Total Quality Management Strategy for Improving Business Performance of the Service Sector in Jordan

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A thesis submitted in partial fulfilment of the requirements of Liverpool John Moores University for the degree of Doctor of Philosophy

July 2019

Abstract

The position of Jordan as a developing country in a strategic part of the Middle East is important since economic advancements within the country function to motivate other Arab countries in the region and beyond, and in this era of globalisation all such countries are searching for ways to compete for their survival. Some of the economic advancements identified are known to be rooted in successful efforts to enhance the quality of goods and services in a bid to engender greater customer satisfaction, increase loyalty, and thereby, ultimately improve profitability. This study focuses on the potential of Jordan's service sector to deliver enhanced services through the implementation of the Total Quality Management (TQM) philosophy in private sector service organisations. Such enhancement via the application of TQM is believed to significantly support the national economy by boosting the GDP in Jordan (Ministry of Finance, 2017).

In securing its empirical data, the study conducted a survey of 314 individuals at the level of general manager, manager, financial manager or quality manager, since personnel in these positions are considered to be highly educated, to possess a sound appreciation of the philosophy and practice of TQM, and to simultaneously play a key role within organisations and thus be influential in ensuring TQM effectiveness and in furthering an appropriate organisational culture. Four different industries of the country's overall service sector - banks, hospitals, hotels, and communication companies - are targeted with the aim of identifying the critical success factors (CSFs) associated with TQM implementation, and evaluating the effects of such factors in the Jordanian service sector. In terms of objectives, the study explores the level of TQM implementation in the research sample, the relationship between type, size, experience, and ISO-certification, and the degree of TQM implementation, and the impact of the TQM CSFs on company non-financial, and financial performance. It then produces a framework for successful TQM implementation which is validated for use in the Jordanian context.

The survey data is collected via a quantitative approach in which a researcher-administered questionnaire comprised of statements measured on a Likert-type scale is used to gather comprehensive data about TQM implementation. The data are then statistically analysed using techniques ranging from advanced Structural

Equation Modelling (SEM) to correlation analysis. From the findings, it is seen that of a range of CSFs identified within the literature and tested in the study, seven are able to predict non-financial performance, these being: Customer Focus and Satisfaction, Continuous Improvement, Employee Encouragement, Management Commitment, Culture and Communication, Information Analysis, and Training Education. Additionally, four are able to predict financial performance, which are: Management Commitment, Customer Focus and Satisfaction, Continuous Improvement and Non-financial Performance. These predictions apply equally to the four types of organisation in the sample, and consequently, generalisation across the Jordanian service sector is assumed. It is, therefore, recommended that all service sector organisations in Jordan give attention to these dimensions of their operations as a means of realising the benefits to be achieved by fine-tuning their TQM implementation.

Acknowledgements

I would like to acknowledge that completing this thesis would not be possible without remarkable help and support from many people.

I would like to deeply thank my supervisory team; Dr Seng Kok, Dr Scott Foster, and Dr Olatunde Durowoju, for their invaluable feedback, encouragement, creative suggestions, critical comments, excellent guidance during the preparation of this work which have greatly contributed to this thesis, their efforts and patience were truly encouraging and a source of inspiration for me.

I also would like to thank my beloved family for their endless love, support, understanding, and for tolerating this obsession for the past four years. My gorgeous wife Dr Alaa and my kids Omar, Sarah, Ahmad, Abdullah and Noora, you have been my major and continuous source of encouragement all the way through my PhD journey, and without you in my life I am very sure I could never have completed this work.

I am indebted also to my parents for their encouragement, their continuous and valuable advice and for your tremendous love and your prayers for me at all times. I also want to thank my brother Ahmad, my sister Heyam and my cousin Nadeem for their support, encouragement and love during this journey.

Declaration

I hereby declare that no portion of this work has been submitted in support of an application for any other degree or qualification at this or any other university or institution of learning. In addition, I hereby confirm that, this thesis is solely my work and all work of others cited in this thesis have been acknowledged.

Signed: Wa'el AlKaraki

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List of Abbreviations

AGFI	Adjusted Goodness-Of-Fit Index
AMOS	Analysis moment of structures
ASQ	American Society for Quality
AVE	Average variance extracted
B	Standardised Beta coefficient
BPR	Business Process Reengineering
CFA	Confirmatory factor analysis
CFI	Comparative fit index
CMIN	minimum discrepancy
CR	Composite reliability
CSFs	Critical Success Factors
CVF	Competing value framework
DF	Degrees of freedom
EFQM	European Foundation for Quality Management
ENPI	European Neighbourhood and Partnership Instrument
FDI	Foreign direct investment
GDP	Gross domestic product
GLS	Generalised least Square
GFI	goodness-of-fit index
GOF	Goodness of fit
HRM	Human resource management
ICT	Information and communications technology
ISO	International Organization for Standardization
IFI	Incremental Fit Index
IMF	International monetary fund
JIT	Just in time
JUSE	Japanese Union of Scientists and Engineers
JOD	Jordanian dinar
KAAE	King Abdullah II Award for Excellence
MLE	Maximum likelihood estimation
MIT	Massachusetts Institute of Technology
MBNQM	Malcolm Baldrige National Quality Award

NAICS	North American Industry Classification System
NIST	National Institute of Standards and Technology
NFI	Normed Fit Index
OLS	Ordinary least square
PNFI	Parsimony Normed Fit Index
QA	Quality assurance
QC	Quality control
QCCs	Quality Control Circles
QM	Quality Management
PDCA	Plan–Do–Check–Act
RBV	Resource based view
RMSEA	Root mean square of approximation
SEM	Structural equation modelling
SMEs	Small and medium sized enterprises
SRMS	Standardised root mean residual
SPC	Statistical process control
SPSS	Statistical package of the social sciences
TLI	Tucker-Lewis Index
TQM	Total quality management
TPM	Total Productive Maintenance
ULE	Unweighted least square
VSM	Value stream mapping
WLS	Weighted least square

List of Publication

The following papers have also been developed as a product of the research contained in this thesis.

Al-Karaki, W., Kok S.K., Foster S., and Durowoju, O (2019) TQM strategies and its association with non-financial performance: A review of businesses in the Jordanian service sector. Manufacturing and Service Operations Management. (Under review)

Al-Karaki, W., Kok S.K., Foster S., and Durowoju, O (2019) Does TQM implementation lead to financial performance? An investigation of the service sector in Jordan. Total Quality Management & Business Excellence. (Under review)

1 Chapter One: Introduction

1.1 Background to the Research

Recently, with the increasing worldwide economic changes, modern organisations have been encountering numerous pressures to enhance the quality of their goods and services in a bid to engender greater customer satisfaction, increase loyalty, and thereby, ultimately improve profitability. These pressures have emerged through the shift from sophisticated manufacturing structures to skill and technology-intensive sectors (Memedović and Iapadre, 2010). Additionally, world trade openness, frequent financial crises, intensive competition, and more knowledgeable customers, are all combining to create a business environment in which the delivery of superior quality products or services at relatively low cost is paramount as a means to satisfy customers' needs and expectations (Brah,200; Arshida and Agil, 2013; Irfan and Kee, 2013, Samawi et al. 2018). Consequently, organisations around the globe have been provoked by such factors to either change or at least re-appraise their old quality systems by continuously improving their practices, in order to compete and survive in the marketplace, both locally and internationally (Dubeya and Angappa, 2015). Indeed, it is argued by Nkechi (2009) and Ferdousi et al. (2018) that only those companies that can rise to the challenge of delivering quality products and services will be able to compete in the era of globalisation.

Quality has been perceived as a core element among market players ever since the notable success of Japanese companies in the late twentieth century (Alolayyan et al., 2011), with the consequence that Total Quality Management (TQM) strategies have been widely introduced into the business environment (Irfan and Kee, 2013), in both the public and private sector. In essence, TQM is a management paradigm aimed at ensuring the continuous improvement and enhancement of product and/or service quality with a view to retaining customers through providing them with increased satisfaction (Chen, 2015). Al-Zu'bi and Judeh (2011) refer to it as a management philosophy that focuses on the continual improvement in the quality of performance of all processes in organisations. Moreover, in their aim for such continual improvement, considerable resources have been allocated to those organisations' efforts in their implementation of TQM mechanisms, with the aim of realising sustainable competitive advantages (Demirbag et al., 2006). Indeed, Badri et al. (1995), and Powell (1995) indicated over two decades ago, that in the contemporary age, businesses and even nations that do not initiate TQM practices

would rapidly lose their competitive edge.

According to Ebrahimi and Sadeghi (2013) and Obeidat et al. (2018), a company's achievement and maintenance of a competitive position may well result from the wise and correct implementation of TQM philosophy and principles, since this move would signal an increase in that company's commitment to quality. These researchers further justify the adoption of TQM strategies by reference to the argument that they promote several business practices such as improving productivity, cost reduction, and superior quality of products and services.

Generally, the effective implementation of TQM assists in enhancing customer satisfaction and firm performance in a highly efficient and cost-effective way (Brah et al., 2000; Taylor and Taylor, 2013; Psomas and Jaca, 2016). Furthermore, it is widely evident from the literature that the optimal implementation of TQM principles aids improvement in organisational performance in all industrial sectors (Fuentes et al., 2006; Kumar et al. 2009; Bourantaet et al., 2017; Kumar et al., 2018). The most common benefits to be gained by the effective adoption of TQM are shown from empirical investigation to be improved financial results, effective operations, improved quality, and customer and employee satisfaction (Topalovic, 2015; Shafiq et al. 2019).

It is worth noting that the evidence in the literature for the advantages of TQM implementation focus on the industrial sector, and certainly, it is true to say that the roots of TQM lie in the manufacturing industries (Meftah and Gibson, 2013; Sahoo 2018). Not surprisingly therefore, much of the extant body of knowledge has emerged from research conducted in that context (Samat et al., 2006; Baird et al., 2011). Nonetheless, with the growing and wider interest in the potential benefits rendered by TQM, studies have been performed in service companies where the significance of the approach has been aptly demonstrated (Talib et al., 2013; Augustyn et al. 2019). In fact, the service sector lags behind manufacturing in the adoption of TQM, but the increasing importance of the service sector to the national interest is seen in terms of its employment potential and contribution to national income, which forms the backbone of social and economic development. Indeed, the service sector is emerging as the largest and fastest growing sector in the world economy (Guesalaga and Pitta, 2014; Alzaydi et al., 2018; Samawi et al. 2018). Moreover, it is widely believed that the principles of TQM are equally relevant to service organisations as they are to manufacturing, since both sectors use facilities as inputs to satisfy customer needs (Irfan and Kee, 2013; Singh et al.,2018).

1.2 The Jordanian economy

The Jordanian economy can be termed an emerging knowledge-based one. The resource base of the economy of Jordan centres around potash and phosphates and fertiliser derivatives from them and there is also a reliance upon foreign aid, overseas remittances and tourism; together those various elements form the basic sources of the earnings from hard currency. In 2018, the Jordanian GDP was estimated to be US$ 42.37 billion which represents about 0.06% of the entire world economy. The primary focus in Jordan is primarily upon human capital and the service sector which together form the main national economic sectors (Central Bank, 2017). In 2017, the service sector was considered to contribute more to overall growth than any other sector of the economy generating 66.6% of total Jordanian GDP and employing nearly 70% of the national workforce. The primary important sector for real estate, finances and business services contributed around 24.4% of GDP of Jordan, communication, storage and transport contributed 17.5%, social services contributed 13.2% and hotels, restaurant and trade contributed 11.6%, respectively. Meanwhile, the industrial sector contributed 29.3% and employed almost 27% of the workers. The mining and quarrying industries, mainly of potash and phosphate, are major contributors and 4.1% of GDP hails from agriculture which employs a total of 3.7% of workers. Agricultural development is constrained by the country's lack of water (Central Bank, 2017).

Within the first decade of this century, key economic reforms were implemented by King Abdullah II such as the privatisation of firms that had been owned by the state and expansion of foreign trade to attempt to attract foreign investment; indeed, from 2004 to 2008, the average economic growth each year was 8%. Social and political turmoil in the region and the overall decline of the global economy has contributed to growth at a slower rate from 2010 up to 2017 of an average of 2.8% per year (World Bank, 2017). The biggest challenge to the economy of Jordan nowadays is the limited supply of oil, water and other kinds of natural resource. The national economy has to face three fundamental problems, i.e. the recent inflation, unemployment and poverty. Furthermore, the volatility in neighbouring countries and the region in general have added to the problems already mentioned. Burdens accruing from the crisis in Syria and Iraq have impacted seriously upon the economy of Jordan which is clearly shown by effects on foreign trade and the ability for attracting investment. Given the level of uncertainty that those crises in particular have brought about, an expanded market can no longer be relied upon. As the

refugee crisis from Syria worsened, there was an increased burden upon the Jordanian economy; indeed, it was estimated that there was a cost to the under-resourced country of more than 5 billion Jordanian dinars from 2011 to 2014 as noted in the Economic Situation in Jordan Report by Idris (2016). On the international stage, Jordan has membership of the World Trade Organisation and in December of 2001 a free trade agreement was signed that allowed for customs duties to be removed from most services and goods (SNAP, 2014).

There are, however, signs that there is some degree of recovery to the economy despite the aforementioned challenges. In 2014, growth in GDP was over 4.0%, tourism and foreign direct investment are bouncing back and capacity for growth has been continually shown for business within clean technology, medical services and ICT sectors (Central Bank, 2017). In fact, Jordan has now emerged as a leading business capital for the Levant and, since King Abdullah ascended in 1999, the free Jordanian market economy has witnessed an annual growth of 7.0%. There is a reliance upon foreign trade for the acquisition of the requirements for energy and natural resources. However, with implementation of more liberal economic policy, the country now has an economy that is one of the most competitive in the Middle East. There is a developed, modern banking system in Jordan and significant foreign investment is now being attracted enabling the downturn in global finances that occurred within the late 2000s to be tackled in the country (World Bank, 2017).

As identified by the Jordanian Central Bank (2017) earlier, the Jordanian economy is dominated by the services sector, and as such priority and focus should be placed upon its development and enhancement. Similarly, the service sector dominates both private and public domains and as such it is widely believed that applying the principles of TQM here would make a significant contribution to the national economy.

1.3 Statement of the Problem

This need for modern organisations to improve quality, to sustain existing customers, and attract new ones is felt around the globe, but in the particular case of Jordan, this requirement is particularly germane, since its service sector has witnessed tremendous growth internationally in recent years (World Bank, 2017). Moreover, unlike neighbouring countries, Jordan suffers from a dearth of natural resources, leaving it heavily reliant on its service sector and thereby placing

substantial pressure upon the government to develop the service sector as leader of the national economy. Indeed, its development has been such that by 2017, the service sector accounted for 66.6% of GDP (Central Bank, 2017).

