you need to develop QMS software so we can deal with the expected common cause differences in responses and the special causes, because the special causes often provide insight about the dynamics of our systems, and therefore the potential for improvement”.

6.12.1.4 The implementation of Quality Management System (QMS) principles

The fifth question asked top management if they follow the principles of QMS. All respondents agreed that companies in Kuwait follow QMS principles in order to ensure consistent quality of products/services.

Waleed: “Yes, we do. This is done by sending reports to the owner and we give a summary of the company performance”. Mohamad, Ahmad and Sultan also agreed that their companies follow the QMS principles. Jasem said “We follow Quality Management System to ensure consistent quality of products”. Ali and the rest of the managers interviewed agreed that his company followed QMS and said “A quality management system often emphasises key areas such as correcting errors and prevent failure in quality; auditing to ensure processes are using the quality systems effectively; and continuous improvement of the quality system itself. Our firm emphasises that the successful implementation of the system encompasses the full supply chain from your suppliers through to customers, as well as training of personnel on the systems and processes”.

6.12.1.5 Teamwork encouragement in manufacturing sector

The sixth question asked top management about teamwork encouragement and motivations. The majority agreed that employees are motivated and teamwork encouraged creating, innovating and enhancing the current QMS.

Waleed agreed with encouragement and said “Yes. We urge our employees to work together and help each other out. We do not tolerate selfishness in our company. Although, this is very hard to find out, we still value our employees and work closely with them”. Both Mohamad and Hamad explained that teamwork is encouraged and motivated with both financial and non-financial incentives. Ali: “Annual increase bonuses and allowances are paid to teams that work based on standards”. He further added “I always encourage teamwork to open communication and expression of ideas from operators to superiors”.

Jasem said “A major focus point for a manager is to keep the team members satisfied. The focus is now too much on the external parties”.

6.12.1.6 Employees' empowerment in manufacturing sector

The seventh question asked top management about employees' empowerment. The majority of respondents to some extent disagreed that employees are empowered and focused on the work, structure and narrow delegations of tasks.

Mohammad: "For sure, empowerment is important in the workplace; managers at our company allow employees to take responsibilities and carry out tasks on behalf of their supervisors, however, such empowerment is limited to a few tasks, and we usually allow empowerment when a supervisor is absent or there is a shortage of manpower". Ahmad totally rejected the idea of empowerment, saying "to make sure of the quality of product, services and system, managers must handle their responsibility with little delegation, so as to prevent any problems that might threaten service and product quality. Sultan said "I agree that empowerment is necessary so to enhance employees' skills. However the fact is that our managers have degrees while most of the labour employees have no degree, so delegation and empowerment might be a risk that threatens the quality process".

Waleed agreed that employees should be empowered, saying, "An employees' empowerment policy exists in our company and this is done by teaching them more than one job when they are first employed. We like to show our newly employed workers round the company so they can have at least a minimal idea of how our products are processed".

6.12.1.7 Critical Issues of Implementing QMS

The final question for top management asked about the critical issues of implementing QMS. Top management agreed that these issues are: 1. Government regulations and how to adhere to them, 2. No actual government support, 3. Employee skills and education, 4. Culture and social factors.

Waleed: "It is very difficult to implement government regulations in Kuwait; it is not only that transaction requires a long period of time, but the rules themselves are arbitrary and do not support firms in implementing QMS".

Mohamad discussed the issue of government support and said “No government support is available for firms of our size. This was only announced without any actions and failure in implementing Kuwaitisation programme, which means prioritising local products to be sold in the market as well as urging firms to employ Kuwaiti nationals. For example, local products cost 5% more compared to GCC products and 10% more than international products”.

Ahmad explained that his firm clearly underpins customers’ needs and requirements, but employees are ranked as second class. Ahmad said that firms must put employees first, acknowledge their needs and make sure they want to implement QMS: “At the end of the day, it is our employees who interact with the system and customers; ensuring their satisfaction and wellbeing is important to enhance the firm’s success”.

Sultan explained that it is difficult for firms to successfully implement QMS when they seek low-paid and less educated employees and that firms must invest in attracting talented employees, allow employees to learn and provide educational opportunities.

Ali said “The challenge for us is to maintain TQM; hence we must keep customers, suppliers, employees and all stakeholders satisfied. The challenge for managers is developing a better, more suitable organisational structure. I think sometimes that managers’ focus is too much on the profit rather than developing services”. Table 45 presents a summary of top management interviews.

#	Top Management level	Summary of interviews
Q1	To what extent does your company have a policy to ensure customer satisfaction?	The results concluded that the majority of firms in Kuwait have a policy that addresses customer satisfaction. All acknowledged that such a policy is established and vital for the work of manufacturing firms in Kuwait.
Q2	Can you give example(s), please?	Four out of six respondents agreed that their firm implements ISO 9001:2008 14001, six sigma, ISO and total quality management (TQM).
Q3	How does your company carry out continuous improvement?	Five out of six respondents agreed that quality of products and services, process and procedures must be constantly improved.
Q4	How can this be achieved?	Four out of six top managers agreed that communication, teamwork, the learning process; feedback process and listening to customers are significant tools.

Q5	To what extent does the top management of your company follow Quality Management System (QMS) principles?	All managers agreed that companies in Kuwait follow QMS principles so to ensure consistent quality of products/ services.
Q6	How about teamwork, is this encouraged and how?	Apart from one, all the managers interviewed agreed that employees and teamwork are motivated and encouraged to create, innovate and enhance the current QMS.
Q7	To what extent does your company endeavour to empower employees, and how?	Three out of six respondents, to some extent disagreed that employees are empowered but rather focused on the work, structure and narrow delegations of tasks.
Q8	What are the critical issues of implementing QMS in your company?	Top management agreed that these issues are: 1. Government regulations and how to adhere to them, 2. No actual government support, 3. Employee skills and education, 4. Culture and social norms.

Table 45: Summary of top management interviews (author's compilation)

6.12.2 Middle management level

Mid-level managers were also approached and interviewed. This section summarises the six interviews conducted.

6.12.2.1 Manufacturing policies and customer satisfaction

Middle managers were asked if their firms' policies underpinned customer satisfaction and also to provide example(s). The majority of respondents agreed that their firms' policies emphasised customer satisfaction by improving processes and procedures, engaged with internal and external procurement, settled supplier and customer accounts on a monthly basis, followed up their company's account with banks and collected suppliers and customers' debts.

Essam agreed that his firm policies are customer focused: "I follow up internal and external procurement, settling accounts of suppliers and customers on a monthly basis follow up the company's account with banks and collecting suppliers and customers' debts". Examples he gave were: "We give offers and make deals for our customers who

order from us. We also reward their loyalty by giving them more than enough time to settle their debts”.

Othman and Nawaf agreed that the top management always considered and focused on customer needs during meetings, and hence middle managers as well as floor managers understand that the top management policy and aim is to satisfy customers and provide the best service and products.

Khalid also agreed that his firm’s policy addressed customer satisfaction: “We implement several measures and procedures. Why? To provide highly standardised products which hopefully make the customer happy”.

Hamad explained that customer satisfaction is addressed in the company system, process, and procedures and is also the main focus for team meetings.

6.12.2.2 Middle managers awareness of the quality tools and practices

Middle managers were asked about their awareness of the quality tools and practices. The results reveal that the majority of middle managers have limited or specific knowledge of quality tools and practice. Some managers noticeably said that their knowledge of quality systems was limited and to enhance such awareness good internal communications and workshops were required.

Essam: “I am aware of the term itself. I know about ISO, for example; however, not everyone here in the company knows what they are really. We do not have a recognised system, but this does not mean that there isn’t a system to ensure quality of our products – there is”.

Othman: “I am aware of my department's plan to purchase materials that support the system’s development”.

Naser, Khalid and Fahad acknowledged that their awareness of quality was limited to their department and having the full picture requires rotation, internal communication and cross-department workshops. Khalid explained practices of industrial firms in Kuwait and how they are seeking to establish partnerships with firms outside Kuwait in order to establish

their names and enhance their future success. He added “The relationships with suppliers are significant and hence firms focus on establishing long-term relationships with suppliers so to ensure the inflow of raw materials”.

Hamad said: “I think no-one has the full picture of what is going on in this company, I know what I am doing in my department, but I am quite sure that few people know what I am doing here and how my effort contributes to enhance quality practice. Other managers, even in meetings, pretend to know the quality practice, but for sure their knowledge is narrow since we lack good internal communication”.

6.12.2.3 Middle managers’ awareness of six sigma, ISO series and total quality management (TQM)

This question specifically asked middle managers about their awareness of six sigma, ISO series and total quality management (TQM). The result indicates that the vast majority of middle managers have a basic knowledge of system tools.

Essam: “I work with the auditors that visit our company for auditing and the process of certification. I think ISO certification is needed for every business, especially in the field we work in [petrochemicals]. To be honest, I do not know the rest of the tools you mentioned”. Othman explained that he was aware of the goals of the TQM programme at his company; however, he added that managers now fully appreciate the principles of TQM. However, during meetings managers explain that sometimes due to time constraints and workforce shortages, they have a tendency to modify some of the principles. The rest of the interviewed managers claimed that they have a reasonably adequate knowledge of the above-mentioned quality tools.

6.12.2.4 Middle managers’ perception of QMS usefulness

Middle managers provided many benefits of QMS, which indicates to some extent their awareness of QMS as significant in manufacturing firms in Kuwait. Managers see QMS as improving service/products and the customer satisfaction focus, establishing a quality framework, identifying problems, reducing defects and boosting profits.

Essam: “QMS can be implemented in more than one department. For example, it can increase our profits in the financial department and increase our production and performance by seeking consultants from an independent consultancy company and by the knowledge and effort from our middle managers (production, design, quality, safety)”.