This development has resulted from Jordan's membership of the WTO General Agreement on Trade in services, which has been in place since 2000. Through this, Jordan has become one of the main seven Mediterranean partners officially responsible for negotiations on the liberalisation of services, a move that was made in the hope that such liberalisation would provide Jordanian service firms with access to the international services market, especially the European market which is considered by the rest of the world as the main market (ENPI, 2013; Canova and Schlaepfer, 2015). Additionally, and equally important, is the fact that Jordanian firms wish to derive benefits from the EU market in terms of developing their service technologies, company links, and making investments (JEDCO,2012). There is no question that it is essential to enhance the service market in Jordan, which, given the country's lack of natural resources already mentioned, places it as the mainstay of the economy (Samawi et al. 2018).

Consequently, there is substantial pressure upon the Jordanian government to support the nation's service sector, such that it can effectively function as the desired spearhead of the national economy (Samawi et al., 2018). Moreover, that pressure extends to the need to develop the service sector in both the private and public domain, so that those organisations are capable of meeting the same high standards existing in Western service firms, which have a share of the same market, and can thus be in a position to compete as serious rivals. However, a problem arises in as much as traditional management practices still prevail in the Jordanian service sector, and resistance to the development of a TQM philosophy, which would enable that competitive edge to be acquired is widespread, as there is insufficient national awareness of the benefits of adopting TQM (Augustyn et al. 2019).

Clearly therefore, substantial and urgent effort is required from all those party to the national objective of placing Jordanian service organisations on a par with those in Europe. That effort will not, however, be rewarded if the routes to improved quality are not known clearly communicated to all organisations, and if they are not supported in their attempts to implement the frameworks which have been effective in other cultural contexts.

1.4 Rationale for the Study

A strong rationale exists for conducting a study which seeks to the problem statement above and the examination of the critical success factors (CSFs) in respect of the effective implementation of TQM. As identified in the literature (see section 2.13), the key focal areas of Management Commitment, Continuous Improvement, Customer Focus, Employee Involvement, Training and Education, and Employee Encouragement, Information/Analysis/Data, Strategic Quality Planning, Benchmarking, Culture and Communication, Social and Environmental Responsibility are pertinent considerations within the subject area of TQM. Deeper understanding here and the advancement of knowledge can then be used as the basis for identifying the level of TQM implementation in the Jordanian service sector, and evaluating its effects on performance. This study seeks to do this, and eventually, will provide recommendations to managements within service organisations such that they can enhance their application of TQM and realise improved performance, sustainable competitive advantage, and increased market share. As such, the model will provide useful signposting for industries, sectors and countries that are currently under-developed in TQM and have high level of potential to embed a more robust TQM strategy.

In its focus, the study concentrates exclusively on service sector organisations, and specifically those in four different sectors of the overall service sector, these being: privet hospitals, hotels, banking, and communications. The enhancement of the performance of the service sector though the application of TQM will significantly support the national economy by boosting the GDP in Jordan (Ministry of Finance, 2017). In addition to the provision of advice to the service sector, the study will also make a contribution to knowledge in the area of TQM implementation in developing countries, and will therefore, have the potential to help other researchers who also have a focus on such contexts. Particularly, to the author's knowledge the study will be the first comprehensive in the field of the Jordanian service sector, to concentrate on performance improvement through the implementation of TQM.

Given the foregoing statement of the problem, and the obvious rationale for the study, the following research questions, aims, and objectives have been formulated.

1.5 Research Question

Given the gaps identified, this study intends to answer the following research questions:

1. What is the level of TQM implementation in the Jordanian service sector?
2. Do the factors of type and size of a company, and whether it has ISO certification, affect that company's degree of implementation?
3. What are the main critical success factors for effective TQM implementation within the Jordanian service sector in respect of the four different service industries selected?
4. To what extent does the level of TQM implementation influence firm performance?
5. What recommendations can be made based on the findings of this study in respect of how to effectively implement key TQM principles to enhance the quality of service delivery within the Jordanian service sector?

1.6 Research Aims

The aims of the study are to evaluate the critical success factors associated with TQM implementation, and assessing their effects upon performance in the Jordanian service sector.

1.7 Research Objectives

From these aims, the following five research objectives are formulated:

1. To determine the level of TQM CSF implementation in the Jordan Service Sector.
2. To identify whether there is any association between the type and size of a company, and whether it has ISO certification, and the level of TQM implementation.
3. To identify the success factors that enhance the level of TQM implementation within the service sector in Jordan.
4. To examine the effect of the TQM CSFs, on firm performance from both financial and non-financial perspectives.
5. To develop and validate a TQM model illustrating the relationship between all recognised elements of TQM and Performance.

1.8 Methodology

To achieve these objectives, and subsequently answer the research question posed, a study which is both explanatory and descriptive is conducted, using a quantitative approach that relies on deductive reasoning, and which obtains data from the sample frame via a questionnaire. Specifically, managerial staff in Jordan's hospitals, hotels, banking, and communications sectors are targeted via a questionnaire, the data from which are analysed statistically to provide fully validated empirical findings.

1.9 Overall Contribution

The study outcomes, obtained through empirical analysis and validation, will raise awareness of the benefit of continuous improvement of service delivery within Jordan's service sector. They will also add to the findings of the limited studies conducted so far on the influence of the TQM CSFs on organisational performance. Furthermore, the study will contribute towards that small body of knowledge on the effects of TQM on organisational performance as identified in the developing country context. In doing this, it will narrow the gap in the literature on TQM, and TQM implementation in Jordan, and will stand as a platform for further investigation and related studies, both in Jordan and outside. Additionally, in identifying those CSFs that enhance the implementation of TQM in the Jordanian service sector, the study not only provides practical guidance to managers, but to the author's knowledge also represent the first of its kind. This extends current theory towards the consideration of new factors of TQM and TQM success and in particular within the scope of service sectors.

1.10 Structure of the Thesis

The thesis is structured as follows:

Chapter One: Introduction

Chapter One provides the background to the study and makes a clear statement of the problem that requires investigation. It indicates a strong rationale for pursuing the topic of TQM implementation in Jordan's service sector, and identifies the specific questions that the study needs to answer in order to achieve the research aims and objectives. A brief indication of the methodology adopted is offered, and the anticipated contributions both to academia and to practitioners is made.

Chapter Two: Literature Review

Chapter Two presents a critical review of what is known about TQM, and hence the research conducted to date on this research area. The chapter reviews TQM theories and identifies gaps in that overall knowledge framework, thereby pointing to what requires discovery for the literature to become more complete and comprehensive. The literature reviewed in this chapter provides a theoretical foundation for the conceptual research model used in this study.

Chapter Three: Methodology

Chapter Three highlights the approach, methodology, and methods adopted in the study. This information is presented as a result of a full consideration of research methods, approaches, and philosophies. Issues relating to the questionnaire design, reliability of the instrument, data collection and sampling, statistical tests used for analysis, and validity of the study are considered.

Chapter Four: Data Analysis

Chapter Four presents the findings of the data collected from the questionnaire survey. In doing this, it discusses the various statistical tests used to arrive at the answers to the research questions formulated in Chapter One.

Chapter Five: Discussion

Chapter Five provides an interpretation of the main findings of the empirical exercise and relates the outcomes achieved to the literature reviewed in Chapter Two. The focus within the chapter is on how the findings obtained provide answers to the research questions, and thus meet the first three objectives of the study.

Chapter Six: Conclusions and Recommendations

Chapter Six draws conclusions from the findings, and summarises the key outcomes, relating these to the study's aims, objectives, and research questions. It then offers recommendations regarding the implementation of CSFs to ensure the effective implementation of TQM in the Jordanian service sector. Subsequently, it discusses the contribution to knowledge made by the study, and finally, it addresses the limitations of the research, and suggests areas for further investigation.

1.11 Chapter Summary

This chapter provided the background information for this study. It sets the aim and purpose of the study that focused on the importance of developing an effective TQM strategy and it contextualised the problem within the Jordanian service sector. It also justified why this study is important and worth undertaking. It set the objectives supported by precisely written research questions with observable outcomes. Finally, it outlined the structure of the study.

2 Chapter Two: Literature Review

2.1 Introduction

Having identified the research questions, and the subsequent aims and objectives of the study in the previous chapter, the focus of this chapter is on the concept of TQM, the debate on the importance and benefits of TQM adoption and implementation within the Jordanian service sector, and how such implementation is enhanced through the presence of certain critical success factors. The link between TQM and organisational performance is seen in this overall review, which compares and contrasts the different TQM theories and models to establish their theoretical foundations, and to provide the conceptual underpinning for the study.

Section 2.2 introduces the concept of Quality, Section 2.3 charts the evolution of TQM, and Section 2.4 considers the concept of TQM in detail. In Section 2.5, attention is given to the famous quality theorists, known as the 'Quality Gurus', and specifically the contributions made by Shewhart, Deming, Juran, Crosby, Feigenbaum, and Ishikawa are introduced. The consensus among these theorists is then discussed in Section 2.6, before the various excellence models that have been developed in different countries, also introduces ISO 9000 Certification, pointing out its relevance to all organisations irrespective of sector, country, or size are presented in Section 2.7. In Section 2.8, the similarities and differences between the various models are discussed this leads into Section 2.9 which focuses on the service industry and explores the differentiating characteristics of this from other industries. In Section 2.10, TQM in the service sector is considered, and this is followed by an overview of TQM in Jordan (Section 2.11). Thereafter, the issue of TQM implementation is explored – Section 2.12 dealing with an overview, and Section 2.13 discussing the critical success factors required for effective TQM implementation. Twelve commonly acknowledged CSFs are then comprehensively considered. Section 2.14 proceeds to explore the perceived benefits of TQM. The means of evaluating organisational performance after implementation of TQM is highlighted in Section 2.15, and this is followed by Section 2.16 which considers what actually happens in organisations once TQM has been effectively implemented. The proposed model of this study is briefly discussed in Section 2.17, and finally, the chapter is concluded with a short summary (Section 2.18).

2.2 The Concept of Quality

The concept of quality is relatively define; indeed, there have been many contributors to the literature offering definitions. That said, it is not so easy to identify quality in goods and/or services, as quality is often in the eye of the beholder, and different people have different ideas about what constitutes quality (Schneider and White 2004). Crosby (1979:17), who is considered as a major 'quality guru', defined quality as "conformance to requirements", thereby referring implicitly to some prior action which has stipulated what those requirements are. Moreover, Deming (1986:5), writing in the same general period, defined quality, stating "good quality means a predictable degree of uniformity and dependability with a quality standard suited to the customer", thus supporting Crosby's (1979) assertion, since 'conformance to requirements' and 'suited to the customer' imply the same thing. Similarly, Feigenbaum (2005:7) argues, "quality is the degree to which performance meets expectations", and Juran (1992:9) stresses "fitness for use". Again, both these definitions emphasise that the product or service should do or give what the user demands, and provide a means to evaluate quality by measuring the expectation with the reality. It can be understood from these four definitions that the customer is the focus of quality initiatives. Indeed, the American Society for Quality (ASQ) presents its definition such as to embody this idea, as it states, "quality denotes an excellence in goods and services, especially, and to the degree they conform to requirements and satisfy customers".

Whilst confirming the focus on customer satisfaction, Ishikawa(1985) went beyond this to suggest quality as being a much broader concept that extended beyond the condition of the product or service, to include the people, processes, and the organisation involved in the generation of quality (Goetsch and Davis, 2014). This can be understood as a more far-reaching concept that encompasses the outcomes realised by the organisation, and hence, is a means for the organisation to achieve its own goals. Ultimately, however, it is the customer who evaluates quality. When the focus is a product, the customer will refer to the fitness of that product for use, whether it looks and performs as expected. When the focus is a service, the customer will refer to the level of satisfaction s/he experiences to make a judgment about its quality. In making such judgments, customers implicitly impose some measurement criteria by which they can identify the 'excellence' associated with quality already mentioned. But again, as already indicated, this 'excellence' is

relative. However, manufacturers and service providers must establish consumers' needs, and develop specifications from which they can determine how the characteristics within these can be monitored and measured. Oakland (2014) suggests this as the underpinning for continuous product/service improvement, which should ensure the sustainability of a business as customers will be satisfied with that product/service, and remain loyal to it. Such loyalty is important to a company, and therefore, it is necessary to guarantee the reliability of a product/service as a means of retaining customers (Pattanayak et al., 2017). Hence, whilst the concept of quality concerns itself with promoting customer satisfaction, it can also be seen that customer satisfaction is an antecedent of loyalty, and that such satisfaction must clearly be a principal aim of business. This requires management of the quality issue, and consequently over the centuries, approaches to Quality Management have gradually evolved, as discussed in the next section.

2.3 The Evolution of TQM

The evolution of the management of quality is seen to go back as far as the time of ancient Egypt, when as noted by Kanji (2002), regular inspections occurred of the progress being made in the construction of the pyramids. It can, therefore, be appreciated that all of the principles identified in the much more recent literature have resulted from thousands of years of theoretical development.

However, the specific philosophy of Total Quality Management (TQM) as a development in the overall field of quality can be traced back approximately one hundred years, to the 1920s, when techniques for controlling and evaluating product quality, were invented by Walter Shewhart, while working for the Bell Telephone Laboratories in the US. These techniques were developed particularly to secure improvements in the products concerned, and among them was the 'plan-do-check-act cycle' which could be used in a scientific way to enhance any productive process (Evans and Lindsay, 2002). Researchers (see for example, Garvin, 1988; Steeples, 1995; James, 1996; Dale, 2003; Oschman et al., 2006; Besterfield, 2012), have identified four stages in the gradual evolution of TQM, although not all suggest that each of these stages is included, or indeed that all stages occur in all industries. For example, the three phases of quality control, quality assurance, and TQM have been highlighted by Steeples (1992), whereas Garvin's (1998) ideas include four periods, these being inspection, statistical quality control, the assurance of quality, and the

strategic management of quality. However, it is generally accepted that the following four identifiable evolutionary developments have been evidenced.

2.3.1 Inspection

Inspection is considered the first stage, and was seen to become commonplace for all finished products with the advent of mass production (Feigenbaum, 1999). This was in the early 19th century, with the development of the rational system for jig, fixture, and gauging, which, as observed by Dale (2007), included the inspection of activities, products and services. Such inspection involved the measurement of these inputs and outputs to determine how they compared with their specific performance requirements. However, with the increased production witnessed during the First World War, quality inspection was much advanced, and by the time the Second World War occurred, systems of manufacturing had become extremely sophisticated. Such progress had been necessitated by the change in the workforce arrangements, whereby large numbers of workers in the mass production process, were overseen by comparatively much less numbers of supervisors, thereby presenting the risk of loss of control over the quality of work. This prompted firms to engage full-time quality inspectors, whose role was to check that a product conformed to its specification. That role of inspection has been defined by ISO as an activity that measures, examines, tests and/or gauges one or more characteristics of an entity, and then compares the findings with the specification for that entity to determine whether it meets the requirements specified (Dale and Bunney, 2006).

2.3.2 Quality Control (QC)

Working and writing at the time when 'inspection' was the means of attempting to control quality, Walter Shewhart (1931) formulated certain concepts associated with statistical quality control at the Bell Telephone Laboratories. His book entitled Economic Control of Quality of Manufactured Product, was published in 1932, marking substantial progress in the quality movement (Avery and Zabel, 2002). Shewhart's techniques related to the control, monitoring, and evaluation of product quality. His control chart represents his principal contribution to the quality literature, considered as the foundation of statistical process control (SPC) techniques that allow for the detection of unacceptable fluctuations or variations in output that can

be accounted for. The use of Shewhart's control chart was found to reduce delay at the stage of inspection, which had been negatively affecting production time, and to allow firms to make additional quality improvements. This advancement on inspection resulted in the establishment of quality control (QC) as a recognised discipline after the Second World War, but that discipline was mainly underpinned by a statistical approach that principally concerned itself with what happened on the assembly line. Nonetheless, Shewhart, together with other Americans, Joseph Juran, and William Edwards Deming, served as a tremendous inspiration (as later discussed) for the development of quality management in the Japanese economy, in the post WWII reconstruction. Hence, it can be understood, as noted by Juran (2003), that QC allows managers to evaluate performance such that a comparison can be made between the goals of quality and the achievements in reality, and that where discrepancies occur actions can be taken.

2.3.3 Quality Assurance (QA)

The third evolutionary stage of the processes leading to TQM, is regarded as Quality Assurance (QA), which differs in character from QC in that it is evident before the production process rather than an activity that occurs during and after production (Sallis, 2014). Occurring prior to production, it can be understood as a preventative measure that is more concerned with the design of the process to enable the better delivery of the product/service (Dale et al., 2007). The focus on planning and design is intended to remove the potential for product/service faults. At the time when QA emerged, more complexities began to characterise the production system, it being considered that QC implied no defects, and that all costs relating to quality, reliability, and total QC, could be measured. QA also incorporated advanced quality planning, and the enhancement of product design, processes, and services. QA, therefore, improved control over production, and introduced measures intended to involve and motivate workers. Consequently, there were much wider implications for management in QA than had been evident in QC (Donabedian, 2002), and these precipitated the final stage in the evolution of Quality Management (QM).

2.3.4 Total Quality Management (TQM)

Representing the pinnacle of the evolution of QM, is TQM which actually developed in the two decades between the 1950s and 1970s. However, it was not until the mid-1980s that TQM gained popularity. Moreover, whilst researchers in the US were responsible for the majority of TQM's conceptual development, in respect of its application, Japan has led the field (Martínez-Costa et al., 2008), demonstrating great changes in the management of enterprises to accommodate the new operating philosophy demanded by the switch from detection of faults to their prevention. This new orientation required a set of QM tools and techniques, to use in the effort to secure quality throughout the organisation, as required by TQM, and specifically from the 1960s onwards, early 'quality circles' were in evidence in Japanese companies, resulting in the perception at least, that Japanese products were superior in quality to US goods. In the TQM philosophy, the aim is to achieve successful interaction between all the components of the company, and within the components themselves so that greater overall effectiveness results than occurs when the individual sub-systems do not work in harmony (Sallis, 2014).

Figure 2.2 depicts the evolution of TQM showing this degree of interaction, and emphasising continuous improvement and client satisfaction as the principal goals.

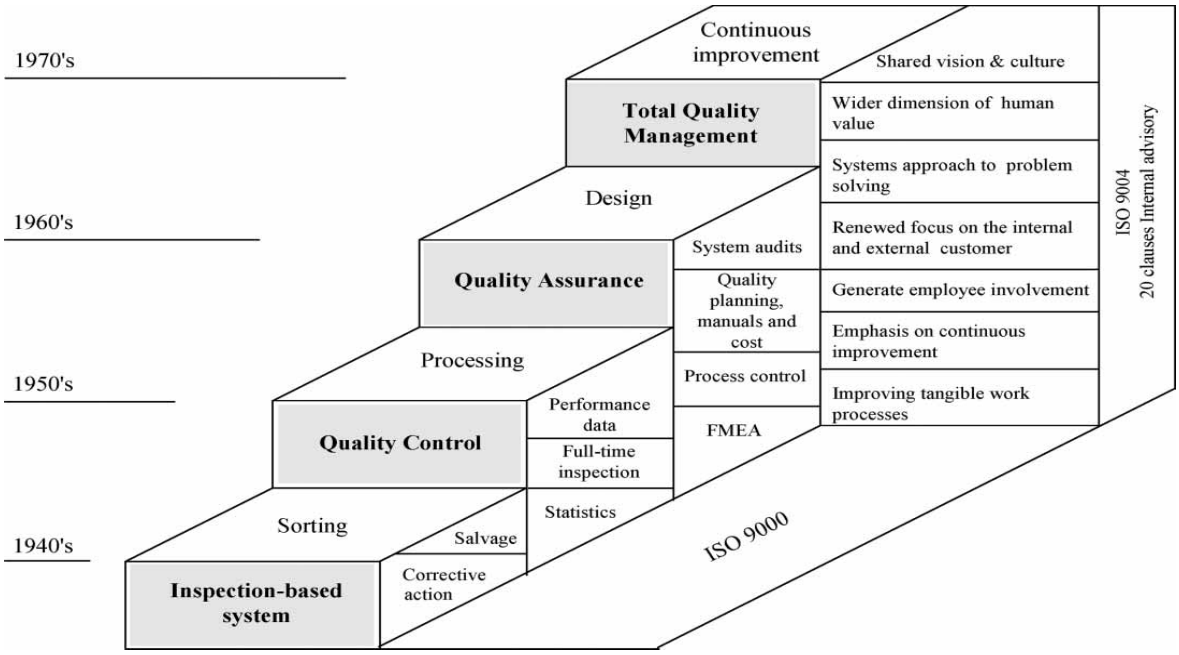


Figure 2.1: Interaction in the Evolution of TQM (Hafeez et al., 2006)

The recognition that improvements in quality cannot occur in the absence of genuine organisational change championed by senior management, is enshrined in

Deming's (1986)14 principles. These require a new way of conceiving of what makes a business successful. Indeed, Juran (1974) had earlier emphasised the 'fitness for use' criterion as much more important than the attributes of price and delivery. Using his 'quality trilogy' involving quality planning, quality control and quality improvement, he saw the need to conduct frequent work-based training in order to achieve continuous improvement, a view shared by Deming. The planning for quality was clearly perceived as vital in the whole process, as suggested by Crosby (1979), who developed the idea of 'zero defects', and the phrases 'do it right the first time' and 'quality is free'. Basically, Crosby's argument was that whatever efforts were made in trying to ensure quality, would be far less costly in the long run than the time spent on waste, rework, inspection, and returned products. However, he acknowledged the vital role of top management in all efforts to improve quality, and the need to use statistical process control, both being principles identified by Deming and Juran. Crosby's 'zero defects' notion was later developed by Shingo (1986) into 'zero quality control' concepts, in which a variety of tools were designed to remove defects at source.

Having become popular in the mid-80s, TQM was firmly accepted in many developed countries globally in the 1990s, as an important competitive strategy, underpinned by the belief that it offered organisations the opportunity to enhance their overall effectiveness, and thus the chance to compete worldwide (Anderson et al., 2006; Dahlgaard et al., 2011). As noted by Youssef et al. (2007), the advantages of TQM implementation were attractive to companies, all keen to achieve production with less defects, reduced rework and lead times, cost reductions, enhanced competitiveness, greater market share and profitability, more flexibility, and improved employee and customer satisfaction.

Essentially, TQM was seen as the means by which products and services could meet their specifications right from the start, and thereby satisfy customers on every occasion. However, the approach requires the involvement and commitment of all organisational members to the notion of continuous improvement. Responding to the challenges involved in securing this involvement and commitment, several theorists, known as the 'quality gurus' who are discussed in detail later in this chapter, made contributions to the literature, with Phillip Crosby being the first to propose the TQM principle in his book *Quality is Free* in 1979. He stressed the need

to get things right the first time. Deming subsequently addressed the downturn in the American economy in his book entitled *Out of the Crisis,* in 1986, in which he focused on the continuous improvement in management processes through the Shewhart 'Plan-Do-Check-Act' cycle, and on his own fourteen key management principles to help transform businesses into more effective enterprises. These various quality principles underpinned the enhanced concentration on the management of quality throughout the 1980s and have formed the bedrock of the TQM movement (Radziwill, 2013), and specifically, the Deming principles have saved many American companies millions of dollars, according to Goldman (2005)and Leavengood et al.(2014).

The evolution of the quality movement was seen to continue with the introduction of organisation-wide initiatives to control quality, and with the launch of national quality awards such as for example, the Australian and European quality awards, the Deming prize, the Malcolm Baldrige Quality Awards, QS-9000 quality systems and the ISO 9000 series of standards for quality. The presence of these awards, and their consequent effect upon organisational efforts to achieve and improve quality are considered to be the reason for the substantial improvements in operational performance in companies globally (Chen et al., 2016).

At this point, it is appropriate to explore exactly what emerged in terms of ideas about quality management from a total perspective, and hence the next section addresses the concept of TQM.

2.4 The Concept of TQM

As a concept, TQM is generally understood as a management philosophy, yet there is no consensus in terms of a universally-accepted definition, and some researchers are critical of this situation (Dahlgaard and Mi Dahlgaard-Park, 2006; Klefsjö et al., 2008), as it suggests that TQM is not as valuable as it is claimed to be. That said, amongst the many definitions advanced, there are common elements, these being the need for a structure within organisations to enable a strong customer focus. Moreover, that structure is viewed as being in a state of continual evolution (Klefsjö et al., 2008), and to embody a management system comprised of values, methodologies and tools. With the overall goal of enhancing customer satisfaction (both internally and externally), this system is believed to bring about increased efficiencies (Salaheldin, 2009). Talib et al. (2013) introduce the notion of an

integrated approach to this system, in which the aim is to advance product/service quality so that customers' needs are always surpassed, and thus the organisation gains a competitive edge over its rivals. Dubey and Gunasekaran (2015) also refer to TQM as a single integrated approach to all organisational functions in the interests of achieving consistency and harmony. Such integration means that all activities within the organisation are improved. This implies the involvement of all organisational members, a point specified by the ISO, in its definition of TQM as "a management approach of an organization, centered on quality, based on the participation of all its members and aiming at long-term success through customer satisfaction, and benefits to all members of the organization and to society" (Dale and Plunkett, 2017:4).

Ishikawa (1985) who describes TQM in terms of it being part of a strategy at the highest organisational level that works throughout all departments and functions and is a total system approach in that it also extends to all employees and the customer and supply chains. Another common feature of TQM definitions is that it is considered as a philosophy that generates a particular management style, which encourages the employee participation already referred to by (Dale and Plunkett, 2017). In this respect, Chang et al.(2010) consider TQM as an organisation-wide philosophy that demands the efforts of all employees at every level to be directed towards the improvement of each business activity within the organisation. The management style demanded by TQM is observed by Kaur (2017) to represent a management revolution, a revolutionary philosophy of management, a new way of thinking about the management of organisations, a paradigm shift, and a comprehensive way to improve total organisational performance, an alternative to management by control or as a framework for competitive management. Excellence is the aim, suggested by Moghaddam and Moballeghi (2008) as the whole point of TQM, which they suggest is a philosophy embracing guiding principles that encourage the development of a culture of continuous improvement. That conception implies the use of qualitative methods, and the requirement of total commitment on the part of employees towards the improvement of all organisational processes in the interests of surpassing customer expectations.

The TQM concept is taken up by Dahlgaard and Dahlgaard-Park (2006), who see this philosophy and management style as representing a corporate culture. That

culture requires, the active involvement of the entire workforce to ensure continuous improvement, and enhanced customer satisfaction. From this appreciation it can be understood that organisations aiming for total quality must first define their culture so that all employees are aware of it, and then create their integrated systems to instil that culture (Zu et al., 2010). These systems, as already indicated, include a variety of tools and techniques, and most definitely, training for all employees. Using these, features of TQM, the organisational culture should become more proactive and open, paving the way for better communication and collaboration throughout, and the resultant improved employee participation, continuous product/service improvement, and the final aim of enhanced customer satisfaction. The specification of this culture is essential to achieve these aims.

Clearly, therefore, the common feature that TQM operates to instil a particular organisational principles can be seen in all definitions, as can be the belief that it represents a continuously evolving set of values, methodologies, and tools to revolutionise the management of quality, and hence, promote competitive management. The ultimate focus is on improving the satisfaction of both internal and external customers through the commitment and involvement of all employees. Moreover, TQM is acknowledged to be successful in the production and delivery of both goods and services. Through the implementation of TQM, an organisation can be led to a position of excellence in its management of quality (Ross, 2017).

Evidently, however, for TQM implementation to be successful, there must be complete commitment to its philosophy, methodology and tools, and in this respect, robust systems to ensure product quality, process control, quality assurance, quality improvement, and the continuous improvement of all organisational processes must be devised and properly adhered to. This requires an organisational infrastructure which includes customer relationship management, leadership and strategic planning, human resources management, process management, and data and information management, in addition to specific management practices and tools (Evans and Lindsay, 2013).

This conception of TQM has developed through the efforts of a number of theorists, collectively now referred to as the ‘Quality Gurus’, and whilst all of these have been fleetingly mentioned, it is now appropriate to consider their individual contributions.

2.5 The Quality Gurus and their Contributions to the Field

2.5.1 Walter Shewhart (1891-1967)

Shewhart is considered to be the grandfather of TQM, since his efforts in the 1920s resulting in his 'plan-do-check-act' cycle formed the underpinning for all subsequent activities concerned with improving quality. It was Shewhart's ideas in this respect which inspired Deming who later worked in the same company, and who subsequently conceptualised TQM as a means of achieving continuous improvement. Shewhart believed that quality reflected two aspects, these being objective and subjective. The former, he considered to be constant and measurable, while the latter he suggested were tightly linked to the utility value of the objective physical properties of the item itself (Goetsch and Davis, 2014).

Shewhart also believed that human needs could be translated into the physical features of a product, and that this should be an essential stage in the engineering work design of products. Furthermore, he believed that processes should be implemented to prevent a product from varying from the quality attributes set as standards (Shewhart, 1931). For him, the relationship between product and quality is conceived as satisfaction of the needs required of the product concerned.