Othman, Naser and Khalid agreed that QMS would reduce various costs as well as prevent problems. Hasan said: “Our top management emphasised the cost of poor quality in service industries and suggested that improved quality can be achieved by adopting the principles of six sigma, ISO and TQM. These systems can reduce defects and boost profits with no question; however, the real question is, are all managers aware of six sigma, ISO and TQM? I think even if managers are aware of these systems, their knowledge must be extended and improved by constant training, workshops and good communication following this”. Fahad and Hamad agreed that QMS has many benefits such as continuous improvement, customer satisfaction, preferably with key success factors (e.g. monitoring and controlling) that allow organisation to achieve goals by establishing a quality council and identifying problems.

6.12.2.5 The major drivers of business

Middle managers were asked about the major drivers of their businesses. The majority of them agreed that it is profit. Managers see their firms mainly driven by financial capacity, followed by customer focus.

Essam: “The first major driver, of course, is the financial capability of our company. The second driver is the owner’s and the general manager involvement in the business and their level of awareness of the business and its competitions and risks. Last but not least, the actual workers of the company who are the reasons for the company’s success and survival in the market”.

Othman explained that firms seek profit and in order to achieve this goal they must seek customer satisfaction and ensure the implementation of the QMS that would enhance customer satisfaction. He added, “I think we need business strategy that focuses on our employees. Training and development programmes must be considered, community and social responsibility must be there”. Naser, Khalid and Fahad agreed that their firms are

driven mainly by financial performance, followed by customer satisfaction. Abdulrahman was the only manager who disagreed and said that his firm's drivers were customer satisfaction and employee development: "Our main driver is to provide something that adds value to customers, to make them happy so we as a firm can improve our services. Employees are our key secret in providing superior quality services". Nawaf explained that his firm considered community needs since it provides products that match customer needs. Moreover, he added that his firm carries out several corporate social activities that emphasise people's health, environment and charity events.

6.12.2.6 Defects of products and procedures

The majority of respondents agreed that the QMS system and software allowed them to track and find any defects in products. When products are defective, managers provide reports and take immediate corrective action.

Essam explained that he is responsible for the production department and receives defect reports from his production manager when problems occur. Othman and Naser also said that they received notification when there was a product defect, and their main role was to communicate with personnel in order to decide whether to discard the defective product or recycle it. Fahad and Hasan stated that the QMS role is to provide full reports about defects so that they could immediately react and take corrective action.

6.12.2.7 Middle managers' perceptions of barriers to implementing QMS

Middle managers agreed that the major challenges facing QMS are government regulations, poor communication, negative atmosphere and work environment, and lack of education and training and incentive programmes.

Essam: "In my opinion, the main barrier to implementing QMS is the culture of our shop floor employees. Since they come from different countries and regions, we sometimes find it hard to communicate with them, especially when we have new ideas or new systems to introduce. They tend to deliberately ignore things or just do it wrongly. Another reason

could be the lack of support from the government; they set rules and regulations that turned out to be in favour of large companies only”.

Othman said that in order to successfully implement QMS there must be good communication, coordination and engagement across teams and departments, and this requires two things: “First, you must have a positive and good organizational culture; many firms recruit employees from different countries, mainly East Asian labour where they have a different culture to the managers who are mainly from Lebanon or Egypt. You see, we have cultural gaps. Secondly, employees must have good qualifications, skills and knowledge to ensure the implementation of any quality practice such as the likes of QMS”. Naser agreed with Othman: “Providing training courses, enhancing the culture of learning, and improving employee engagement is vital for the successful implementation of QMS”.

Khalid and Fahad stated that firms must provide incentives to encourage all parties to adopt QMS principles and to ensure that employees are continuously improving quality according to standards. Table 46 presents a summary of the middle manager interviews.

Interview questions	Middle Management	Summary of interviews
Q1	Does your company have a policy to ensure customer satisfaction?	Five out of six respondents agreed that their firms’ policies emphasised customer satisfaction as most middle managers dealt with process, procedures, engaged with internal and external procurement, settling accounts of suppliers and customers on a monthly basis, following up companies’ accounts with banks and collecting suppliers and customers’ debts
Q2	Can you give example(s) please?	Top management emphasise customer satisfaction, quality standards, processes and process.
Q3	How much are you aware of the quality tools and practices?	The result reveals that three out of six middle managers have limited or specific knowledge of quality tools and practice. Some managers noticeably said that their knowledge of quality system was limited and to enhance such awareness a good internal communication and workshop is thus required.
Q4	What do you know about quality management systems such as six sigma, ISO	Five out of six middle managers have a basic knowledge of system tools.

	series and total quality management (TQM)?	
Q5	How can QMS be useful for your company?	Middle managers provided many benefits of QMS, which indicate to some extent their awareness of QMS' significance for manufacturing firms in Kuwait. Managers saw QMS improving service/products and customer satisfaction focus, establishing a quality framework, identifying problems, reducing defects and boosting profits.
Q6	What are the major drivers of your company business?	The majority of managers agreed that it was profit. Managers saw their firms mainly being driven by financial capacity; another driver of firms is customer-focus as firms must consider customer satisfaction to enhance their profits.
Q7	What is the procedure if there are any defective products?	The majority of respondents agreed that the QMS system and software allowed them to follow and identify any defects in products. When products are defective, managers provide reports and take immediate corrective action.
Q8	What are the barriers to implementing QMS in your company?	Middle managers agreed that the major challenges facing QMS were government regulations, poor communication, negative atmosphere and work environment, and lack of education and training and incentive programmes.

Table 46: Summary of Middle managers interviews (author's compilation)

6.12.3 Shop floor management level

This section presents the summaries of thirteen interviews conducted with shop floor managers working in the manufacturing sector in Kuwait.

6.12.3.1 Shop floor managers awareness of long term vision of their company

The results indicate that floor shop managers are not fully aware of and not well-informed about firms' long-term vision.

Mukhtar, who is responsible for resin machines and the handling of the raw materials from the store to the machines, also monitors the level of raw materials that enters the machine before being processed to ensure the manufacturing process is going smoothly. When

asked about his awareness, he replied “I don’t know exactly what it is, but I think it is producing the best products in the market at competitive prices”.

Salem and Zaid Omer said “We are not sure about the long-term vision of my firm. We know what we are doing and what is required from us, but to have the full picture is really a good question”.

Similarly, Zaid Nader agreed that there is no clear idea about long-term vision at his firm: “Top managers are not addressing the long-term vision; we are here to do tasks and we barely know what is in the mind of our leaders”.

6.12.3.2 Shop floor staff’s perception of QMS benefits

The majority of floor managers saw many benefits of QMS, such as increasing product quality and company income. Few managers saw QMS as without benefit although some stated that the effects might be intangible because the firm had produced high quality products before QMS had been implemented.

Salem and Jaber believed that it was a good idea to unify the system, procedures and also allow them to organise the work better. Mukhtar agreed that QMS benefits the company and enhances customer and supplier trust in its brand; he also said that “it would increase the quality of products as well as the company income”.

Thamer: “I do not see benefits; there are not many benefits, except improvement of internal procedures”.

Only two respondents, Zaid Nader and Omar, said that there might be vague QMS benefits but it was difficult to know for certain because the company produced high quality products prior to QMS implementation.

6.12.3.3 Shop floor managers perception of multi-tasks

The interviewer asked floor managers if they did more than one role at a time, when asked by their manager. Some respondents explained that they could handle it while others demurred, blaming time and resources limitations. Most importantly, floor managers

explained that the quality of work was important and hence their superiors must allocate both time and resources and provide incentives.

Salem: “If my superior gives me enough time, resources and personnel, then sure I can, I prove my capabilities of handling many tasks at the same time, but my concern always is that before you ask you must give”. Mukhtar said “It depends, but mostly no”. Zaid Omer: “It is difficult to handle two tasks at the same time, but if this is what my manager wants then more time is required for handling the work. I used to handle the work of other managers when they took vacations or sick leave, but you cannot imagine how hard it is when you work on two issues at the same time”.

6.12.3.4 Shop floor managers perception of quality improvement issues

Floor managers were asked about their knowledge of quality improvement issues. The results indicate low awareness of quality improvement. Employees do not see changes in the tasks they carry out and they see few and insignificant changes in procedure, and none in quality of production.

The majority of respondents did not perceive any quality improvement in production. Salem, for example, said that changes in process and procedures do not improve quality but might prevent failure. Jaber agreed: “Quality improvement issues must be communicated. However, in my company the only changes are in the management not in the production”. Omar said, “I am not sure about quality improvement, but I think it is something beyond changing colours or model names of products’. Thamer stated: “I always suggest several ways to improve the quality of production; I do not remember any of them being considered by the top management. I am really not sure about quality improvement, but I think that this company has its own agenda”.

6.12.3.5 Shop floor managers and chances to express new ideas

The interviewer asked floor managers if they have the chance to express their ideas regarding the improvement of product quality and if so, how. All respondents agreed that there was little or no chance to implement their own ideas to improve quality.

Mukhtar: “Whenever we have our weekly meeting we share our ideas with the production manager as well as among ourselves. This is not necessarily to improve the quality of products, though”. Thamer confirmed “As I said before, we, as floor managers, always suggest several ways to improve the quality of production, but nobody listens”. Jaber’s response confirmed this: “The possibility is zero, why? The top management do not allow us to improve the quality. Why? It could be that our ideas and proposals would add further costs to the company and its top management desires to focus on cost reduction rather than welcoming new ideas that might benefit both us and customers”.

6.12.3.6 Work relationship with other employees and reward system

The majority of floor managers said that they have built a good relationship with employees, a relationship which is based on understanding and trust. The majority believed that better rewards and compensation must be given to employees who performed well. A few managers saw communication with employees as a challenge due to different cultures and backgrounds.

Mukhtar: “Luckily, in our department we almost all speak the same language so there is no language barrier among us; the only problem is when we deal with our higher level of management. We find it difficult to understand them, despite the fact that most of us have been in the country a minimum of three years. We still find it difficult and this is due to the fact that we don’t socialise with other nationalities. We live in an accommodation complex that is provided by our company and it is far from the capital city of Kuwait – a 45 minute drive. As for the reward system, I haven’t experienced this in my time here in the company. I heard that there used to be a system in place but it was stopped for some reason”.