2.5.2 William Edwards Deming (1900-1993)

As already mentioned, W Edwards Deming was inspired by the ideas of Shewhart, with whom he worked at the Western Electric Company. Having gained a degree in Electrical Engineering, he completed a PhD in Mathematical Physics (Sallis, 2015). Later, he worked in the US Department of Agriculture, and the US Census Bureau, and began delivering various lectures to Japanese top management on statistical process control, having been influenced by Shewhart. Arguably, he has become the most famous quality expert globally, having been instrumental in Japan's post-WWII revival, and subsequently finding increasing adoption of his ideas in the US and elsewhere around the world (Gibson, 2017). In conceptualising TQM, Deming developed fourteen points, published in his book 'Out of Crisis'. These fourteen points have relevance for all industries and for small and large organisations, and are summarised below (Deming, 2000:23-24):

1. *Create constancy of purpose for improvement of product and service.* This particular point has an emphasis upon a need to have a mission statement that all

employees, customers and suppliers have to understand. A strategic plan ought to look towards payback over the long-term.

2. *Adopt the new philosophy.* The management have to learn to take on the responsibilities of leadership to achieve change. Poor service or poor workmanship or defective products are simply unacceptable.

3. *Cease dependence on mass inspection.* Remove the requirement to have mass-based inspections through having initial in-built quality in the product. There is greater efficiency in statistical quality control methods.

4. *End the practice of awarding business on the basis of price tag alone.* Instead, the aim should be the minimisation of total costs. When purchasing equipment such as new tools, the aim ought to be minimisation of the net costs for each piece produced or for each hour of operation. In developing relationships of trust and loyalty over the long-term, moves need to be made to having just one supplier for any particular single item.

5. *Improve constantly and forever the system of production and service.* Improvement in service and products is a process that is an ongoing one. The four steps of the Deming cycle involve planning, doing, checking and acting. There is identification of improvement opportunities at the stage of planning. The stage of doing involves the testing of theory at a small scale. During the checking stage, there is analysis of the test results, and there is implementation of the results during the acting stage.

6. *Institute training.* All employees have to be provided with training on-the-job. There must also be encouragement for employees to apply the knowledge that has been developed within their training.

7. *Adopt and institute leadership.* Supervision ought to have the aim of helping people to perform better in their use of machines. The supervision has to foster a working environment wherein workers feel able to take a leadership kind of role for the accomplishment of tasks.

8. *Drive out fear.* An environment has to be created by management wherein there is encouragement for workers to make suggestions and feel free to ask questions. Progress comes from a working climate that fosters innovation.

9. *Break down barriers between departments.* There has to be a sense of teamwork between people in production, sales, material procurement and research and design. Everyone has to have an understanding of the specifications and requirements. Improvements to productivity and quality come from teamwork.

10. *Eliminate slogans, exhortations, and targets for the work force.* Calls for higher productivity levels and zero defects can create relationships that are adversarial. The bulk of causes for low productivity and low-quality hail from the system and, therefore, are beyond the control of workforces.

11. *Eliminate numerical quotas for the work force and eliminate numerical goals for people in management.* Quality deteriorates through the use of quotas. Learn method and process capabilities so that they can be improved.

12. *Remove barriers that rob people of pride of workmanship.* All employees within a company are motivated and satisfied when there is the achievement of quality. Management have to create a working environment that encourages workers to have pride in their role.

13. *Encourage education and self-improvement for everyone.* Organisations have to have people who a working towards educational improvement.

14. *Take action to accomplish the transformation.* Transformation is the job of everyone.

2.5.3 Joseph Juran (1904-2008)

As a contemporary of Deming's, Joseph Moses Juran also obtained an Electrical Engineering degree (in 1924), and subsequently worked with Shewhart, and Deming, at the Western Electric Company. He also worked with the Bell Laboratories team in 1926 (also with Shewhart) and was involved in establishing the first statistical process control techniques for manufacturing. In 1951 he published his Quality Control Handbook, and three years later was invited to deliver training programmes in QM in Japan (Rumane, 2016). In 1979 he founded the Juran Institute as a consultancy and QM training facility. In terms of his literary contributions, Juran used the 'fitness for use' criterion as the marker of quality, and advanced the notion of a 'quality trilogy', in which quality planning, quality control, and quality improvement formed the basis of a universal thought process for quality. The quality planning dimension identifies internal and external customers together with their needs, and develops products/services to satisfy these. The quality control

dimension covers the statistical process techniques used to control the manufacture of products or the delivery of services; and the quality improvement dimension relates to the process by which superior levels of performance are reached (Sallis, 2014). Within Juran's conceptualisation of QM, is the fundamental requirement to identify and eradicate waste. This is assisted by his Pareto principle, which is used to identify the 'vital few' out of the 'trivial many', and which is usually described at the 80–20 principle, referring to the fact that 80% of the problems are created by 20% of the causes.

Juran and Godfrey(1999) in his focus on the quality costs to companies, Juran pinpointed four wide categories, these being:

- Internal failure costs (scrap, rework, failure analysis, etc.), associated with defects found prior to transfer of the product to the customer.
- External failure costs (warranty charges, complaint adjustment, returned material, allowances, etc.), associated with defects found after the product is shipped to the customer.
- Appraisal costs (incoming, in-process, and final inspection and testing, product quality audits, maintaining accuracy of testing equipment, etc.), incurred in determining the degree of conformance to quality requirements.
- Prevention costs (quality planning, new product review, quality audits, supplier quality evaluation, training, etc.), incurred in keeping failure and appraisal costs to a minimum.

2.5.4 Philip Crosby (1926-2001)

A generation after Shewart, Deming, and Juran, Philip Crosby (1979) outlined several principles and practices associated with the improvement of quality, including the important role of management in securing the commitment and competence of the workforce. Specifically, he referred to the participation of management in the entire quality enterprise, in management taking responsibility for the delivery of quality, in recognising the achievements of employees, in providing employees with sufficient education and training to secure their effective contribution, and in focusing on preventing defects as opposed to inspecting products once manufactured (Lucinda, 2010). This focus on the prevention of defects translated into the simple expectation of doing things right the first time so that no defects were ever present, and into a reduction in the cost of quality

(appraisal costs, and failure costs). Crosby believed that it was a lack of knowledge on the part of employees that represented one reason why production defects occur, and that could be remedied by the provision of systematic education training. A second reason was a lack of attention by workers, in which case he believed that it was necessary to instil within employees a personal commitment to the achievement of excellence (zero defects) which in itself would result in attention to detail (Lucinda, 2010). Such a commitment was considered by Crosby to be entirely the responsibility of management to generate through an appropriate choice of management style in which the philosophy of perfection/zero defects was effectively communicated and understood, and subsequently underpinned all practice.

As his major tool for developing such an organisational culture, Crosby (1989) developed his Quality Management Maturity Grid, and a 14-step programme as guidance. This 14-step guide (Wheaton and Schrott, 2018:23-24) is as follows:

(1) *Management commitment*: Clarifying the management stance in relation to quality.

(2) *Quality improvement team*: For running the program for quality improvement.

(3) *Quality measurement:* For provision of a display of potential and current problems of non-conformance in a way that allows evaluation in an objective manner and appropriate corrective action.

(4) *Cost of quality*: For definition of the constituents of quality cost and for explanation of its use as a tool for management.

(5) *Quality awareness*: For provision of a method for raising personal concerns of company personnel in relation to service or product conformance and the company reputation with regard to quality.

(6) *Corrective action*: For provision of a systematic method for forever resolving identical problems by way of previous steps of action.

(7) *Zero defects planning*: For investigation the variety of activities that have to be undertaken in preparing for formal launch of the programme for Zero Defects.

(8) *Supervisor training*: For definition of the kind of training required by supervisors for the active carrying out of their share of the programme for quality improvement.

(9) *Zero defects day*: For creation of an event for providing a personal experience for making all of the employees realise changes have happened.

(10) *Goal setting*: For turning commitments and pledges into action through encouragement individuals to establish personal and group goals for improvement.

(11) *Error causal removal*: For giving individual employees a communication method to relay to the management information over situations that make it hard for employees to meet the improvement pledge.

(12) *Recognition:* For appreciation of participants.

(13) *Quality councils*: For bringing together people involved with professional quality for regular planned communication.

(14) *Do it over again*: For emphasising that the programme for quality improvement is perpetual.

The Quality Management Maturity Grid encompasses five stages, these being: uncertainty, awakening, enlightenment, wisdom and certainty. Progress in several measurement categories such as management understanding and attitude, problem handling, cost of quality as percentage of sales, and summation of firm quality posture can be evaluated through the use of the grid (Andronicеanu, 2017).

2.5.5 Armand Vallin Feigenbaum (1922-2014)

As a contemporary of Crosby, Feigenbaum was the first to coin the phrase 'Total Quality Control', since which time this notion has been used to depict an organisation-wide quality approach that embraces all aspects of the management of quality (Dale et al., 2007). According to Feigenbaum (1999), the quality approach was actually a means of organisational management involving the entire workforce in assimilating a culture desired by management in an effort to achieve its goals. Like Crosby, Feigenbaum also believed in the absolute need for senior management to communicate its values. This is a point echoed by Oakland (2007) who emphasised the need for employee commitment to a particular style of working if quality improvements were to be achieved, and companies remain competitive. Feigenbaum (1986) wrote of the 'jobs of quality control' as falling into four categories, these being: new design control, incoming material control, product control, and special process studies. These differing elements of control were conceived as dependent for their effectiveness on the collaboration between all organisational units/departments, each of which should be aware of their specific responsibilities. Hence, the idea of organisation-wide QM was firmly promoted by Feigenbaum (1986), in the belief that the obligation to ensure quality was not simply that of the manufacturing department, but rather a responsibility of every individual within the company.

Despite his American nationality, Feigenbaum like Deming and Juran, found that his ideas of TQM were initially grasped by the Japanese who stressed the responsibility of the individual worker in the pursuit of quality. Moreover, from this particularly conceptual analysis of Feigenbaum came the concept of Total Quality Control (Dale

et al., 2007), which as expressed in his book of the same name, is believed to be a QM model. Fundamentally, Feigenbaum promoted a four-step philosophy which requires (Capezio and Morehouse 1993; Dale 2003; Feigenbaum 1986):

1. Setting a quality standard.
2. Appraising conformance to these standards.
3. Acting when standards are exceeded.
4. Planning for improvements in the standards.

In addition to this philosophy, Feigenbaum (1986) also determined nine basic features of organisational life which influence quality, these being: money, markets, management, materials, motivation, mechanisation, machines and modern information methods and mounting product requirements. That said, these were subsequently reduced to two distinct categories by Lindsay and Sower (2010), who suggested these as being (1) technological factors, and (2) human factors. The human factors are given much greater importance since the stress on management and human participation promotes employee motivation and creativity, which do not figure in the approaches suggested by either Deming or Juran.

2.5.6 Kaoru Ishikawa (1915-1989)

Ishikawa stands as the most famous of the Japanese quality gurus, and was in fact heavily influenced by the work of Deming, Juran and Feigenbaum. His contribution was to introduce ‘quality circles’ as a method of ensuring the satisfaction of the internal customer. Just as Shewart is regarded as the ‘grandfather’ of QM, so too, Ishikawa is considered to be the father of various quality tools in Japan. Specifically, the use of quality circles, and the ‘fishbone’ diagram was instrumental in enhancing Japanese capabilities in problem-solving. As noted by Montgomery et al. (2011), Ishikawa used a variety of quality tools, including: cause and effect, the histograms, Pareto analysis, fishbone diagram, scatter diagrams, check sheets, process control charts, control charts, and satisfaction graphs. The observation is made by Mohanty and Beckford (2016) that Ishikawa considers the following important principles in TQM:

1. All departments are responsible for the quality function.

2. The achievement of quality is totally dependent upon the effective education of the workforce.

3. All employees should be trained in problem solving, data analysis, and statistical techniques.

4. Process improvement should be achieved through effective problem analysis.

5. Employees should be involved in quality problem solving.

6. Seven tools of quality control can be used to solve the problems.

The appreciation of TQM has been substantially enhanced by Ishikawa's work (Ishikawa, 1985; Krüger, 2001 and Dale et al., 2016) as Ishikawa has developed several important ideas and insights into the need for complete organisational involvement.

2.6 The Consensus among the Quality Gurus

It can be seen from the above discussions of each of the quality gurus that whilst they all showcase their own particular approach, there is a common thread among them all that the responsibility to enhance and guarantee the quality of products and/or services lies with top management. In Deming's conception, complete transformation of the organisation is required to achieve both uniformity and dependability of product/service which is appropriate for the market and at a cost that is sustainable (Ross, 2017). It is fair to consider Deming's(1986) contribution as essentially theoretical. In contrast, Juran's emphasis on the practical dimension of quality, took the criterion of fitness for use as the driving force of quality initiatives, and within this, recognised the need for training among the workforce and gaining employee commitment to the notion of quality (Sallis, 2015). Crosby, likewise, focused on overall awareness-raising of quality through the provision of training. In fact, these gurus all had their individual guidelines to offer, whether in the form of principles, steps to follow, or management change to introduce new styles of managing. For example, Deming proposed his 14-point checklist to be followed in the attempt to improve quality levels, and emphasised the need to move away from the practice of mass inspection, and to reduce variation in products through the use of his plan-do-check-act (PDCA) cycle (Gibson, 2017). Juran, on the other hand, proposed his 'quality trilogy', Pareto principle, and management culture stressing the importance of human interaction. Crosby (1979), like Deming also developed his own 14-point checklist aimed at getting things right the first time so that no defects in products were ever evident; and also like Deming (1986), he focused on

prevention, and not on the inspection of products once in being. Addressing a different dimension, Feigenbaum (2005) compared the costs of achieving quality, with the costs to the organisation of not making such efforts, and subsequently developed the idea of total quality control; and Ishikawa built upon the work done by both Deming and Juran, to include the price of products as an important quality feature, and to generate his cause and effect model, represented as the well-known 'fishbone diagram' (Goetsch and Davis, 2014).

Clearly, all these contributions had some of their foundations in the ideas expressed by Shewhart (1931), including those relating to his PDCA cycle, and the two aspects of quality: the subjective and the objective side.

In summary, it can be appreciated that they all emphasise the way in which organisations are managed to be crucial in securing quality. Specifically, they mention that:

(1) Management are obligated to demonstrate commitment, leadership, empowerment, encouragement, and to provide all technical and human processes with the resources needed to achieve the desired outcomes.
(2) Top management must decide upon the organisational environment and ensure that it supports all the operations within it. This must include management's fostering of employee involvement in quality initiatives, and of a quality culture that results from changes in attitudes towards quality, and in the perception of it.
(3) Organisational strategy, policy and evaluation must be properly communicated and stressed as vital aspects of quality improvement.
(4) A structured programme of education and training for all the workforce is essential to instil the new organisational culture of quality, and to gain employee commitment to the values associated with this and ensure that their routine practice reflects these.
(5) Management must recognise the efforts made by employees in all of their efforts to improve quality, and provide appropriate rewards.
(6) All processes must be formally controlled to enhance the quality of goods/services produced, and remove the potential for defects rather than checking for them after their production.
(7) The overall quality system must stretch across all operational aspects of the organisation, embracing all employees, company suppliers, and customers.