Salem stated: “The Company recruits foreign employees, most of them from East Asia, and I am sure that we are doing our best to enhance the relationship and communication, but still there is a big cultural gap. Yes, we provide rewards and compensation for those who work hard, those who really put the goal of the department first”.

6.12.3.7 Shop floor managers' perception of their value in their company

All managers saw themselves as valuable to their company. However, they also emphasised that further financial rewards and recognition that reflect their efforts and contributions must be introduced.

Mukhtar: "I think that our company appreciates our work and this is evident when I mentioned the reward system". Salem said, "Everybody knows how I am valued by my department; even other departments appreciate my work, and this is because I always try to find solutions, propose new ideas and to be active and self-motivated about enhancing my firm's success". Omar reported, "When we talk about personal value, then we must talk about financial rewards and compensation. What is the benefit I receive if you are aware that I am a hard worker, yet you do not financially motivate me?"

6.12.3.8 Dealing with defects

The interviewer asked managers how they handled defects. The results indicate that approximately every three months a defect occurs and floor managers react directly. They remove the defective product from the production line, discard it and report the defect in order to prevent future such events.

Mukhtar said: "It happens around every two months and when I notice defects I stop the machines and I quickly inform the supervisor of the plant. He will then report that to the quality engineer and the production manager". Jaber, Salem, Omar and Samer agreed that approximately every three months there was a defect, and the correct action is to remove the defective product from the production line and carry out the necessary corrective actions.

6.12.3.9 Shop floor managers' awareness of quality management systems

Shop floor managers were asked what they knew about quality management systems and continuous improvement tools such as six sigma, ISO series and total quality management

(TQM). The results indicate the majority of floor managers have very little knowledge of such systems.

Mukhtar said: “I don’t know what you mean by that. The only term I know is the ISO 9000 which is used for certification of our good work”. Salem, Zaid and Samer agreed that they had limited knowledge about such systems. Omar stated: “We have no idea because we do not have time; also, it’s top management responsibility to make sure that all managers are aware of and implementing the QMS”. Jaber said, “I know it would enhance the work productivity, it would arrange tasks and responsibilities; but honestly, my knowledge of the quality management system is very minimal as I dedicate my time to working hard with employees, dealing with customer complaints, setting strategies and dealing with workforce issues”.

6.12.3.10 Improving organisational culture

The final questions asked how they might improve the organisational culture of their company. The majority emphasised communication, team-building and training.

Mukhtar: “This can be achieved in many ways, such as organising social events for the workers, getting to know the owner and the general manager and making us feel that we are part of the company. Also, not changing the way we work so we can excel in the job we are assigned to”. Omar said that "to have a good culture, then our culture must enable the smooth flow of information and focus on harmony among members in teamwork". Thamer commented: “Continuous improvements in terms of culture require solid internal communication that promotes a healthy work atmosphere and encourages people to work with high spirits”. Table 47 presents a summary of the shop floor managers’ interviews.

Interview questions	Shop floor managers	Summary of findings
Q1	To what extent are you aware of the long term vision of your company?	The results indicate that floor shop managers are not fully aware of and not well-informed about firms’ long-term vision.
Q2	What are the benefits of QMS?	The majority of shop floor managers see many benefits of QMS such as increasing product quality and company income; few managers saw no benefits to QMS and stated that there was an intangible effect

		because the firm produced high quality products before QMS implementation.
Q3	To what extent do you do more than one job when you are asked to, apart from the one assigned to you by your manager?	Some respondents explained that they could handle it while others mentioned time and resources limitations. Most importantly, shop floor managers explained that the quality of work was important and hence their superior must allocate time and resources and provide incentives.
Q4	How much do you know about quality improvement issues?	The results indicate low awareness of quality improvement; employees do not see changes in the tasks they carry out and they see few and insignificant changes in procedures, not in quality of production.
Q5	To what extent do you have chance to express yourself in terms of new ideas regarding the improvement of product quality and how?	All respondents agreed that there was little or no change to implement their own ideas to improve quality.
Q6	How is your work relationship with other employees in the company and is there a reward system?	The majority of shop floor managers said that they have built good relationships with employees, based on understanding and trust, and that they provide good rewards and compensation for employees when performing well. A few managers see communication with employees as a challenge due to different cultures and backgrounds.
Q7	How much do you feel you are valued by the company?	All managers saw themselves as valuable to their company, however, they also emphasised that further financial rewards and recognition should acknowledge their efforts and contributions.
Q8	When there is a defect, how do you handle it?	The result indicates that approximately every three months there is a production problem. The affected items are removed, discarded or recycled and the problem reported in the hope of averting a repeat of the incident.
Q9	What do you know about quality management systems such as six sigma, ISO series and total quality management (TQM)?	The results indicated the majority of shop floor managers had very little knowledge of such systems.
Q10	How would you improve the organisational culture of your company?	The majority emphasised communication, team-building and training.

Table 47: Summary of shop floor interviews (author's compilation)

6.13 Discussion of the findings

In this section, the author discusses both the quantitative and qualitative results obtained from this study based on the proposed model (KQCM). Furthermore, the author discusses the results of the hypotheses which were developed based on the literature review and pilot study.

6.13.1 Leadership

The results of the quantitative research confirmed that leaders of the manufacturing sector in Kuwait are actively involved with customers. The interviews support this finding as most managers said that the manufacturing sector in Kuwait is led by expert people who have a good sense of leadership and appreciation of employees. Leaders were found to be customer-oriented and driven by profits. Mukhtar said “leaders must underpin our needs, for rewards, for recognition and for training”. The results also revealed that leaders measured organisational performance and translated results into improvement. This was expected since leaders focus on enhancing the competitiveness of the enterprise. Leaders who are involved with customers are setting examples that employees can follow in order to enhance the service quality of manufacturing. The interviews also supported the survey findings that leaders must develop better communication channels and were perceived to have a better relationship with customers and suppliers than with their personnel. The results support previous studies who argue that leadership is a significant element in successfully implementing QMS (Heras-Saizarbitoria, 2011) and Shahin and Dabestani (2011) who found that the competitiveness of the manufacturing sector is based on its relation to committed leadership.

6.13.2 People

The quantitative results reveal that the two statements “People are involved and empowered” and “People’s knowledge and competences are identified, developed and sustained” scored the highest in the people variable, approaching 3, meaning that people are neutral about the two statements. The interview results revealed a contradictory finding where leaders disagreed with empowerment, one justifying his position by saying “The fact is that our managers have degrees while most of the labour employees have no degree. Therefore, delegation and empowerment might be a risk that could threaten the quality process”. Middle managers and shop floor managers expressed an urgent need for empowerment of labour in order to make them feel self-motivated and to open a path for career development.

Both quantitative and qualitative approaches confirmed that People are not well rewarded, recognised or cared for. There was less agreement by shop floor managers with the statement “there is good internal communication” and they emphasised the critical necessity for open dialogue where employees, managers and leaders could interact and communicate. Shop floor managers felt that their efforts are recognised, yet not appreciated by their supervisors. The result supported previous studies which support the interview conducted by the author with Manager C (Abusa & Gibson, 2013a; Abusa & Gibson, 2013b; Alhaqbani, 2013), that found that the lack of empowerment of employees is a barrier resulting from the lack of senior management’s knowledge (Manager C, pers. comm., 17 August, 2012).

6.13.3 Policy & Strategy

The results revealed that firms consider strategic planning as a systematic process based on gathering of data and information and which reflects customer and stakeholder needs and requirements. Yet there is no well-established strategy that focuses on enhancing internal communication, culture and investing in people training and development. Communications throughout the organisations are not smooth; this may be due to swift

changes in objectives as a reaction to market changes. Furthermore, top management focuses on customers and financial return rather than investing in enhancing internal channels. The quantitative research confirmed this finding as two middle managers agreed that “Firms’ business strategy must focus on managers’ knowledge. Constant training, workshops and good communication must be addressed by firms’ strategy”. Firms were found to “seek profit and in order to achieve such a goal they must seek customer satisfaction and ensure the implementation of QMS that would enhance customers’ satisfaction”. Middle managers believed that “firms’ strategy must focus on employees; training and development programmes must be considered and community and social responsibility must be there”.

The findings support the previous literature that communication channels between top management and the lowest level in manufacturing organisations in Kuwait is a major issue (Neal et al., 2005). They also support the work of Shahin and Dabestani, (2011), Zairi and Whymark (2003) and Neal et al. (2005) who all emphasise the importance of communication within organisations, and say that firms must consider communication improvement and incorporate it into their policy and strategy, making efforts to address the language barrier for foreigners working in Kuwait.

6.13.4 Partnership and Resources

The results of the interviews revealed that Kuwaitis are seeking to establish partnerships with firms outside the country in order to establish their names and enhance their future success. One interviewee stated that “Relationships with suppliers are significant and hence firms focus on establishing long-term relationships with suppliers so to ensure the inflow of raw materials”; others agreed. According to the questionnaire results, the statement “Physical operational resources (e.g. material and equipment) are planned and managed” scored the highest average, followed by the statements “Financial resources are planned and managed” and “Partnerships & supplier plans are controlled and managed”. Hence the results of the interviews support the results of the questionnaire in that the main issue in the manufacturing sector in Kuwait involves the partnerships and resources

element. Firms were found to maintain a good relationship with partners/suppliers to ensure a steady supply of raw materials.

The results support the literature that partnership strategies enable firms to be more innovative and allow them to learn by facilitating the improvement of enablers which will result in the organisation producing better results (Gomez & Gomez, 2010).