There must be no exceptions to this, with all functional areas being part of the systematic approach to improving quality.

2.7 Excellence Models

Not surprisingly, the work of the quality gurus, and the obvious contributions to economic success made by quality initiatives, has resulted in a number of formal quality models aimed at achieving excellence. However, also to be expected is the fact that these have originated from Western thought, following the recognition that the ideas relating to quality developed by Western thinkers have been sensible and effective when properly implemented. Particularly, the Malcolm Baldrige model, and the European Foundation for Quality Management (EFQM) model, which represent the two most popular approaches, emerged consequent upon the success experienced by the Deming model in Japan, and as noted by many writers (Corredor and Goñi, 2011; Calvo-Mora et al., 2013; Karimi et al., 2014; Suarez et al., 2016; Calvo de Mora et al., 2015; Escrig and de Menezes 2016; Samawi et al. 2018).

However, many countries around the world have developed their own quality awards taking account of local conditions, but also with the intention of benefiting from ideas pursued elsewhere and generally heightening the awareness of quality, its importance, and how to secure it in order to remain competitive (Mohammad et al., 2011; Dahlgaard et al. 2013; Brown, 2014; Samawi et al. 2018). Such awards have allowed successful companies to be recognised, and thus to acquire improved corporate images, and indeed to stand as models to be emulated by other organisations in those countries.

The type of awards concerned are usually made on an annual basis for quality improvements in both management systems and productivity (Araújo and Sampaio, 2014), and they extend to a variety of organisations of differing sizes and character. For instance, they recognise achievement in both the manufacturing and service sectors, in different industries, in both profit-making and non-profit-making entities, and for the attainment of different levels of TQM. Such awards are generally made by bodies of some statutory standing, and those making the decisions come from both the public and private sector, reflecting the fact that quality is to be desired in all organisations irrespective of their character (Eskildsen et al., 2004), but there are limitations within them, as they do not address all the potential problems that companies encounter (Psomas and Vouzas, 2014). Within this section, the major models are examined.

2.7.1 The Deming Prize

This award was inaugurated by the Japanese Union of Scientists and Engineers (JUSE) in 1951, to recognise the work of Deming, who as mentioned earlier, was significant in the post-war regeneration of Japan's economy. At that time in history, there was a common belief that Japanese products were of extremely poor quality (Khoja et al., 2017), and it was essential for post-WWII survival, for Japanese companies to improve. In this effort, Deming was instrumental as he introduced statistical quality control to Japanese manufacturing, as a result of which Japanese products underwent a complete transformation, reaching the stage where they are now regarded as being of the highest quality worldwide (Wheaton and Schrott, 2018).

There are four categories of prize within the overall Deming Award, these being: the Deming Prize for Individuals, the Deming Distinguished Service Award for Dissemination and Promotion (Overseas), the DP, and the Deming Grand Prize (JUSE, 2018). In evaluating whether an organisation is eligible for the Deming Prize, six criteria are addressed as shown in Figure 2.3. Scrutiny of the documentation submitted by an organisation is followed by an on-site visit for further assessment, and during this, there are three stages to the evaluation. The first is referred to as Schedule A which requires the company to make a presentation on the way in which it implements TQM, a site visit, and a review of all material associated with the TQM system. The next is Schedule B which involves a question and answer session during the site assessment, and which may involve a representative group of all customers, i.e., suppliers, sub-contractors, distributors, customers, and employees. Finally, there is an Executive Session which functions as the assessment of top management roles in supporting the implementation of the TQM approach.

The Deming Prize (third category) is awarded annually in a non-competitive way to any organisation that has demonstrated excellence in its implementation of TQM. Consequently, there is no limit to the number of companies that can be successful in being granted the Deming Prize. Moreover, an unsuccessful organisation is given comprehensive feedback, thereby enabling it to profit from such information and re-submit in the future The Executive Session is used to evaluate top management roles in supporting TQM implementation.

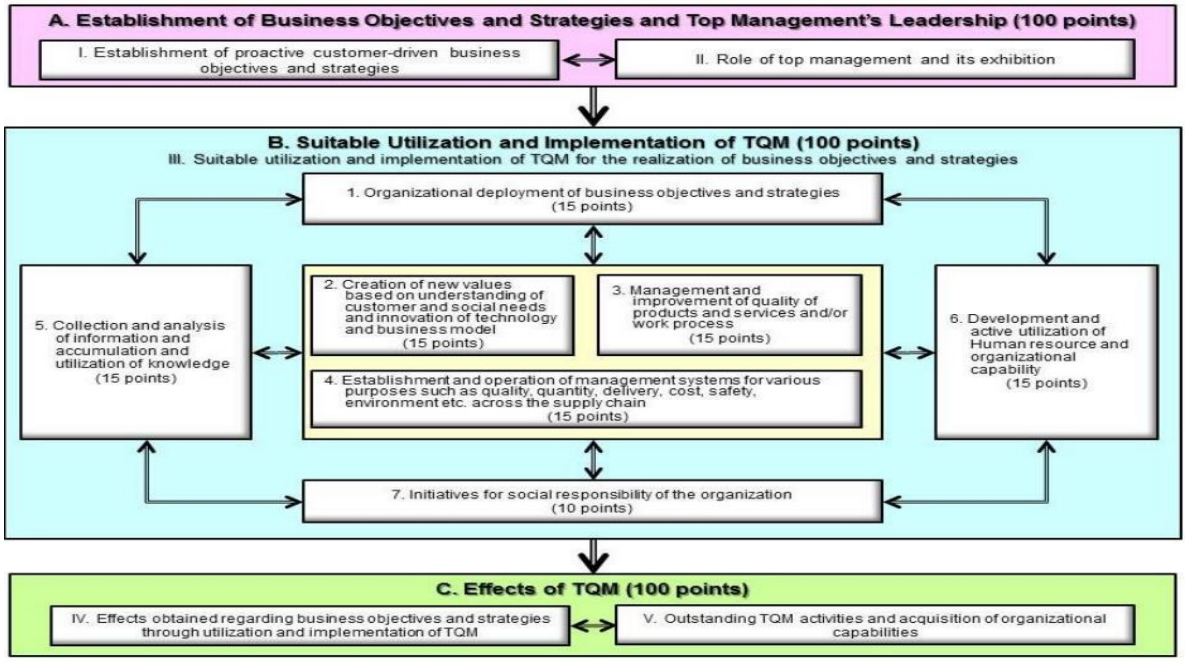


Figure 2.2: Deming Prize (Source: (UJSE, 2018))

The Deming Prize, being the first such quality award has in fact laid the foundation for the other awards.

2.7.2 The Malcolm Baldrige National Quality Award (MBNQA)

It was 36 years after the introduction of the Deming Prize, that the MBNQA emerged (in 1987) as a mechanism for enhancing competitive among American organisations. The MBNQA was established by the US National Institute of Standards and Technology (NIST) under the umbrella of the Malcolm Baldrige National Quality Improvement Act of 1987 (NIST, 2018), and was seen as a direct response to the substantial global success witnessed by Japanese companies as a result of the Japanese quality improvements brought about by the implementation of Deming's ideas (Ross, 2017).

The MBNQA is awarded to public and private entities having their headquarters in America, and was conceived as an accolade for quality in manufacturing, service, and small business organisations. However, in 1998, it was extended to offer prizes for education and healthcare, and in 2007, a further addition was the prize for non-profit organisations. Whilst there is a limit of 18 awards annually, there is no restriction on the number that can be made for each category.

Seven evaluation criteria apply to the competition, these being in relation to: leadership; strategic planning; customer focus; measurement, analysis, and knowledge management; workforce focus; operations focus; and results. Figure 2.4 shows the evaluation process in diagrammatic form. The assessment begins with a review of the document submitted by the organisation during the months of June-

August, and those charged with conducting this review do so independently in the first place, and then as a group, and the outcome of the group decisions places some applicants in the process for going forward, and others in the category of in need of feedback, which is duly provided by the panel. Organisations that satisfy the reviewers at this stage are then subjected to a site investigation in the following October, and from that visit, the assessors form decisions at a meeting in November. All the recommendations subsequently made are forwarded to the NIST Director/Secretary of Commerce, who then undertakes a thorough checking process to ensure that the proposed winners are compliant with legal and other regulatory requirements, and are indeed eligible to receive the award. The President of the USA presents the MBNQA (NIST, 2018).

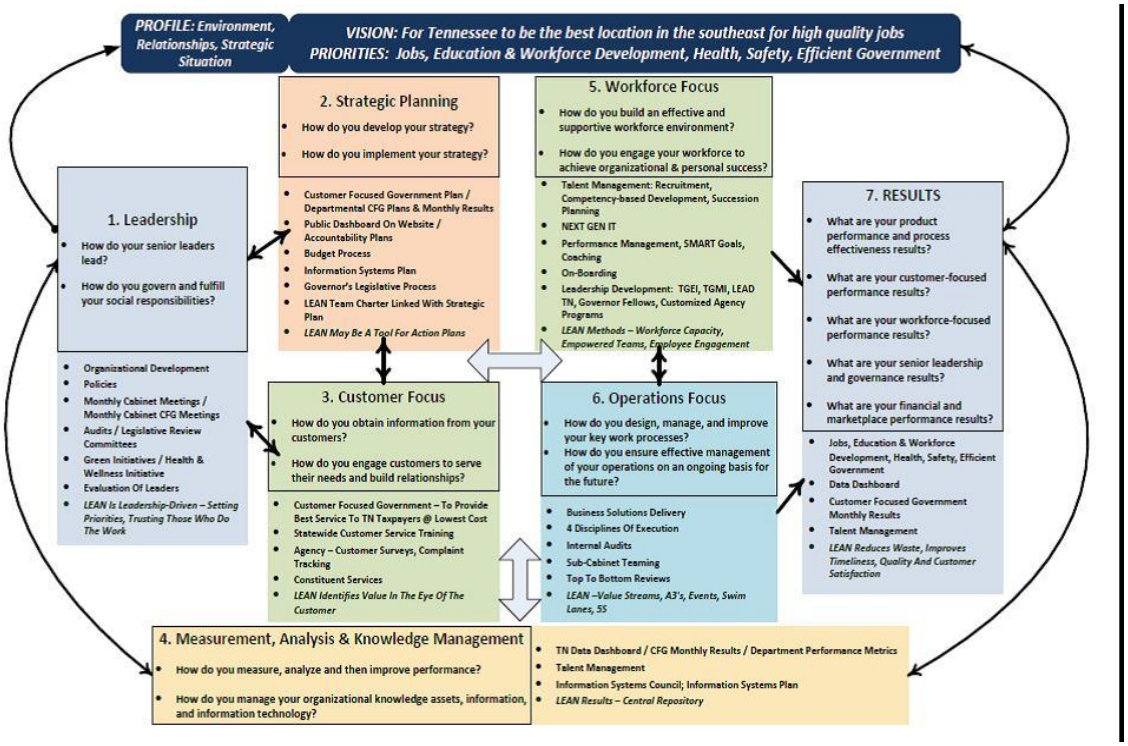


Figure 2.3: The MBNQA Evaluation Criteria.

2.7.3 The European Foundation for Quality Management (EFQM)

The European response to the Japanese and American initiatives to recognise quality came in the form of the European Foundation for Quality Management (EFQM) Excellence Award, which emerged in 1992, specifically for profit-making organisations. The intention of the 14 leading European organisations was to enhance the overall competitiveness of the continent and to ensure that its organisations could be sustainable (EFQM, 2018). The criteria invoked when making the EFQM Excellence Award relate to the addition of value for customers, the contribution towards creating future sustainability, the development of

organisational capability, being able to harness creativity and innovation, the demonstration of vision, inspiration and integrity among organisational leaders, the ability to be flexible in managing, agility, and organisational success seen as the result of properly using the talents of people to achieve and maintain excellent results (Suarez et al., 2016; La Rotta and Pérez Rave, 2017). The EFQM Excellence Model comprises 'enabler criteria' that address:

• Leadership - how behaviour/actions support a culture of 'Excellence'

• Policy and Strategy - how policy and strategy are formulated and deployed into plans/actions

• People - how the organisation realises the potential of its people

• Partnerships and Resources - how the organisation manages resources, including external resources, effectively and efficiently

• Processes - how the organisation manages and improves its processes.

In addition, the EFQM results criteria of the Model are concerned with what the organisation has achieved and is achieving for all its stakeholders.

The four dimensions of the model where results are addressed are:

• Customer Results - what are the customers' perceptions of the organisation and how good are the drivers of customer satisfaction?

• People Results - what are the employees' perceptions of the organisation and how good are the drivers of employee satisfaction?

• Society Results - how does society and the local community perceive the organisation and what results have been achieved relating to community and environmental concerns?

• Key Performance Results - what is the organisation achieving in relation to its planned performance?

As with the Deming Prize, and the MBNQA, the EFQM requires applicants to submit a written application, and in this case, the deadline is January. Thereafter, submissions are reviewed in March and April, and organisations that are deemed worthy of advancing in the competition are visited (usually over a one-week period) in June. The EFQM judges who consist of senior managers from leading organisations, meet in July to undertake a final review, and the eventual award is presented in October (Conti, 2007; EFQM, 2018).

Figure 2.5 presents the structure of the EFQM and the assessment criteria.