6.13.5 Culture

Regarding culture, the survey showed that the statement “Employees socialise outside office hours” scored the highest average (2.96), followed by the statement “There is a strong sense of belonging” (2.94), a result just below ‘neutral’. The findings of the survey revealed that people do not work in teams and that the work environment is not friendly. In addition, people said that new ideas and concepts are not freely suggested or discussed. The results of the interviews supported this finding as middle managers revealed “the main barrier to implementing QMS is culture”. Managers further mentioned that “Firms recruit employees from different countries, mainly from East Asia where labour [workers] have a different culture; while they recruit managers who are mainly from Lebanon or Egypt or the Middle East. We have cultural gaps”. Furthermore, managers suggested several ways to enhance culture, for example, “organising social events for the workers, getting to know the owner and the general manager and making us feel that we are part of the company, and not changing the way we work so we can excel in the job we are assigned to”.

The results support the literature that culture is the main issue affecting management and leadership style within business organisations (Welsh & Raven, 2006). In order to enhance culture, firms must allow information sharing; develop a culture of teamwork and adopt an open door policy in which employees talk and management listen (Manager B, interview, August 15, 2013; Whalen & Rahim, 1994).

6.13.6 Processes

The survey reported that two statements, “Processes are clearly communicated to staff and stakeholders” and “Process design is based on customer and stakeholder needs and requirements” scored the highest average. On the other hand, the results of the interviews revealed that managers agreed that their firms put customers first, and that firms are driven by financial capacity. Managers revealed that manufacturing firms are mainly driven by profit and customers, while employees receive little attention.

The result of the interviews also concluded that shop floor managers have the least knowledge about QMS and its benefits compared to middle and top management. One shop floor manager stated: “I don’t know what you mean by that. The only term I know is the ISO 9000 which used for certification of our good work” and another: “I know it would enhance work productivity, it would arrange tasks and responsibilities, but my knowledge of quality management system is limited”.

The study agreed with previous literature findings that improving business processes is achieved by reducing costs and waste, and by improving efficiency and effectiveness of processes (Breyfogle, 1999).

6.13.7 People Results

The result of the qualitative interviews supports the findings of the survey that there is a lack of people results, i.e. firms pay more attention to financial results and, to some extent, are not motivating people sufficiently. Middle managers agreed that the major challenges to QMS implementation are the lack of education, training and incentive programmes. Most importantly, shop floor managers explained that the quality of work is important and hence their superiors must allocate enough time and resources and provide incentives. The result of the survey reflects that respondents are not satisfied in terms of the way they are structured, rewarded and communicated with in their workplace. Furthermore, this

suggests that firms focus more on customer and financial outcomes rather than on investing in people.

The findings supported the literature claiming that people results such as career development, rewards and recognition are necessary and firms must ensure the effective development of people's skill, time and effort in order to enhance their overall performance (Dubas & Nijhawan, 2005).

6.13.8 Customer Results

The quantitative results indicated that the statement "Organisation staffs are actively involved with customers" scored the highest average (3.73), which reflects the top management efforts and dedication to their customers. It was followed by the statement "Systematic identification and monitoring of customer requirements and needs" (3.72) which indicates the same perceptions in terms of meeting customers' needs and requirements. However, the results also revealed that "Translation of customer requirements and needs into actions and expressed in organisation's products/services" scored the lowest average (3.62), which contradicts with the two aforementioned statements. And this can be interpreted according to the author that those who chose this statement were from the lower level within their organisations, based on the results obtained from the survey. Consequently, this contradiction justifies the author's argument that employees' satisfaction has an equal importance to customers. The result of interviews supported manufacturing firms are mainly driven by financial capacity, another driver of firms is customer-focus as firms must consider their satisfaction to enhance their profits. The interview results also supported employees' empowerment and shop floor staff perceptions of quality initiatives as barely existing within manufacturing firms in Kuwait.

The study supported previous literature that found that customer relationships are important in enhancing the QMS result (Shahin & Dabestani, 2011). "Excellent organisations comprehensively measure and achieve outstanding results with respect to their customers" (Dodangeh, et al., 2011, p. 5012) – Customer Results are the external

customers' perception of the company's product. This requires evaluation of customer satisfaction through surveys and interviews and is reflected in customer loyalty and market share (Slack et al., 1995).

6.13.9 Society Results

The quantitative results indicated that firms consider sociality, for example "Noise levels have decreased" scored the highest average (3.39) followed by "The organisation has a positive impact on society" (3.37). The result also indicates that both statements "Protection of the environment has improved" and "Pollution levels have decreased" scored the same result (3.16). The results imply that firms have a positive effect on the community, especially in reducing the noise level. Top managers explained that when firms follow ISO and six sigma, the systems indicate their customer focus. They support the statement "Today, firms must move beyond customer needs to underpin the community and social needs, carry out social responsibility. Our firms carry out several events that underpin environmental and health issues". Similarly, shop floor managers explained that "firms consider the community's needs, since they provide products that match customer needs; moreover they added that "firms carry out several corporate social activities that emphasise people's health, environment and charity events".

The findings support the statement that "ideal organisations extensively as well as continuously measure and achieve outstanding results with respect to society" (Dodangeh et al., 2011, p. 5012).

6.13.10 Key performance results

Both quantitative and qualitative results supported the view that firms are focusing on customer satisfaction as the main key to performance. Top management explained that the main focus is on customer satisfaction and hence firms allocate sufficient capital and time in order to keep in touch with changes in customer needs, requirements and tastes. The

results of the survey showed that “Customer satisfaction” scored the highest average (3.73), followed by “Financial performance (e.g. profits, sales, liquidity)” (3.66). Firms focus more on customer satisfaction, and non-financial and financial performance more than employee satisfaction which is of equal importance to customers as employees are an essential part of the success equation for firms.

The findings here support previous literature that quality begins with a customer focus, meaning that the actual quality characteristics are the customer’s view of the product or service performance, as expressed in the customer’s own words. Underpinning customer focus will eventually enhance the key performance of the company (Kolarik, 1995; Evans & Lindsay, 2008; Masejane, 2012). The study supported the statement that improvement of the processes can simultaneously improve the performance of an organisation (Al-Jalahma, 2012), however, it differed with previous researchers’ claims that people satisfaction and impact on society were found to be not important for SMLEs in Kuwait (Gomez & Gomez, 2010; Al-Jalahma, 2012).

6.14 Discussion of the hypotheses

Five research hypotheses were developed by the author. The following section summarises the discussion of the results of quantitative approach, which is also compared with the existed literature presented in the literature review chapter.

6.14.1 Hypothesis 1

The first research hypothesis can be confirmed – that QMS performance (in managing People, Policy & Strategy, Partnerships & Resources, and Culture) is positively associated to the commitment and leadership of top management. The results of descriptive analysis indicated respondents agreed that their leaders are actively involved in ensuring management systems are developed, implemented and continuously improved. Leaders

were found to measure organisational performance and translate results into improvement and were actively involved with customers and stakeholders. The findings support the results of Heras-Saizarbitoria (2011), who argues that leadership is an important element for the successful implementation of QMS. They also support Shahin and Dabestani (2011) who found that in the manufacturing sector, TQM involves committed leadership, closer customer relationships, closer supplier relationships, benchmarking, a zero defect mentality and process improvement. It agrees with previous literature that successful implementation of TQM requires effective changes in an organisation's culture and it cannot be successfully implemented without management leadership (Ho et al., 1999). Ho, Duffy, and Shih's (1999) pointed out that TQM supports Whalen and Rahim's (1994) study which recommends that decision-making process and information are shared with top, middle, and frontline management people.

6.14.2 Hypothesis 2

The second research hypothesis states that communication between top and bottom management is important and this was borne out: managers at different levels emphasised the importance and necessity of internal communication channels. This finding supports Shahin and Dabestani's finding which says that in the manufacturing sector TQM requires good communication between different managerial levels (Shahin & Dabestani, 2011). It also agrees with Zairi and Whymark (2003) and Neal et al. (2005) who write that communication channels between top management and the lowest level in any manufacturing organisation within Kuwait is a major issue: reasons include the language barrier for foreigners working in Kuwait, the culture barrier as mentioned above, and sex discrimination in terms of equal opportunities for jobs.

6.14.3 Hypothesis 3

The third research hypothesis states that employees' empowerment and relevant processes (People, Policy & Strategy, Partnerships & Resources, and Culture) are crucial to implementing any quality practice. The interview results indicated a lack of empowerment culture and low level of awareness of QMS and its benefits. The findings support Manager C's view that the lack of employees' empowerment is a barrier resulting from the lack of senior management's knowledge (Manager C, Personal communication, August 17, 2012). Moreover, Manager A supports Manager C's view that the lack of knowledge of senior management is a barrier when he mentioned that the use of trial and error as a form of quality control is much more wasteful than using a quality system would be.

6.14.4 Hypothesis 4

The fourth research hypothesis assumes that culture plays an important role in the implementation of QMS in Kuwait. This hypothesis developed when the author conducted a pilot study which revealed the significance of culture and its impact on performance. Moreover, the results revealed weak culture in the manufacturing sector and poor communications which might negatively affect firms' performance. The findings support Manager B (pers. comm. August 15, 2013) who insists that organisational culture is among the barriers to successful QMS implementation, due to the multi-cultural background of employees which make it difficult to successfully implement benchmarking techniques. Successful implementation of TQM requires effective changes in an organisation's culture which cannot be successfully implemented without management leadership (Ho et al., 1999). The findings also support Whalen and Rahim who suggest that QMS supports a culture that emphasises sharing of information between top, middle, and frontline management and without developing a culture of teamwork within the organisation, QMS will have little or no effect (Whalen & Rahim, 1994).

6.14.5 Hypothesis 5

Finally, the result of the fifth hypothesis which states that use of the KQCM will lead to better organisational performance; the results confirmed that customers were regarded as the main driver for business in Kuwait. Firms systematically identify and monitor customer requirements and needs.

6.15 Summary of discussions

This section summarises the results of the discussions for both qualitative and quantitative approaches. The study confirmed that the manufacturing sector in Kuwait has a satisfactory level of leadership which is actively involved with customers. Leadership focuses on enhancing the competitiveness of enterprises. Leaders who get involved with customers are setting examples which employees can follow in order to enhance the service quality of manufacturing.