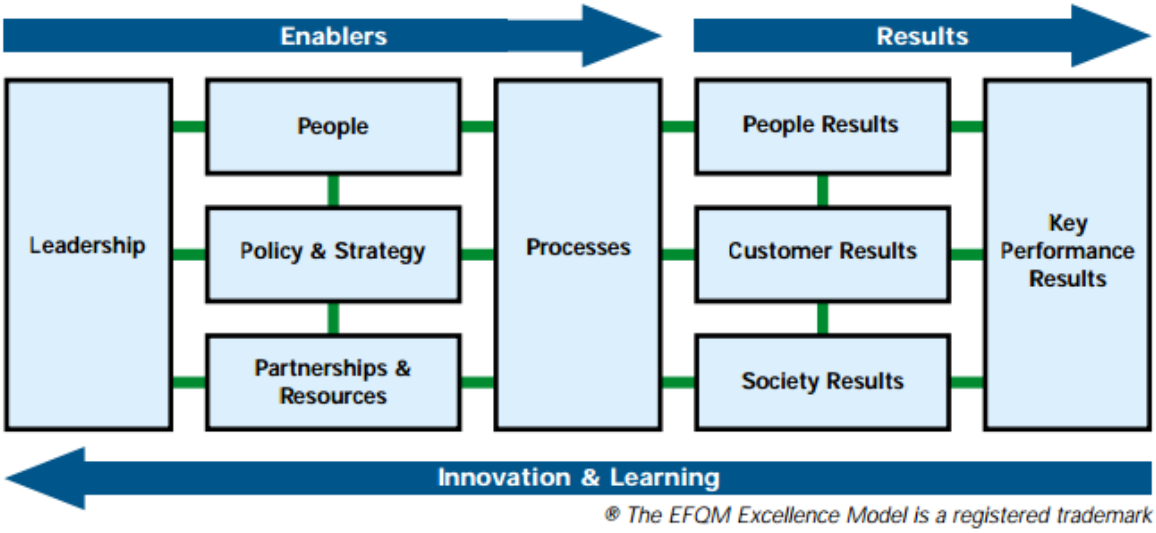


Figure 2.4: The EFQM Evaluation Criteria (Conti, 2007)

2.7.4 King Abdullah II Award for Excellence (KAAE) Jordan

Following the example set by the development of these quality awards and others, Jordan introduced its own excellence prize in 2002 when the King Abdullah II Award for Excellence was established by Royal Decree. Principally, this award aims to improve quality in all Jordanian organisations whether they be in the public or private sector, such that the Jordanian community is better served by them, and that the investment community is encouraged by the existence of genuinely sound investment opportunities (Abdallah et al, 2013). The intention is for all sectors of the Jordanian economy to be enhanced by the award which fosters an awareness and appreciation of the notions of comprehensive quality administration and distinguished performance (Rawabdeh, 2008). With such awareness, it is believed the award can help transform Jordanian institutions and companies with the result that they become more innovative, competitive, and ultimately, productive. Knowledge sharing among those organisations is encouraged by the award, and this is believed to lead to distinguished performance, which is the desired outcome (Samawi et al, 2018).

There are three prizes within the KAAE - one for the private sector, one for the public sector, and the Distinguished Employee Award. Clearly, therefore, the award is applicable to both the public and private sector, but whereas all governmental organisations are mandated to apply for the award, private sector ones have a choice (Samawi et al, 2018; KAAE, 2018). Moreover, there is the restriction that a

company wanting to be considered must employee a minimum of 50 people. And unlike, the three previous Quality Prizes already discussed (Deming, MBNQA, and the EFQM), the KAAE is not awarded on an annual basis, being once every two years instead (KAAE, 2018).

Structurally, the KAAE focuses on five elements of QM, these being leadership, operations, individuals, knowledge and finance. In respect of leadership, organisations are examined on the basis of their ability to show effective direction so that resources are used appropriately to achieve their respective goals. In terms of operations, they are examined on the basis of their general infrastructure to support strategic planning, and to instil and sustain a suitable organisational culture for the enhancement of quality. In terms of individuals, there is scrutiny of the organisation's commitment to employee improvement; and with reference to knowledge and finance, there is an expectation that the organisation has in place appropriate procedures and policies to predict future trends, to develop a vision, and an organisational mission that corresponds to the needs of their internal and external environment. This wide-ranging bundle of knowledge should be translated into the proper management of human resources, financial resources, and information resources (KAAE, 2018).

This 'proper management' requires organisations to demonstrate their commitment to the development and maintenance of an effective communication system that permeates the entire organisation structure. Attention to these five dimensions of organisational life is believed to result in high product and service quality which can be confirmed through measures of employee satisfaction, customer satisfaction, supplier relations, and environmental impacts. The evaluation of these aspects is undertaken by national and international experts, and according to objective international standards.

2.7.5 ISO 9000 Certification

Somewhat different from the various national quality awards discussed so far, is ISO 9000 Certification, which testifies that an organisation has reached the standard set by the International Organisation for Standardisation (ISO) in terms of controlling quality. Several revisions to these standards have been made over the years since their original publication in 1987. Specifically, these revisions were made in 1994,

2000, 2008 and 2015. In the 2000 revision, SO 9001, 9002, and 9003 were combined and renamed ISO 9001, and in the most recent revision 2015, the ISO established an implementation plan to guarantee a straightforward advancement to a new set of accredited certificates known as ISO 9001 (2015), which has now become the current version.

As a standard for QMSs which has been widely adopted, ISO 9001 offers standardised requirements that are appropriate irrespective of the potential variables characterising different organisations. For example, issues concerning industrial/economic sector, public or private enterprise, ownership, and size are all accommodated by the standard. Moreover, the standard provides an established route which organisations can follow if they do not have the resources to design their own management approaches, and which also gives instances of the advantages to be gained from its implementation. In addition, to help managers it gives examples of the actions they can take in their implementation efforts. This enables organisations to be consistent in their production of goods and services, and hence, to ensure they continually provide customer satisfaction by meeting customers' expectations.

The principles of QM as described within the standards in ISO 9001 (2015) are:

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. Mutually beneficial supplier relationships.

All the fundamental principles of a QMS are contained within ISO 9000, and therefore, the standard serves as a valuable reference. Additionally, the performance guidance provided in ISO 9004 is supportive to managerial efforts to ensure continual system improvement (ISO 9004, 2018). The system requirements which appear in ISO 9001 emphasise compliance, and relate to any organisation that designs, develops, manufactures, installs, and/or services any product; or that

provides a service of any form. As observed by Murmura et al.(2018), the standard is concerned with specifying what is needed of an organisation if it wishes to satisfy its customers, and with emphasising the continued improvement of the QMS. This issue of providing potential buyers of a product or service with a guarantee that it will meet a given quality criterion, is discussed by Youssef and Youssef(2018), who believes that the entire ISO 9000 series of standards are valuable for all organisations as vehicles for advancing, and documenting the existing QM practices. Likewise, Hoyle (2017) has also confirmed that the aim of the ISO 9000 series is to provide purchasers with a guarantee both of product/service quality, and that it will satisfy their precise needs.

One important benefit of the ISO standards, not yet mentioned, is that because of their international base and appeal, they serve to remove trade barriers between countries. This point is highlighted by Cai and Jun (2018) who note that the promotion of standardisation is useful in this connection as the international exchange of goods and services is facilitated. Moreover, in this process, co-operative developments are seen in international economic, technical, and intellectual matters. Likewise, (Quazi and Padibjo, 1998; Rahman, 2001; Chapman and Al-Khawaldeh, 2002; Jang and Lin, 2008; Terziovski and Power, 2007; Srivastav, 2010; Han et al., 2007; Prajogo and Brown , 2006; Martines et al., 2009; Sila, 2007; Martinez-Lorente and Martinez-Costa, 2004; Masakure et al., 2009; Oliveira et al., 2017) observes that the possession of ISO 9001 certification supports the implementation of process management, and improved operational performance.

It has been shown that periodic review of ISO 9001 is a regular feature, occurring to make certain that the set of standards remains appropriate. Technological developments are continually changing the modus operandi in both industry and services, and their assimilation sometimes requires change in the standards to accommodate them. This underpinning rationale for change can be seen in respect of the ISO 9001:2015 standard that was introduced for those organisations unable to derive their own route to a systematised approach to production as a means of consistently producing outputs to the satisfaction of customers. Having been introduced, however, ISO 9001 in 2015 particularly represents a substantial move

towards TQM in the service sector, and it is to an examination of the service industry that the next section turns (ISO ,2018).

2.8 Quality Awards – Summary

It is obvious that as these various quality awards have developed, they have reflected the ideas of the prominent thinkers in the field of quality in those particular countries, and that the specific situations of those countries have been influential in determining what is considered to be important for their economies, and companies that are contributors. Indeed, several researchers (see for example, Ghobadian and Woo, 1996; Ranjan Kumar, 2007; Bou-Llusar et al., 2009; Talwar, 2011; Gouthier et al., 2012; Boulter et al., 2013; Raharjo and Eriksson, 2017; Dahlgaard and Mi Dahlgaard-Park, 2018) have made this point, confirming that they do all promote the enhancement of quality within organisations, yet simultaneously show differences in their structure and focus, and as noted by Eriksson et al.(2016), do also undergo some modification in an evolutionary way.

It is suggested by Lee (2002), for instance, that the Deming Award is heavily concentrated on the 'plan-do-check-act' (PDCA) approach, whilst the EFQM is more concerned with the effect of improved quality on financial outcomes, and the satisfaction of customers, employees and society. On the other hand, the American MBNQA focuses on the influence of drivers, systems, progress measures and goals upon customer satisfaction. The framework of the BE, indeed, could be used as a guideline for implementing strategies and predicting the performance of the organisation (Escrig and de Menezes, 2015). What is obvious is that each organisation, whether in the public or private sector has certain unique features and consequently, all TQM approaches (which are in turn reflected in the national quality awards) must be customised to some degree. What is also obvious is that any organisation that has been awarded a quality award, is considered by society to have successfully implemented TQM (Sampaio et al., 2012).

2.9 The Service Industry

Simmering (2010) notes that the outcomes of all economic activities fall into two broad classifications, these being goods and services. The latter is referred to as the service sector, and is both wide-ranging and far-reaching, embracing areas of industry such as communications, transportation, banking, insurance, wholesale

and retail trade, health, education, and a whole range of professional services, among which are engineering, maintenance, medicine, consumer and government services (Millward, 2004; Evan and Lindsay, 2013; Talib et al., 2013). In America, the North American Industry Classification System (NAICS) provides details of what enterprises are included, thereby demonstrating the broad scope of the service sector. Similarly, in Jordan, ministry of Industry, Trade and Supply (MIT) provide the details and the classifications.

Clearly, encompassing such a wide variety of industries, organisations, and activities performed by service providers, it is somewhat difficult to arrive at a simplistic classification of the service sector (Mazurenko, 2015). However, Table 2.1 and figure 2.6 depicts the service sector as it appears in Jordan and their Relative Importance of Economic Sectors to GDP in 2017.

Table 2.1**:** The Jordanian Service Sector

Sectors	Services	GDP 2017
Hotels, restaurants and Trade,	Hotels , restaurants and Retail ,trading	11.6%
Communications ,Transport and Storage	Telecommunication services Courier service Computer software Information technology enabled services (ITeS) Road transport and allied services Railway transport and allied services Air transport and allied services Shipping transport and allied services Transport logistics services Storage and distribution	17.5%
Finance, real estate and business services	Banking services Investment services Asset financing services Other fund-based financial services Fee-based financial services	24.4
Other services	Health services Education Business consultancy Government services	13.2
Total service-producing sectors (GDP)		**66.6%**

Source (Central Bank, 2017).

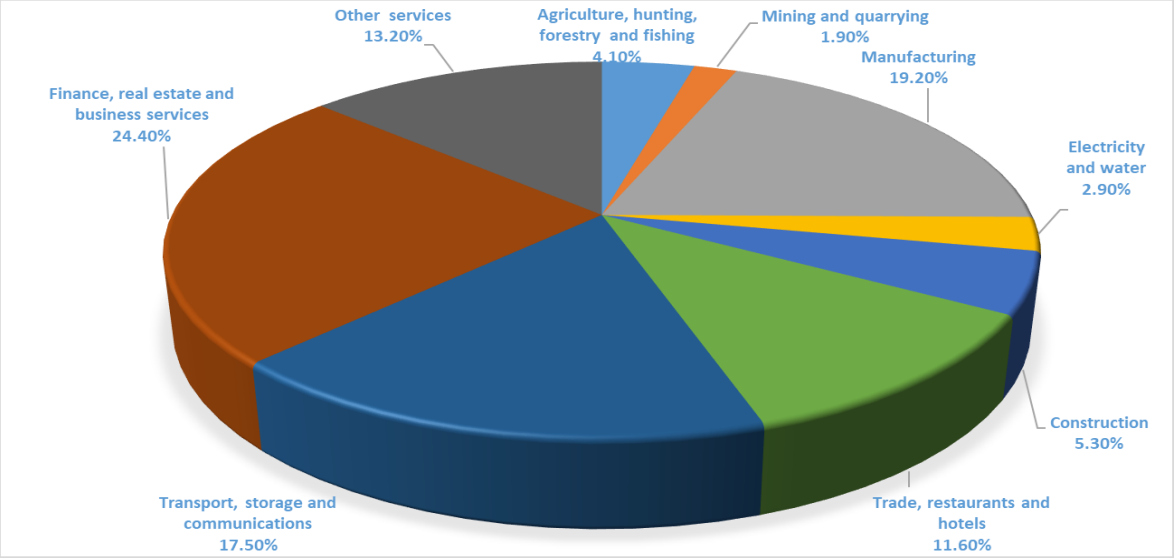


Figure 2.5: The Relative Importance of Economic Sectors to GDP in 2017(Central Bank, 2017).

It can be clearly seen in the Table 2.1 and Figure 2.5 that the service sector within Jordan is dominated by businesses in the private sector. The privatisation process within the country is was key focus that was adopted by the government to enhance the economy since the early 1990s in a bid to try and achieve reform, leading to greater independence (Central Bank, 2017). The experience for Jordan began from 1998 to 2008 when the Jordanian government privatised a total of 14 enterprises owned by the state to include electricity, telecommunications, mining, air transport and amongst others (World Bank, 2017).

Account was taken of global economic developments within the new globalisation era which led to the removal of tariff barriers, thereby increasing competition, and liberalisation of the administration of world trade. These were seen to aid capital flows within the country. Conventions reflecting similarities to the EU, the accession to the WTO and the moving trend to an Arab zone for free trade were all considered helpful in the penetration of new markets to support the economy for the country (Shehadeh et al., 2016).

As distinct from the manufacturing sector, the service sector delivers intangible products (services), which as noted by the Lovelock and Patterson(2015), are often consumed simultaneously. Such intangible products include those provided by universities, hospitals, banks and law firms, and as can be appreciated, these products are activities that usually involve a degree of interaction between the employees of those organisations and the customers (clients, guests). This is the

embodiment of the service concept, according to Gronroos (2001), who also notes that in the provision of these products/services, the providers are generally aiming to offer a solution to a customer problem. Evans and Lindsay (2013) offer a more academic explanation, considering a 'service' to be an activity that does not directly result in a physical product. They note that the NAICS describes service organisations as those with the prime purpose of offering a wide range of services to clients, whether those be individuals business and government establishments or other organisations. Examples of services have already been given but in addition, the provision of a service can include a very simple activity as for example, dealing with a customer complaint, to something much more complicated like for example, approving a bank loan. The key point to grasp is that when defining the service sector, it is the acts undertaken by individuals in the interests of reaching a solution for the customer, and the provision of a solution that count as added value (Edvardsson et al., 2018). Clearly, there is a concentration in these attempts to generate definitions specifically, on the need for the customer to be satisfied that the problem is solved. However, services themselves can be perceived differently, for example, as something objective, or as something which is constructed between provider and customer at the point of interaction (i.e. as a process) (Edvardsson et al., 2018).