However, the results indicated that leaders do not favour delegation to and empowerment of the general workforce. Middle managers and shop floor managers claim an urgent need to empower the labour force in order to make them feel self-motivated and to open a path for career development. Furthermore, people are not well rewarded, recognised or cared for. There is poor internal communication and hence, there is a necessity for open dialogue where employees, managers and leaders (top management) interact and communicate. Shop floor workers feel that their efforts are recognised, yet not appreciated by their supervisors. Communications throughout the organisations are not fluid; this might be due to repeated swift changes in objectives in response to market changes. Furthermore, the management focuses on customers and financial return rather than investing in enhancing internal channels.

Moreover, the results reveal that firms consider strategic planning as a systematic process, based on gathering of data and information which reflects customer and stakeholder needs and requirements. Yet, there is no well-established strategy that focuses on enhancing

internal communication, culture and invests in people training and development. Firms seek profit and in order to achieve such a goal they must strive for customer satisfaction and ensure the implementation of QMS that would enhance customers' satisfaction. Firms' strategies must focus on employees: training and development programmes must be considered, and community and social responsibility must also be in place.

The Partnerships and Resources element was found to be the main issue in the Kuwait manufacturing sector. Firms were found to maintain a good relationship with partners/suppliers to ensure the supply of materials needed. However, the findings of the survey reveal that people do not work in teams and that work environments are generally not friendly. In addition, people think that new ideas and concepts are not freely suggested and discussed. The results of the interviews supported this finding as middle managers mainly reported "the main barrier to implementing QMS is culture". Moreover, the outcome of the case study also supported this finding and suggested that in order to successfully implement QMS some improvement of organisational culture must be considered by all levels of management. Moreover, the findings reveal a lack of shop floor managers' awareness and knowledge about QMS, its rationale and benefits. Hence more efforts are needed in order to support the acceptance of QMS by lower level management.

An important issue reported is that firms focus more on customer and financial outcomes rather than investing in people. Hence, there is a lack of people results. The lack of education, training and incentive programmes are also major challenges to QMS implementation. Most importantly, shop floor managers believe that the quality of work is important and hence their superiors must allocation sufficient time and resources and provide incentives. Manufacturing firms are mainly driven by customer-focus as firms must consider their satisfaction to enhance their profits. Another driver of firms is financial capacity. The results imply that firms have a positive effect on the community, especially by reducing their noise levels. Top managers explained that when firms follow ISO and six sigma, it shows their customer orientation. Firms must look beyond customer needs to underpin community and social needs, carry out social responsibility and be aware of environmental and health issues.

The result of the hypotheses testing confirms that QMS performance (managing People, Policy & Strategy, Partnerships & Resources, and Culture) is positively associated to commitment and leadership of top management, and managers at different levels emphasise the importance of and necessity for internal communication channels. Moreover, employees' empowerment and relevant processes (People, Policy & Strategy, Partnerships & Resources, and Culture) are crucial in implementing any quality practice. Furthermore, culture was found to play an important role in the implementation of QMS in Kuwait. Finally, the study confirmed that if firms used the KQCM results (People, Customer and Society) to make the sign posted changes their organisation performance would improve. Therefore, all the proposed hypotheses were confirmed and accepted according to both qualitative and quantitative results.

This study contributes to the body of knowledge on QMS by providing a framework, carefully developed after a series of revisions, literature review, a pilot case study and expert opinions from quality practitioners from local universities in Kuwait and consultancy companies in the field of manufacturing within Kuwait. The new model proposed and designed by the researcher is called the Kuwait Quality Culture Model (KQCM). It is based on the existing EFQM model but with the incorporation of the cultural aspect as culture plays an important role in the initiation and the implementation of any quality issue, particularly so in an Arabic cultural context.

Chapter 7 Conclusion

7.1 Introduction

This is a summary of the thesis and includes how the aims and objectives, and research questions have been achieved; it portrays how the research contributes as a body of knowledge, its implications, recommendations, limitations and future research.

In recent years there has been an increasing realisation of the need to pay attention to organisational culture in order to improve quality in manufacturing industries. The main goal of this study was to further emphasise the role of culture when implementing QMS in manufacturing firms in Kuwait. The study aimed to reveal perceptions of top management regarding QMS and factors that affect firms' success.

This study began by reviewing the existing studies and literature which allowed the researcher to develop the survey questionnaire and formulate the KQCM framework. It should be noted that the literature covered in this dissertation mainly focuses on industrial firms in developed countries and that there are few studies that focus on the Middle East in general and on Kuwait in particular.

In order to avoid the weaknesses of a single approach and also to enhance reliability and validity by collecting data from different sources, a mixed methods approach was used in this research (literature review, survey questionnaire, semi-structured interviews and a case study) in order to collect the primary data. To ensure the findings of this study are reliable and accurate, views and feedbacks from consultants

and practitioners of QMS were obtained as well as pilot testing in the form of a case study and several statistical tools were used in order to seek answers to research questions and hypotheses. The correlation analysis conducted was found to be informative and valuable in providing the results. Furthermore, the use of a case study as a primary stage in order to collect in-depth information allowed the researcher to be sure that his research questions were relevant and offers the possibility for future generalisations about manufacturing firms in Kuwait. Based on the case study, a new variable, 'culture', was incorporated into the conceptual framework. The results of the interviews with respondents at different levels were found to be useful and valuable in that they supported the results of the survey questionnaire.

7.2 Aims and objectives

The aims and objectives of this study were to examine the state of the manufacturing sector, and factors such as obstacles and enablers related to the implementation of Quality Management Systems (QMS) in Kuwaiti manufacturing industries. This study is relevant and significant in the context of the globalisation effect in the GCC region and the need for manufacturing to grow. As a result, Kuwait (and other GCC countries) is being forced to adapt to this changing competitive environment (Salaheldin, 2009a) in order to survive as the oil reserves will not last forever and the need for diversification is imminent. The effects of rapid globalisation necessitate the use of new techniques, tools and philosophies that are already in use elsewhere around the globe (Hokoma et al., 2010) in order to reduce production costs and increase outputs while maintaining quality and reasonable prices; this could be achieved through the use of QMS practices.

This study aimed to review the general situation in the Kuwaiti manufacturing sector, identifying and analysing the factors, including enablers and barriers that are important in the implementation of Quality Management Systems (QMS) in Kuwaiti

Small Medium and Large (SMLEs) enterprises, as well as investigating the possible effects of culture.

The main objectives of this study were as follows:

- Understanding of Quality Management Systems (QMS), theory and philosophy through an in-depth review of relevant literature;
- Identification of the general state of the manufacturing sector (SMLEs) in Kuwait and use of the literature as the basis for developing a QMS implementation model which is more suited to the Middle East context, especially focusing on Kuwait;
- Understanding and analysis of different factors including barriers to and enablers of implementation of QMS in the manufacturing sector;
- To develop a QMS model which serves as a best alternative for the implementation of QMS in Kuwait's manufacturing sector by exploring the possible effects of culture.

Table 48 summarises how the objectives of this research were achieved.

Objective	How it was achieved
Understanding of Quality Management Systems (QMS), its theory and philosophy through an in-depth review of relevant literature	The essential factors were identified by referring to previous studies and literature; the researcher extracted and addressed several QMS approaches that allowed him to develop the final framework, KQCM.
Identification of the general state of the manufacturing sector (SMLEs) in Kuwait and use of the literature as the basis for developing a QMS implementation model more suited to the Middle East context, especially focusing on Kuwait	Several QMS approaches (such as TQM), were identified and examined in terms of their contribution towards firms' competitiveness in the market, as well as identifying factors that negatively affect quality management in these firms.
Understanding and analysis of different barriers to and enablers of implementation of QMS in the manufacturing sector	A literature review and case study allowed the researcher to better understand what factors needed to be incorporated in the research model.
To develop a QMS model which serves	The results obtained from the survey

as a best alternative for the implementation of QMS in the manufacturing sector of Kuwait by exploring the possible effects of culture	questionnaire, interviews and case study showed that KQCM can be applicable to the manufacturing sector in Kuwait.
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Table 48: Research objectives and how they are achieved (author's compilation)

Table 48 shows the four objectives of this research were achieved through reviewing the literature, carrying out a case study and administering a survey questionnaire. The table also shows that the majority of research objectives were answered by collecting primary data (either survey questionnaire or interviews). Moreover, the objectives were achieved using a mixed methods approach through which both quantitative and qualitative results are gained.

7.3 Research questions

In order to achieve the main aims and objectives of this research, three research questions were posed to obtain a clear understanding of QMS to be adopted by the manufacturing firms in Kuwait.

‘Why is QMS implementation in the manufacturing sector (SMLEs) of Kuwait important?’

The answer was that the QMS process and procedures, allow employees to organise their work better. QMS benefits the company and enhances customer and supplier trust in its brand; hence QMS would increase the quality of products as well as the company income.

‘Can the proposed model serve more effectively than EFQM in implementing QMS in the Kuwaiti manufacturing sector?’

The findings revealed that KQCM does serve more effectively than EFQM in implementing QMS in Kuwait because of its use of culture as a variable. The results

indicate that culture plays an important role in boosting QMS in the Kuwaiti manufacturing sector.

‘Is the proposed model suitable for QMS in relation to the manufacturing sector?’

The findings revealed that KQCM results (People, Customer and Society) would lead to better organisational performance. The results confirmed that customers are regarded as the main driver for business in Kuwait and firms systematically identify and monitor customer requirements and needs.

7.4 Research hypotheses

The study used several statistical tests including correlational analysis in order to obtain the necessary data for hypothesis testing. The quantitative approach supplied the primary data source that would allow the researcher to accept or reject hypotheses. Table 49 shows the summary of the one-way ANOVA test as well as correlational results.