This notion of a process is important in a TQM situation. Indeed, Bueno et al. (2019) believe there is a need for service organisations to ensure that the various activities required to solve the problems of customers should be delivered in a seamless way such that they become one complete process which renders the value desired by customers, and which is ultimately, much appreciated.

In today's global economy, an extremely important role is played by service industries, since they contribute to national survival and development (Talib et al., 2012; Singh et al., 2018; Bueno et al., 2019). Additionally, societies worldwide have come to demand more services, and not surprisingly, there has been substantial growth in the sector, which has brought rivalries among organisations, and the accompanying need for enterprises to improve their working processes to remain competitive (Bouranta and Psomas, 2017). This pressure has in fact been documented as a constant challenge in the service industries which have entered a global recession, subsequently presenting them with the need to reduce costs, improve flexibility, and reduce lead times; all of which are the predicted benefits from introducing TQM (Jaca and Psomas, 2015). Not surprisingly, therefore, the

response from the service industries has been to adopt TQM as a vehicle to realise better business performance, and thus to acquire competitive advantage (Akhtar et al., 2014).

From what has been seen so far in the literature about the need for all organisational members to be involved in TQM, it can be understood, that in the service sector where there is even greater contact between employees and customers, it is imperative that top management establish the culture and environment whereby all staff want to, and indeed are empowered to participate in the TQM implementation (Khan and Naeem, 2018). Certainly, it is demonstrated that competitive advantage has accrued to many industries within the service sector as a result of their application of TQM (Owlia and Aspinwall, 1997; Antony et al., 2002; Agus, 2004; El Shenawy et al., 2007; Davies, 2008; Jaca and Psomas, 2015; Bajaj et al., 2018). However, it is suitable to explore the nature of service sectors to determine how Total quality management can best be presented and practised, and this will be in the next section.

2.9.1 Service Organisation Characteristics

Grönroos (2001) identifies four fundamental differences between goods and services, which cascade into operational variations in the characteristics displayed by service organisations and manufacturing ones. These characteristics are: inseparability, intangibility (of production and consumption), heterogeneity (i.e. non-standardisation), and perishability (Dean Jr and Bowen, 1994; Cronin Jr et al., 2000;Mohanty and Lakhe, 2008), and they are the most often stated in operations textbooks when considering the nature of service, although dimensions such as the absence of ownership in service purchases are also mentioned (Moeller, 2010). That said, it is also acknowledged that these characteristics are offered on the basis of observation and not on empirical investigation (Edvardsson et al., 2005).

Researchers have highlighted the presence of these major characteristics of service for the implementation of TQM (Ghobadian and Gallear, 1996; Prajogo, 2005; Brah et al., 2000; Chung Woon, 2000; Talib et al., 2013; Amin et al., 2017; Bouranta and Psomas, 2017), pointing out, for instance, that the intangible nature of services precludes them from any attempt to secure uniformity in either their quality, nor in the way their delivery can be measured. Moreover, managers have much less opportunity to control service quality, since standardisation during delivery cannot be assured, and even if that were possible, the actual service encounter involves

the customer and there can be no managerial control on the reactions of the customer. Consequently, irrespective of the success known to have been achieved in the manufacturing sector, the management of quality within service organisations is difficult, and to highlight the problems, the four basic characteristics of service organisations are now explored.

Intangibility

As already indicated, the intangibility of service products means that they cannot be compared to physical objects, and are instead embodied in those products activities conducted by company employees, often in interaction with customers. Customers themselves experience problems in assessing services, and it may be that as a basic guideline, they take their cost, and possibly the recommendations of friends and family, as an indication of quality (Edvardsson et al., 2005; Windahl and Lakemond, 2010). At the same time, it must be remembered that some services simply cannot be experienced in any way at all before they are consumed, and therefore, that the decision to purchase them is no more than a 'shot in the dark'. On the other hand, some services may be standardised by the use of IT (e.g. internet-based and telecom services) or by operations which are machine-intensive, as for example, automated banking machines. In all these cases, however, the development of output measures is difficult, and even if this is accomplished, the ability to communicate them to customers is equally hard (Ali and Raza, 2017). Likewise, there is no possibility of customers being able to visualise the service because the service lies in the process, and consequently, the promotion of services through the usual advertising means is another difficulty encountered by service marketers. The only way to alleviate this problem is for the promoters of services to show some evidence of their worth, and as noted by Grönroos (2006) and Jaca and Psomas (2015), this can be done by providing statistics relating to the number of satisfied customers, etc. Of course, as much depends upon the actual encounter between the employee and customer, and that encounter may be only a few seconds or much longer, it is crucial for service organisations to focus on moulding employee behaviour in a range of circumstances, on encouraging their performance, and on facilitating an organisational culture which allows experimentation on the part of employees to find different ways of 'getting things right'. It is also necessary to remember that although the service encounter is an intangible, the outcome of that encounter may remain as a tangible memory with the customer long after the service has been delivered (Mohanty and Lakhe, 2008).

Inseparability

The inseparability of production and delivery is a major characteristic of services, which means that service companies have no stock as such and consequently do not have the means to check what they present to the customer in advance. Obviously, there is the potential for problems in the quality of what is actually delivered to customers (Ghosh and Ling, 1994), and this demands skill on the part of service employees to ensure that their interaction with customers provides a satisfactory experience (Edvardsson et al., 2005; Mohanty and Lakhe, 2008 Ronnback and Witell, 2008).

Variability

Clearly, that can be a problem for service organisations (Lovelock and Patterson, 2015) as the service encounter depends not only on the employee who can be trained, but on the customer who may be awkward and difficult to deal with. This precipitates a variability in the service product that is not present in physical goods. Such variability can be reduced by a genuine concentration on training but individuals cannot function as reliably as machines, and the quality of their performance is difficult to control and evaluate. At the same time, it has to be remembered that the entire environment makes a difference to how employees deliver the service, and that includes not only the customers with whom they interact, but the physical surroundings, and the time of day for example (Edvardsson et al., 2005; Ronnback and Witell, 2008). From this it must be appreciated that there can be no guarantee of homogeneity in the delivery of services, yet as noted by Ghosh and Ling (1994), this can present service companies with an opportunity to differentiate themselves from others by responding flexibly to the needs of customers.

Perishability

The inseparability referred to earlier leads to a situation of perishability since the consumption of the service occurs at the same time it is delivered. There is no possibility of storing the service for the future. Rather, it has to be produced in accordance with demand, and naturally that can vary (Ghosh and Ling, 1994). Hence, a service company can never know what ‘stock’ it holds, other than the number of service staff it employs (Windahl and Lakemond, 2010). If service staff are available for example, for an expected busy period which does not actually materialise, the time of those staff cannot be warehoused. It is lost. Consequently,

it is important for management to be capable of accurate prediction of service demand (Edvardsson et al., 2005; Ronnback and Witell, 2008), yet this is not easy and capacity issues often arise in service companies because of the uncertainty relating to both task characteristics and task interdependencies (Edvardsson et al., 2005).

2.10 TQM in the Service Sector

Given the four characteristics of service briefly outlined, it can be understood that appropriate management systems must be conceived and implemented to assure quality (Lovelock and Patterson, 2015)and in this respect TQM has emerged over the past thirty years as an important tool. Following the success experienced by industrial and manufacturing organisations after taking on board the ideas of the quality gurus already discussed earlier in the chapter (Al-Khawaldeh, 2001; Zhang et al., 2000; Prajogo, 2005; Kumar et al, 2011; Dubey and Gunasekaran, 2015), TQM principles began to be applied in service scenarios. However, as noted by Brah et al. (2000), and Calvo-Mora et al. (2013), the distinguishing features of service organisations and the 'product' diversity within them, raise doubts about the effectiveness of any attempted TQM philosophy. That said, there has been wide introduction of TQM in service companies since the 1990s, underpinned by the belief that adherence to the overall ideas associated with the internalisation of a total quality approach will bring enhanced service levels, organisational performance, and competitiveness.

Indeed Ebrahimi and Sadeghi (2013) praises TQM as being appropriate for all organisations irrespective of type, since its embodiment of generic core principles is not constrained by considerations of the particular scenario in which it is practised. In this connection it is the 'soft' aspects of TQM that are believed to be so valuable since these concentrate on changing attitudes and behaviour, on promoting effective leadership, a focus on customers, employee participation, training and empowerment. Likewise, benchmarking, continual improvement, and organisational development through cultural change, are also essential features that have as much meaning in the service industry as in manufacturing. The key would seem to be to pursue these ideals in the most appropriate way for the industry rather than introducing techniques used in manufacturing which have no compatibility with service situations (Gustafsson et al., 2003; Prajogo, 2005; Valmohammadi, 2011 Clegg et al., 2013; Aquilani et al., 2017). Indeed, there is much room for this type of

approach, since the various quality awards discussed earlier (Sections 2.7.1-2.7.3) acknowledge the differences and the need for differing strategies (Flynn et al., 1994; Black and Porter, 1996).

The growth in interest in the service sector has been evident since the latter half of the 20th century as noted by Dotchin and Oakland (1994), and Ghobadian et al. (1994) who reported this to have assumed dominance with the industrialised countries' economies. Augustyn et al. (2019) attributed this increased attention to the economic importance of the sector, and the fact that the quality of service is crucial in securing competitive advantage and business excellence in all organisations, whether they be concerned purely with the provision of services, or manufacturing. The prominence of the sector was witnessed in the contribution made to GDP in 1989 of 69% in the USA, 67% in France, 62% in the UK, 60% in Germany, and 56% in Japan (Ghobadian et al., 1994). However, in 2017, contribution which made to GDP is 77% in USA, 67% in France, 70% in the UK, 70% in Germany, 69% in Japan and 65% in Jordan (Word bank, 2017). Such contribution was seen in the increasing variety and numbers of organisations providing services, for example, in finance (banking and insurance), hospitality and travel/tourism (restaurants, hotels, entertainment), healthcare, education, legal organisations, retailing, advertising (market research), consultancy, communications, transportation, and information. Moreover, the growing participation within the sector of private and non-governmental organisations (Dotchin and Oakland, 1994; Lakhe and Mohanty, 1995; Brah et al., 2000; Pattanayak et al., 2017; Augustyn et al., 2019) brought with it substantial expansion in employment, as the huge numbers of organisations involved in providing services in one way or another sought to become competitive.

Not surprisingly, therefore, TQM implementation has been widely adopted in the service sector, as the means to enhance organisational performance, and indeed the phenomenon has been explored by many researchers (see for example, Dotchin and Oakland, 1994; Badri et al., 1995; Black and Porter, 1996; Brah et al., 2000; Lemak and Reed, 2000; Hing Yee Tsang and Antony, 2001; Mellahi and Eyuboglu, 2001; Gupta et al., 2005; Prajogo, 2005; Al-Marri et al., 2007; Sit et al., 2009; Salaheldin and Mukhalalati, 2009; Kaluarachchi, 2010; Kumar et al., 2011; Alolayyan et al., 2011;Talib et al., 2011; Valmohammadi, 2011; Al-Ababneh and Lockwood, 2012; Al-Ettayyem and Al-Zu'bi, 2015; Jaca and Psomas, 2015; Fatemi et al., 2016; Psomas and Jaca, 2016; Pattanayak et al., 2017; Samawi et al., 2018;

Augustyn et al., 2019). In the UK context, it was found by Hing Yee Tsang and Antony (2001) that the driving force was the need to achieve a customer focus, and that this was believed to result from top management commitment, continuous improvement, teamwork, employee involvement, and recognition of employees for performance.

In fact, it is clear from this study, and an earlier one by Woon (2000), that no significant difference appears between service and manufacturing organisations in respect of these so-called 'soft' factors, but that a definite difference is evident in respect of the hard factors of TQM, that is to say in the use of statistical tools to analyse processes and performance. Likewise, in his study of TQM implementation in service and manufacturing scenarios in Australia, Prajogo (2005) was unable to find any significant difference in the strategies adopted; and in a similar study in India, Kumar et al. (2011) and Ooi (2015) found a similar outcome, reporting the need for the same success factors in both sectors, but an appreciation of varying levels of importance of these factors according to the context. With a focus on service sector, Jaca and Psomas (2015) explored the critical success factors in Spain, concluding the need for management enthusiasm and full commitment to TQM, national support to raise awareness of TQM and help both during and after its implementation, and a high level of managerial competence. These outcomes mirror those obtained in the developed countries, providing evidence that TQM as a philosophy can be applied globally.

Also in the banking sector, research has been conducted within the context of the UAE, Pakistan, Australia, and Korea, among other places. Specifically in respect of the UAE, Al-Marri et al. (2007) identified sixteen critical success factors for the effective implementation of TQM; in Pakistan, Naeem et al. (2011) focused on the degree of implementation of TQM in commercial banks, finding that the majority were in the early stages of introducing the philosophy although some had completely implemented it; and in a comparative analysis of the banking sectors in Australia and Korea, Kayis et al. (2003) identified positive outcomes of TQM implementation, for example greater employee and customer satisfaction and loyalty, whilst simultaneously highlighting the barriers to implementation.

Other service industries have also attracted attention, the healthcare sector being one of these. Indian healthcare establishments formed the focus of a study by Talib et al. (2011) who explored best practice in TQM implementation, identifying eight

critical success factors, which reflect those highlighted by other researchers. Specifically, these were: top management support, teamwork and participation, customer focus and satisfaction, resource management, process management, appropriate organisational behaviour and culture, training and education, and the drive for continuous improvement. Likewise, in a study of TQM implementation in Sri Lankan hospitals, Kaluarachchi (2010) concluded that it was the entire culture of those organisations which promoted a customer focus with the result that a number of national quality awards had been made to them. And in the Qatari context, Salaheldin and Mukhalalati (2009) found that in achieving continuous improvement in both the public and private healthcare sector, top management support together with employee training and involvement were the critical elements of their TQM practice. The common theme emerging from all these studies is that the healthcare sector can benefit substantially from the improved client focus generated by TQM initiatives.

In the service sector generally in Malaysia and Singapore, researchers have evidenced enhanced financial and business performance resulting from successful TQM implementation, with Brah et al. (2000) especially identifying the soft factors already mentioned as being important (i.e., top management support, customer focus, employee involvement, employee empowerment, and quality improvement rewards) in Singapore and in Malaysia, studies by Samat et al. (2006), and Ooi et al. (2011) have provided other insights. For example, Ooi et al. (2011) took small service firms as their unit of analysis, finding a positive effect on their service quality and customer satisfaction as a result of their implementation of TQM approaches; and Samat et al. (2006) explored the aspects of TQM that have impacts on the one hand on service quality, and on the other hand on market orientation. Their findings revealed that customer focus, continuous improvement, information and communication, and employee empowerment are significantly associated with service quality, yet only employee empowerment and customer focus have a significant effect upon market orientation.