Hypotheses #		<i>r</i>	Sig.	Conclusion
H1	Leadership→People	0.597	<0.01	Accept
	Leadership→Policy & Strategy	0.726	<0.01	
	Leadership→Partnerships & Resources	0.690	<0.01	
	Leadership→Culture	0.789	<0.01	
H2	Based on the one-way ANOVA test, respondents give the same level of importance to communication between different levels of management (mean=3.636)			Accept
H3	Process→People	0.572	<0.01	Accept
	Process →Policy &	0.755	<0.01	

	Strategy			
	Process →Partnerships & Resources	0.745	<0.01	
H4	Culture →Processes	0.732	<0.01	
H5	Process →People results	0.786	<0.01	Accept
	Process →Customer results	0.852	<0.01	
	Process →Society results	0.801	<0.01	

Table 49: Research hypothesis results (author's compilation)

The finding of correlation test shows that all the key variables have positive and strong associations with Key Performance Results ($r>0.7$). Among all variables, Customer Results found to have the strongest as well as positive association with Key Performance Results ($r=0.852$, $\text{sig}<0.01$) followed by Culture ($r=0.807$, $\text{sig}<0.01$). Furthermore, Culture was found to be positively associated with Processes ($r=0.732$, $\text{sig}<0.01$). As for AMOS results for Goodness of fit of KQCM model, the results concluded that the enablers domain have significant effect on 'Process', and the effects of enablers ranging from 0.659 for 'Leadership' to 0.279 for Process. Culture was found to be significantly affected by Leadership ($e=0.789$, $\text{sig}<0.01$). It was also found to be greatly affecting Process ($e=0.29$, $\text{sig}<0.01$). Only 'People' was found to be not significantly related to Process ($\text{sig}=0.931$). Moreover, the result confirms the effect of Process on People ($e=0.663$, $\text{sig}<0.01$), Customer Results ($e=0.784$, $\text{sig}<0.01$) Society Results ($e=0.725$, $\text{sig}<0.01$) and Key Performance ($e=0.836$, $\text{sig}<0.01$).

The study used a mixed methods approach in order to provide adequate answers to the research hypotheses: the following table presents the findings regarding the hypotheses based on both quantitative and qualitative results. The result obtained from this study is also compared to previous literature and studies.

Table 50 summarises the research hypotheses and the result concluded from the data analysis.

Hypotheses	Research approach	Result	Result compared to previous literatures
<p>H1: QMS performance is positively associated to commitment and leadership of top management</p>	<p>Quantitative</p>	<p>Leadership is an important element for successful implementation of QMS. Leaders were found to measure organisational performance and translate results into improvement and are actively involved with customers and stakeholders. In the manufacturing sector, TQM involves committed leadership, closer customer relationship, closer supplier relationship, benchmarking, zero defect mentality and process improvement. QMS requires effective changes in an organisation's culture which is not possible without management</p>	<p>The findings support the results of Heras-Saizarbitoria, (2011) and Shahin & Dabestani, (2011), Ho et al., (1999) and Whalen & Rahim, (1994).</p>

		leadership.	
	Qualitative	Respondents say that leadership plays a significant role in the manufacturing sector in Kuwait and that leaders should meet employees' needs (e.g. personal development and training), and ensure that a system of rewards, recognition and training is in place.	
H2: Communication between top and bottom management is important	Quantitative	Managers at different levels emphasise the importance and necessity of internal communication channels. TQM requires good communication between different managerial levels. Communication channels between top management and the lowest level	The findings supported Shahin & Dabestani, (2011), Zairi & Whymark, (2003) and Neal et al., (2005).

		<p>in any manufacturing organisation in Kuwait is a major issue due to, amongst other reasons, the language barrier for foreigners working in Kuwait, the culture barrier due to the presence of various nationalities, sex discrimination in terms of equal opportunities for jobs.</p>	
	<p>Qualitative</p>	<p>Communications throughout the organisations are not smooth; this might be due to swift changes in objectives in response to market changes. Respondents see communication between different levels of management as a significant issue which must be improved in order to enhance the key performance. Leaders are perceived to have better</p>	

		relationships with customers and suppliers than with their workers.	
H3: Employees' empowerment and relevant processes are crucial in successfully implementing any quality practices	Quantitative	Lack of empowerment culture and low level of awareness regarding QMS and its benefits. The lack of employee empowerment is a barrier resulting from senior management's lack of knowledge: currently (some) firms rely on trial and error as a method of quality control which leads to unnecessary waste.	The findings support Manager C (pers. comm. 2012)
	Qualitative	Leaders admit that there is less sense of empowerment; middle and floor managers report an urgent need for empowerment of the workforce in order to make them feel self-motivated and to open a path for their career	

		development	
H4: Culture plays an important role in the implementation of QMS in Kuwait	Quantitative	Culture plays an important role in the implementation of QMS in Kuwait. The results indicate that the presence of workers' differing cultural backgrounds has a major impact on the manufacturing sector and poor communications which might negatively affect firms' performance. Organisational culture is among the barriers, this is due to the multi-cultural background of employees which makes it difficult to successfully implement benchmarking techniques. Successful implementation of TQM requires effective changes in an organisation's culture which is not possible without management leadership.	The findings supported Manager B (interview, August 15, 2013) and Whalen & Rahim (1994).

		<p>Sharing of information between top, middle, and frontline management people and without developing teamwork culture within the organisation, implementing QMS will have little or no effect.</p>	
	<p>Qualitative</p>	<p>Culture was found to be a barrier when implementing QMS. Managers reported that firms recruit shop floor workers mainly from East Asia, while they recruit the majority of managers from India, Philippines and Egypt; there are essentially multicultural aspects present. In essence, there the managers and workers come from different backgrounds and have to work together. Managers</p>	

		expressed their views that in order to successfully implement QMS, the cultural gap must be bridged.	
H5: KQCM will lead to better organisational performance	Quantitative	Customers regarded as the main driver for business in Kuwait compared to other drivers. Firms are systematically identifying and monitoring customer requirements and needs.	The study supported previous studies such as Shahin & Dabestani, (2011), Dodangeh, et al., (2011) and Slack et al. (1995).
	Qualitative	Manufacturing firms mainly driven by financial capacity, backed up by customer-focus as firms must consider customer satisfaction to enhance their profits.	

Table 50: Research hypotheses and their results (author's compilation)

7.5 Contribution to knowledge and implications

Considering the importance of culture as an enabler is the main enhancement and modification that this study suggests. The proposed KQCM can be implemented in the manufacturing sector in Kuwait, and fills an existing gap in the literature by addressing important aspects of QMS implementation in the Kuwaiti context. This study has added a new dimension as shown in the KQCM and has identified the factors that are strongly related to key performance in Kuwaiti firms. Moreover, there has been a lack of studies regarding QMS with SMLEs context to date, particularly in the Gulf region. Therefore, this study makes a significant contribution to the literature on QMS in manufacturing SMLEs in Kuwait. Also, due to the cultural and other similarities shared by Kuwait with the other GCC countries, the results of this study can be used as guidance for researchers using the KQCM in other countries in this region. The contributions of this dissertation can be summarised as follows:

- The KQCM is a new framework based on EFQM which offers a new methodology and fills a gap in the literature; thus this study represents a unique effort in the development of QMS.
- QMS as a whole has not been successfully implemented in the Kuwaiti manufacturing sector and there is a paucity of studies as to why: this thesis adds significantly to the extant body of knowledge.
- It is the author's belief that the proposed KQCM will be a useful practical tool for firms of all sizes considering implementing QMS successfully.
- Using KQCM, this study identified the critical factors that firms need to pay attention to in order to enhance their overall performance. This empirical study examined important factors in QMS implementation, an important area for future research in Kuwait and the Gulf region in general.
- Finally, this study also contributes to the body of knowledge by exploring how the use of KQCM allows industries to see how culture influences the implementation of QMS within the Kuwaiti manufacturing context, and, due to cultural similarities, its use may also be extended to the Gulf countries.

Academic implications: the KQCM framework presents a simple methodology which can be replicated in future studies in different countries or sectors. The KQCM is an enhanced model based on EFQM with the addition of one important variable, culture, which was found to be a vital enabler that has a strong effect on business performance. The KQCM will allow researchers to better understand the effect of organizational culture on outcomes. The model can be used not only in manufacturing firms, but also other sectors. This study confirmed previous findings that culture is an important factor which should be considered in all models since “it reveals group agreement, implicit or explicit, on how to approach decisions and problems, the way things are done” (Kilmann et al., 1985, p. 7). Culture, as a set of beliefs, ideas and attitudes, affects how work is done and how people exert pressures in order to complete tasks which reflects on not just productivity within organisations but also enhance people’s motivation. The academic findings of this study support previous literatures, and the implementation of KQCM is expected to be beneficial for different countries and sectors within the GCC region: the replication of this model would also further contribute to the understanding of the significance of culture in various sectors and contexts.

Managerial implications: using the KQCM would allow management to evaluate their current practices to see whether they are supportive of QMS, or if things need to be addressed in order to enhance performance. The KQCM framework makes it feasible for manufacturing firms to know whether they have the required enablers, and also to learn whether they are able to achieve their desired results. For example, by using the KQCM framework, managers will be able to assess whether they have enablers such as Leadership, People, Strategy and Policy, Partnership and Resources that are needed in order to realise results. If management want to achieve high key performance, then they must ascertain which enablers are mostly related to their performance and address them. The enablers represent the way the organisation operates, and the results concentrate on achievements relating to organisational stakeholders. Using KQCM would allow leaders to develop and facilitate the achievement of their

missions and visions. KQCM asserts that Culture is the most important of the enablers; it develops the organisational culture's values, norms and beliefs required for sustainable success which are implemented through the leaders' actions and behaviours.

The KQCM framework is not restricted to use in the manufacturing sector in Kuwait, as it was derived from EFQM which means it can be implemented in different countries, bearing in mind the culture element, and most of the criteria within each enabler and result are relevant to all types of manufacturing industries (i.e. not just that of the case study) as well as other sectors.

Furthermore, the results obtained from this research can arguably be generalised to all size firms in Kuwait: the case study was on a large firm, interviews were conducted with staff of medium and large size firms, and the majority of survey questionnaire responses came from small firms. Further, due to the similarities between Kuwait and other Gulf countries such as Qatar, Saudi Arabia and Bahrain, the results can also be generalised to them.

The KQCM framework allows managers to confirm that there are many ways to achieve sustainable excellence in all features of performance. The arrows in the depiction of the KQCM represent the dynamic nature of the model, which involves innovation and learning, and facilitating the improvement of enablers which help the organisation to get better results (Gomez & Gomez, 2010).

There are two central characteristics of the KQCM framework: first, it takes into consideration all the features and mechanisms of a firm, including Leadership, Partnership, Strategy, People and Process. As a result, it can be used as a framework to recognise areas for improvement and as a quality self-assessment tool by different sectors and firms. Second, the application of the KQCM framework is not limited by the size of organisation or its sector; it can be used by all. The most important benefit that organisations can achieve by applying this model is to see how their key performance is related to their inputs or enablers.

Additionally, Bardot (2013) explained that most of the GCC countries are eager to improve and are striving to reach the right solutions, but do not understand these solutions and do not know how or where to start. Learning and staff personal development could be one of the solutions to boost the manufacturing sector, so the findings of this study could serve as guidance for the GCC countries, especially for small local organisations and government entities that do not have partnerships with Western companies. As Bardot (2013) suggests, there is a need to raise industry awareness of modern practices.

Advantages of the KQCM include the consideration of cultural effects (as an enabler) on firms' processes, as well as on their overall performance, and consideration of the management base, assessing facts and helping firms to reach organisational excellence by using self-assessment. Since the KQCM is based on the EFQM model, it would be expected to achieve better results in the private sector, such as manufacturing enterprises, than in the public sector (Sadeh, 2010; Gomez & Gomez, 2010; Yaqoubi, 2011).

Overall, the KQCM can help firms to attain organisational excellence by identifying the areas which require improvement (with regard to continuous improvement), and their overall strengths and weakness through self-assessment as well as considering the significant effect of culture on performance. The KQCM is expected to improve areas and strengthen the position of firms, reduce weaknesses and keep improvement at a continuous pace.

Finally, the KQCM framework can be applied in any industrial firm regardless of size or geographical location, as it contains key foundational aspects of the EFQM; thus, any company that wishes to adopt KQCM in order to assess how its enablers are related to its key performance can do so.

7.6 Limitations

One of the limitations of this study was that the single case study, inherently, could not cover the range of firm sizes. The results gathered from this large enterprise may not reflect the perceptions and experiences of management in medium and small enterprises. Furthermore, the interviews were mainly with staff from large firms, while the majority of results obtained from the survey questionnaire were from small and medium firms (60% and 30% respectively). Hence the imbalance of the varying methods of sourcing data between firm size segments (small, medium and large) could be another limitation of this study and make it difficult to compare the results between firm segmentation.

The survey questionnaire sample of this study found that most of the (valid response) participating firms were either petrochemical products or building and construction materials manufacturers, thus it is not known if more responses from other sectors might have affected the reported results.

Another limitation of this study is the paucity of empirical studies and published journal articles regarding a) Kuwaiti manufacturing industries and b) QMS within the Gulf region, which means that comparison of results, is inherently limited.

This study also focused only on the perceptions of management and did not explore the perception of employees, those who actually implement QMS.

The use of semi-structured interviews has the possibility of introducing bias to the results, although the researcher used different techniques (for example, asking the interviewee to elaborate on their original responses or sometimes following a line of inquiry introduced by the interviewee) to reduce this potential to a minimal level. Furthermore, the result of the survey questionnaire might not be completely accurate since it depends on responses being completely honest and accurate. Thus, the results may not accurately reflect the target population.

7.7 Recommendations and future work

For academic purposes, this study encourages future studies to replicate the KQCM both in the manufacturing sector as well as other contexts. The author based his observations on the case study where the culture variable was found to play a significant part. However, future studies might also consider other variables that might improve the key performance of firms. As this study targeted the managerial level, future studies are encouraged to focus on other segments such as non-managerial employees, suppliers or community representatives.

One of the recommendations is to conduct a comparison between different firm sizes in order to obtain a precise analysis for each firm size and recommendation for each segment. In order to do so, a stratified sampling method should be used in which the researcher can divide the entire population into different subgroups or strata. This would ensure that the study has equal number of participants for each segment to carry out analysis (e.g., correlation test and regression).

On the managerial side, this study encourages top management to develop good communication channels between departments in order to enhance awareness of TQM and its significance to success. There is a necessity for open dialogue where employees, managers and leaders interact and communicate; communication throughout the organisation must be smooth and top management should be encouraged to develop strategies that focus on developing communication channels and integrating them within overall organisational planning.

Leaders must appreciate that the best way to improve the performance of the firm is by involving and empowering employees at all levels. This is important in order to improve self-motivation and create opportunities for career development.

Furthermore, leaders are advised to provide rewards, recognition and career development for their workforces rather than focusing only on customer satisfaction. To do so, training courses and adequate remuneration must be considered. Moreover,

the central feature of TQM that needs to be emphasised is the urgent need to enhance organisational culture.

This study emphasises the importance of culture being incorporated in QMS models; culture is a vital part of enhancing and improving personnel's skills as well as firms' performance outcomes. Future studies might contribute to the development of the KQCM through incorporating other variables important to particular industrial contexts. For example, based on the results of the case study and interviews, issues such as training and development, tools and equipment and work procedures are vital to enhance firms' outcomes. Management agree on the urgent need for training courses however more investigation is required in order to identify training needs, and to measure the effect of training on firms' outcomes. Moreover, this study focuses only on large firms, therefore future studies are encouraged to include all sizes of industrial firms and reveal the perception of their management regarding their QMS practices. Future studies might compare the result of management perception with employee perception regarding TQM and other critical factors for organisational performance.

It would also be interesting to apply the KQCM to sectors such as food and beverages; textiles, clothing and leather; wood and wood products; furniture, and also to increase the sample size for quantitative research in order to provide more accurate results in the future.

Another important area which the author is eager to explore is the use of QMS in other sectors, for example, the service sector, including banks and insurance and telecommunication companies, the largest contributors to economic development in Kuwait after petroleum exports.

Taking advantage of the similarities in culture, future study could work on the implementation of KQCM within other Gulf countries. Advanced statistical packages, such as Lisrel, could be used in order to assess the model and ascertain best results that fit the sector. For example, the model of KQCM indicates a weak relationship between people as enabler and process. Future work might disregard this relationship

using the above-mentioned programme in order to produce a unique model which best serves manufacturing enterprises in Kuwait.

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Appendices

Appendix A: Questionnaire items

Item No.	Category	Source
1.0	Leadership	
1.1	Leaders develop and communicate mission, vision, and values	
1.2	Leaders are actively involved in ensuring management systems are developed, implemented and continuously improved	
1.3	Leaders measure organisational performance and translate results into improvement	19, 20, 21, 22, 23, 24, 25, 26
1.4	Leaders are actively involved with customers	
1.5	Leaders are actively involved with stakeholders	
1.6	Leaders create an environment for empowerment, innovation, learning and support	

2.0	People	
2.1	People resources are planned, managed and improved	
2.2	People's knowledge and competences are identified, developed and sustained	
2.3	People are involved and empowered	1, 2, 3, 4, 5
2.4	People and the organisation have a dialogue	
2.5	People are rewarded, recognised and cared for	
3.0	Policy & Strategy	
3.1	Presence of strategic planning or thinking	
3.2	Strategic planning is a systematic process	
3.3	Strategic planning is based on gathering of data and information and reflects customer and stakeholder needs and requirements	6, 7, 8, 9
3.4	Strategic plans and objectives are communicated throughout the organisation	
3.5	Monitoring mechanisms and /or measures exist to tackle strategic deployment at corporate and operational levels	
4.0	Partnerships & Resources	

- 4.1 Partnerships & supplier relations are planned
- 4.2 Partnerships & supplier plans are controlled and managed
- 4.3 Partnerships & suppliers are planned based on their needs, contributions and a teamwork culture
- 4.4 Financial resources are planned and managed 10, 11, 12, 13
- 4.5 Physical operational resources (e.g. material and equipment) are planned and managed
- 4.6 Physical long-term resources (e.g. buildings and land) are planned and managed

5.0 Culture

- 5.1 People work in teams
- 5.2 There is a strong sense of belonging
- 5.3 Employees socialise outside office hours 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38; 39
- 5.4 Work environment is open and friendly
- 5.5 Ideas and new concepts are freely suggested and discussed

6.0 Processes

- 6.1 Processes are identified and designed.
- 6.2 Processes are clearly communicated to staff and stakeholders
- 6.3 Processes are implemented and controlled 27, 11, 12, 35
- 6.4 Processes are updated and improved
- 6.5 Process design is based on customers and stakeholder needs and requirements

7.0 People Results

- 7.1 People resources and capabilities are planned, managed and improved.
- 7.2 Healthy and safe work environment exists
- 7.3 People are communicated with, involved and empowered 13, 14, 15, 17, 18
- 7.4 People are motivated, rewarded and recognised
- 7.5 Teamwork is encouraged and enabled

8.0 Customer Results

- 8.1 Systematic identification and monitoring of customer requirements and needs 29, 34, 37, 38

8.2 Translation of customer requirements and needs into actions and expressed in organisation's products/services

8.3 Organisation staff are actively involved with customers

9.0 Society Results

9.1 Protection of environment has improved

9.2 Noise levels have decreased

9.3 Pollution levels have decreased 1, 4, 7, 8, 37, 38

9.4 The organisation has a positive impact on society

10.0 Key Performance Results

10.1 Financial performance (e.g. profits, sales, liquidity).

10.2 Non-financial performance (e.g. market performance, organisation image, flexibility)

10.3 Employee satisfaction 6, 8, 5, 36, 37

10.4 Partner and supplier satisfaction

10.5 Customer satisfaction

Note: [1] (Kilmann et al., 1985); [2] (Garrity, 1993); [3] (Parmelli et al., 2011); [4] (Gilaninia et al., 2012); [5] (Xie et al., 2014); [6] (Dale et al., 2007); [7] (Dodangeh et al., 2012); [8] (Osseo-Asare et al., 2007); [9] (Dubas & Nijhawan, 2005); [10] (Slack et al., 1995); [11] (Thiagarajan & Zairi, 1998); [12] (Deming E. , 1986); [13] (Allison & Kaye, 2005); [14] (Bryson, 1988); [15] (Gadd, 1995); [16] (Ghobadian & Speller, 1994); [17] (Steed, 2003); [18] (Zairi & Whymark, 2003); [19] (Dijkstra, 1997); [20] (Eskildsen, 1998); [21] (Eskildsen & Dahlgaard, 2000); [22] (Prabhu et al., 2000); [23] (Eskildsen et al., 2000); [24] (Reiner, 2002); [25] (Bou-Llusar et al., 2005); [26] (Calvo-Mora et al., 2005); [27] (Al-Zamany, Hoddell, & Savage, 2002); [28] (Anne Bardoel & Sohal, 1999); [29] (Detert, Schroeder, & Mauriel, 2000); [30] (Marshall et al., 2002); [31] (Mellahi & Eyuboglu, 2001); [32] (Salegna & Fazel, 2000); [33] (Scott, Mannion, Davies, & Marshall, 2003); [34] (Shin, Kalinowski, & El-Enein, 1998); [35] (Subrahmanya Bhat & Rajashekhar, 2009); [36] (Talib & Rahman, 2015); [37] (Talib, Rahman, & Qureshi, 2011) (Talib, Rahman, Qureshi, & Siddiqui, 2011); [38] (Tamimi & Sebastianelli, 1998)

Appendix B: Cover letter for survey participants

QMS implementation within Kuwait Small, Medium and Large Enterprises (SMLEs)

Dear participant,

I am currently undertaking a PhD entitled “**Implementation of Quality Management Systems within Kuwaiti Small, Medium and Large Enterprises (SMLEs) manufacturing sector: An empirical study**” in School of Engineering, at the University of Portsmouth, U.K.

The aim of this research is to identify the critical success factors to implement Quality Management Systems (QMS) within Gulf countries, the context of Kuwait and to measure how QMS can improve the productivity and efficiency. In doing this research, I need various information from different companies located in the Kuwait. Therefore, I have designed a questionnaire in order to collect the data that will be analysed and the results from this study are expected to be useful for various companies within this region.

I confirm that the information provided by your company will remain strictly confidential.

I would be grateful if you could spend few minutes to take part in my study by completing the questions below.

Appendix C: Survey Questionnaire

Background of respondent

1. Gender

Male

Female

2. Age

< 20 years

21 years to 30 years

31 years to 40 years

41 years to 50 years

> 50 years

3. Highest Education

High school

Diploma

Undergraduate (Bachelor's degree)

Masters/PhD degree

Other:

4. First language

- Arabic
- English
- Persian
- Hindi
- Other:

5. Other languages

- Urdu
- English
- Persian
- Hindi
- Other:

6. Working in company

- 0 to 3 years
- 3 years to 5 years
- 5 years to 10 years
- 10 years to 20 years
- >20 years

7. Position in company

- Owner

- Manager (functional)
- Employee
- Supervisor
- Other:

Background of the company

8. Operation of company

- 0 to 3 years
- 3 years to 5 years
- 5 years to 10 years
- 10 years to 20 years
- > 20 years

9. Type of company

- Metal sector
- Plastics parts manufacturer
- Petrochemical products
- Manufacturer of building and construction materials
- Packaging materials

Other:

10. Number of employees in company

≤ 20 employees

>20 employees to 50 employees

> 50 employees

11. Fixed asset (excluding land and building) of company

KD 150,000 – 200,000

> KD 200,000 – KD 500,000

> KD 500,000

12. Nationality of the owner (or majority of shareholder) of company

Kuwaiti

Other:

1. Leadership

1.1 Leaders develop and communicate mission, vision, and values.

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	Strongly Agree				

1.2 Leaders are actively involved in ensuring management systems are developed, implemented and continuously improved.

1 2 3 4 5

Strongly Disagree Strongly Agree

1.3 Leaders measure organisational performance and translate results into improvement.

1 2 3 4 5

Strongly Disagree Strongly Agree

1.4 Leaders are actively involved with customers.

1 2 3 4 5

Strongly Disagree Strongly Agree

1.5 Leaders are actively involved with stakeholders.

1 2 3 4 5

Strongly Disagree Strongly Agree

1.6 Leaders create an environment for empowerment, innovation, learning and support.

1 2 3 4 5

Strongly Disagree Strongly Agree

2. People

2.1 People resources are planned, managed and improved

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	Strongly Agree				

2.2 People are involved and empowered

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	Strongly Agree				

2.3 People and the organisation have a dialogue

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	Strongly Agree				

2.4 People are rewarded, recognised and cared for

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	Strongly Agree				

3. Policy & Strategy

3.1 Presence of strategic planning or thinking.

	1	2	3	4	5	
--	---	---	---	---	---	--

Strongly Disagree Strongly Agree

3.2 Strategic planning is a systematic process.

1 2 3 4 5

Strongly Disagree Strongly Agree

3.3 Strategic planning is based on gathering of data and information and reflects customer and stakeholder needs and requirements.

1 2 3 4 5

Strongly Disagree Strongly Agree

3.4 Strategic plans and objectives are communicated throughout the organisation.

1 2 3 4 5

Strongly Disagree Strongly Agree

3.5 Monitoring mechanisms and /or measures exist to tack strategic deployment at corporate and operational levels.

1 2 3 4 5

Strongly Disagree Strongly Agree

4. Partnerships & Resources

4.1 Partnerships & supplier relations are planned.

	1	2	3	4	5	
<hr/>						
Strongly Disagree	<input type="radio"/>	Strongly Agree				

4.2 Partnerships & supplier plans are controlled and managed.

	1	2	3	4	5	
<hr/>						
Strongly Disagree	<input type="radio"/>	Strongly Agree				

4.3 Partnerships & suppliers are planned based on their needs, contributions and a teamwork culture.

	1	2	3	4	5	
<hr/>						
Strongly Disagree	<input type="radio"/>	Strongly Agree				

4.4 Financial resources are planned and managed.

	1	2	3	4	5	
<hr/>						
Strongly Disagree	<input type="radio"/>	Strongly Agree				

4.5 Physical operational resources (e.g. material and equipment) are planned and managed.

	1	2	3	4	5	
<hr/>						
Strongly	<input type="radio"/>	Strongly				
<hr/>						

Disagree

Agree

4.6 Physical long-term resources (e.g. building and land) are planned and managed.

1 2 3 4 5

Strongly
Disagree

Strongly
Agree

5. Culture

5.1 People work in Teams

1 2 3 4 5

Strongly
Disagree

Strongly
Agree

5.2 There is a strong sense of belonging

1 2 3 4 5

Strongly
Disagree

Strongly
Agree

5.3 Employees socialise outside office hours

1 2 3 4 5

Strongly Disagree

Strongly Agree

5.4 Work environment is open and friendly

1 2 3 4 5

Strongly
Disagree

Strongly
Agree

5.5 Ideas and new concepts are freely suggested and discussed

1 2 3 4 5

Strongly
Disagree

Strongly
Agree

6. Processes

6.1 Processes are identified and designed.

1 2 3 4 5

Strongly
Disagree

Strongly
Agree

6.2 Processes are clearly communicated to staff and stakeholders.

1 2 3 4 5

Strongly Disagree

Strongly Agree

6.3 Processes are implemented and controlled.

1 2 3 4 5

Strongly Disagree

Strongly Agree

6.4 Processes are updated and improved.

1 2 3 4 5

Strongly Disagree Strongly Agree

6.5 Process design is based on customers and stakeholder needs and requirements.

1 2 3 4 5

Strongly Disagree Strongly Agree

7. People Results

7.1 People resources and capabilities are planned, managed and improved.

1 2 3 4 5

Strongly Disagree Strongly Agree

7.2 A healthy and safe work environment exists.

1 2 3 4 5

Strongly Disagree Strongly Agree

7.3 People are communicated with, involved and employers.

1 2 3 4 5

Strongly Disagree Strongly Agree

7.4 People are motivated, rewarded and recognise.

1 2 3 4 5

Strongly Disagree Strongly Agree

7.5 Teamwork is encouraged and enabled.

1 2 3 4 5

Strongly Disagree Strongly Agree

8. Customer Results

8.1 Systematic identification and monitoring of customer requirements and needs.

1 2 3 4 5

Strongly Disagree Strongly Agree

8.2 Translation of customer requirements and needs into actions and expressed in organisation's products/services.

1 2 3 4 5

Strongly Disagree Strongly Agree

8.3 Organisation staffs are actively involved with customers.

1 2 3 4 5

Strongly Disagree Strongly Agree

9. Society Results

9.1 Protection of environment has improved

1 2 3 4 5

Strongly Disagree Strongly Agree

9.2 Noise levels have decreased

1 2 3 4 5

Strongly Disagree Strongly Agree

9.3 Pollution levels have decreased

1 2 3 4 5

Strongly Disagree Strongly Agree

9.4 The organisation has a positive impact in society

1 2 3 4 5

Strongly Disagree Strongly Agree

10. Business and Key Performance

10.1 Financial performance (e.g. profits, sales, liquidity).

1 2 3 4 5

Strongly Disagree Strongly Agree

10.2 Non-financial performance (e.g. market performance, organisation image, flexibility).

1 2 3 4 5

Strongly Disagree Strongly Agree

10.3 Employee satisfaction.

1 2 3 4 5

Strongly Disagree Strongly Agree

10.4 Partner and supplier satisfaction.

1 2 3 4 5

Strongly Disagree Strongly Agree

10.5 Direct customer satisfaction.

1 2 3 4 5

Strongly Disagree Strongly Agree

Submit

Appendix D: Research ethics review checklist

Appendix E: Ethical review certificate