What is common throughout all these studies, which represent just a small number of those already published is that the aspects of TQM bring them benefit as they ultimately improve the experience provided to the customer and thus place the organisations concerned – wherever they are positioned within the service sector – in a more competitive place than before they implemented TQM. Moreover, the opportunities available to publicise their improved client orientation and experience,

that is to say through the various quality awards which have international recognition, provide all service industries with added motivation to be successful in their TQM implementation since their overall company image is substantially enhanced by the possession of any such award. In addition, what is also apparent from the studies mentioned is that TQM can be successful in the service sector, irrespective of whether that be in a developed or developing economy.

2.11 TQM in Jordan

However, despite the early success mentioned in the Qatari healthcare sector (see Salaheldin and Mukhalalati, 2009), it is true to say that in many Middle Eastern countries there is a reticence to implement TQM on the grounds that the entire approach has its roots in Western economies and that its fundamental concepts may be at odds with Middle Eastern culture, for instance in terms of relationships between employer and employee, and the degree of empowerment allowed to employees. Consequently, in those Middle Eastern countries where TQM has been introduced, its development can be seen to be in its infancy, as also shown in the previous section in respect of Pakistan's banking sector (see Naeem et al., 2008).

This situation is reflected by the lack of published research in the Arab countries, as noted by Al-Marri et al. (2007), and is believed to be the outcome of a general inappreciation of QM in the Arab World. Such a situation springs from the Arab region's strong emphasis on ISO certification, and the consequent inattention paid to the development of other QM models and approaches (Al-Zomany, 2002; Abusa and Gibson, 2013). Indeed, it was found by Al-Kalifa (2000) that of the 95 respondents to his survey conducted in one of the Arab Gulf areas, only nine reported having a sound understanding of TQM and the reasons for its implementation.

This is not surprising given what has already been said about Middle Eastern culture differing from Western culture. Indeed, it has been accepted that culture is crucial in determining the success of QM acceptance and implementation, and that quality initiatives need to be tailored to organisational (and therefore, national) cultures (Walshe, 2007; Tannock and Ahmed, 2008). On the other hand, however, Sila and Ebrahimpour (2003) observe that certain TQM approaches can be effective irrespective of culture and the external and organisational factors.

With these ideas in mind, the issue of Jordan's likely acceptance of TQM is important, and in this respect, there have been a few studies to date which have

sought to explore the progress so far. Al-Khawaldeh (2001) for example, focused on industrial organisations, using a TQM model including eight dimensions, these being: employee participation, education and training, organisational communication, customer focus, scientific approaches to decision-making, statistical methods for quality control, organisational commitment to quality and continuous improvement, and unity of purpose. The findings obtained in this study were that TQM implementation was either at a high level, or a low level (i.e. there was no evolutionary continuum), rather suggesting that in Jordan there had been early adopters, and complete sceptics but that after seeing the benefits obtained by the early adopters, the sceptics began to come to the scene late. That said, in the context of healthcare, Al-Marsumi (2007) and Al-Shdaifat (2015) focused on hospitals in Jordan, finding that their implementation of TQM was at a comparatively advanced stage and had demonstrated a definite performance enhancement. Al-Zu'bi and Judeh (2011) also explored the use of TQM constructs in the same context, specifically a private hospital in Jordan, concentrating on the attention given to seven dimensions, these being: customer focus, employee involvement, management commitment, teamwork, continuous improvement, training and organisational culture.

Clearly, the limited evidence from the healthcare sector is positive, whereas that coming from the education sector is less so, as noted by Altahayneh (2014) who concentrated on Higher Education Institutions. They found their research sample to be aware of the value of TQM, and to be able to judge which factors were important to successful implementation, reporting administrative leadership, design processes and quality management, strategic planning, human resources management and development, quality evaluation, data collection systems and analysis, and beneficiary satisfaction to be the crucial elements. However, from their rankings and thoughts about the preconditions for effective TQM implementation, it can be seen that some other fundamental requirements were missing. For instance, teamwork, continuous improvement, and co-ordination and collaboration organisation-wide were completely ignored, thereby not providing the conditions within which creativity and innovation could emerge and develop.

Likewise, in the Jordanian banking industry, Al-Shobaki et al. (2010) found the presence of TQM, demonstrating a strong top management appreciation of the need to adopt the philosophy, but its implementation was restricted to a focus on: customer needs, employee needs, continuous improvement, and management

competition needs. Hence, no specific attention was seen to be being paid to the wider issues of employee empowerment and organisational culture change which would allow this.

Nonetheless, the national aspiration for good QM is embodied within the Jordan Quality Award (King Abdullah II Award for Excellence, 2018), which came into being as a direct response to the need to improve the competitiveness of Jordan business. The JOQA (KAIIAE), being the highest accolade available in the country for the recognition of quality, promotes quality awareness and performance excellence through providing recognition of exemplary quality and business achievements of Jordanian companies, and by publicising and promoting business strategies that are shown to be successful in the struggle for quality. As noted in Section 2.7.4, the award is made every two years, and is made on the basis of one each to manufacturing companies or sub-units, service companies or sub-units, small or medium size manufacturing companies, and small or medium size service companies (Rawabdeh, 2008). Hence, it stretches across the full range of the economy and gives service organisations as well as manufacturing ones the incentive to improve.

2.12 TQM Implementation – An Overview

From the discussion so far it can be appreciated that the implementation of TQM requires certain preconditions and resources for it to be effective, and given the knowledge that it is a certain means of increasing performance and competitiveness as confirmed by Valmohammadi and Roshanzamir (2015), and Dahlgaard and Mi Dahlgaard-Park (2018), it is thus important to consider what those pre-requisites are. Clearly, it has been shown that TQM practices vary according to the national/cultural context (Jabnoun and Khafaji, 2005; Green, 2012 ; Boulter et al., 2013; Fu et al., 2015; Kumar, 2017), so this is one important ingredient in the mix, and perhaps one that identifies how ready an organisation might be to even contemplate the introduction of TQM initiatives.

Hence, organisational readiness is crucial, since if the building blocks to underpin the new managerial philosophy are not in place, there is no potential for the philosophy to be taken on board. Fu et al (2015) makes the observation that in this respect, many organisations have encountered difficulties when trying to implement their quality initiatives. Essentially, they have not demonstrated their readiness to embark upon them, since employee commitment to deliver total satisfaction to

customers has not been secured and that is often because the organisation's mission, vision, and strategies have been formulated without the involvement of employees, who ultimately are those who take responsibility for quality efforts (Yunis et al., 2013; Psomas and Jaca, 2016). Moreover, Brah et al. (2002) and Ebrahimi and Sadeghi (2013) observe that successful TQM implementation is in the moment, i.e., whether a firm has had a good history of this is immaterial because if employees lessen their commitment for any reason, the TQM implementation will fail. Therefore, the precise factors that determine success must be identified.

In doing this, it becomes apparent which factors operate to place an organisation on the road to failure, and in this connection the ambiguity of certain TQM concepts, the inappropriate approaches adopted to implement the philosophy, and the overall way in which employees practise TQM are all outlined as obstacles (Fotopoulos et al., 2010). Essentially, each one of the four mechanisms of TQM implementation (quality control, quality assurance, continuous improvement, and total customer satisfaction) must be accorded the same attention, as the first two address the control aspect, while the second two concern the learning aspect of organisations (Mitra, 2016).

It is argued by Ho (1999) and Hashim and Chik (2014) that a theoretical model is needed by an organisation wanting to implement TQM since this would provide the right guidance and ensure a logically-sequenced process. His suggestion is for a sequence of five activities known collectively as TQMEX that works on the principle of 'Keep It Short and Simple (KISS)', and which can be followed by all organisations wherever they might be in the world. Those five activities are:

- 5S (to embed the TQ environment)
- Business Process Reengineering (BPR) (to properly meet customers' needs)
- Quality Control Circles (QCCs) (to encourage employee participation in continuous improvement)
- ISO Certification (to develop the good QM practices established in the previous three steps)
- Total Productive Maintenance (TPM) (the application of 5S to equipment based on a sound QMS)

Villegas and Villegas (2014) suggests that together these five elements will guarantee an effective TQM implementation and that in cases where companies

have started to implement TQM they should ensure that the TQMEX is followed step-by-step, and not progress until each step has been completed.

2.13 TQM Implementation – Critical Success Factors

Notwithstanding the presence of such a theoretical models as the Deming, EFQM MBNQA, KAAE, TQMEX, it remains necessary for organisations to be aware of the many critical success factors associated with their development of implementation programmes, and the one underlying them all is the need for the organisation to undergo some cultural transformation to ensure the continued commitment to the goals of TQM. That transformation entails a re-thinking of organisational mission and core values, and this has knock-on effects on organisational structures, systems and procedures; in turn, these bring changes in the way power is distributed, how individuals communicate and interact with each other, and the role of those in leadership positions. All of these changes have to be fully understood as part of a set of critical success factors (CSFs), which must be present for quality outcomes to be achieved (Brah et al., 2000; Salaheldin, 2009; Lam et al., 2012; Hietschold et al., 2014).

Much attention has been directed towards identifying what the CSFs might be in relation to TQM implementation (Salaheldin, 2009; Hietschold et al., 2014) in order to secure the increased quality and performance known to result (Sajjad and Amjad, 2011; Ahmad et al., 2015), and the efforts made in this respect have included empirical investigations of the TQM constructs identified by the quality gurus discussed earlier in Section 2.5 (Talib et al., 2012; Zairi, 2013). For instance, Deming's 14 principles included a high level of management commitment to quality, the use of statistical tools in process design and control, continuous identification and correction of quality problems, a purchasing policy focused on quality, encouraging employee participation and teamwork, effective communication, elimination of financial goals and quotas, and quality training and education (Evans and Lindsay, 2013), and these constructs have all been used empirically in exploring their contribution to organisational improvement.

Moreover, researchers have used different categorisations of these features to obtain complementarity (Prajogo and Sohal, 2003; Sadikoglu and Zehir, 2010; Calvo-Mora et al., 2015), and/or to reflect their own qualifications, background, work experience (Fotopolous et al., 2010) and opinions (Reis and Pati, 2007), and to evaluate how successful TQM implementation has been (Evans and Lindsay, 2013).

Likewise, they have imposed varying research methodologies, involved different types of participant, and explored TQM at different stages of implementation. Not surprisingly, therefore, the vast body of literature on the CSFs associated with TQM implementation is not homogenous in its findings. However, the common ingredients in all CSF typologies are: top management commitment, continuous improvement and innovation, satisfaction of customer requirements, employee involvement, teamwork, supplier quality management, process management, and employee training (Zhang et al., 2000; Claver et al., 2003; Sila and Ebrahimpour, 2005; Salaheldin, 2009; Hietschold et al., 2014; Aquilani et al., 2017). Attention to these organisational features in particular, is known to produce the advantages being sought (Sadikoglu and Olcay, 2014; Talib et al., 2016).

In order to consider what else might be important in this respect, the Malcolm Baldrige National Quality Award (MBNQA) and the European Foundation for Quality Management (EFQM) are used as a theoretical model, as it was in a study by Ooi et al. (2011) with small service organisations, and by Lam et al. (2012) in another study in the context of the service sector. Using this model Lam et al. (2011) addressed the factors of leadership, policy and strategy, customer focus, information and analysis, human resource focus, and process management. The MBNQA was also adopted by Sila and Ebrahimpour (2003) in their exploration of the relationship between TQM practices and business performance in luxury hotels within the US. The most important factors in the implementation of quality initiatives were found by Sila and Ebrahimpour (2003) to be the presence of strong leadership, a guest and market focus, and an emphasis on providing correct information and analysis. Also using the MBNQA, Karimi et al. (2014) and Bou-Llusar et al.(2009) sought to determine the character and strength of the links between the Baldrige criteria (leadership, strategic planning, customer and market focus, human resource focus and process management, measurement, analysis and knowledge management), finding that the entire model gains its meaning from the interaction of all the six sub-categories. Moreover, Calvo-Mora (2015) used EFQM construct in their study to analyses their influence on key business results. It is obvious from the popularity of the MBNQA and EFQM globally, that they are considered to include the major dimensions of TQM practice as proposed by the quality gurus, particularly Deming, Juran, and Crosby (Ross, 2017) Furthermore, they are also popular from the viewpoint that they are a ‘catch-all’ models with the ability to be used with equal

success in both manufacturing and non-manufacturing organisations (Evans and Lindsay, 2013).

In fact, however, any one of the self-assessment models or awards (i.e. MBNQA, European Quality Award, The Deming Prize and Kanji Business Excellence) has the potential to function in this respect as each provides a blueprint for implementing TQM (Smadi and Al-Khawaldeh, 2006). Furthermore, from the literature, much information is gained regarding CSFs, and again the quality gurus have hallmarked those which are absolutely critical, (i.e. top management leadership for quality, employee involvement in quality, employee training and supplier quality management) (Saraph et al., 1989). Certainly, after the first identification of the CSFs required for successful TQM implementation, via a survey conducted by Saraph et al. (1989), there was a substantial growth in empirical investigations in the field, and the researchers conducting these studies identified several sets of CSFs comprised of between four and twelve factors (Karuppusami and Gandhinathan, 2006), although some more recent models have included more.

A brief outline of key factors of the literature around the TQM as follows:

- Saraph et al. (1989) - *eight factors* - the role of top management leadership, the role of the quality department, training, product/service design, supplier quality management, process management, quality data and reporting, and employee relations.
- Brah et al. (2000) – *eleven factors* – in the Singaporean service sector - top management support, customer focus, employee involvement, employee empowerment, employ training, supplier quality management, process improvement, service design, benchmarking, cleanliness and organization and quality improvement rewards.
- Zhang et al. (2000) – *eleven factors* - in Chinese manufacturing organisations - leadership, supplier quality management, vision and plan statement, evaluation, process control and improvement, product design, quality system improvement, employee participation, recognition and reward, education and training, and customer focus.
- Antony et al. (2002) – *eleven factors* – the eight identified by Saraph et al. (1989), plus three more, these being: customer satisfaction orientation, communication to improve quality and continuous improvement.

- Sila and Ebrahimpour (2002) – *seven factors* (identified from the literature) - management support and commitment, employee empowerment, employee involvement, training and education, information and communication, customer focus, and continuous improvement.
- Samat et al. (2006) – *seven factors* - continuous improvement, information and communication, management commitment and support, education and training, employee involvement, customer focus and employee empowerment.
- Khamalah and Lingaraj (2007) – *seven factors* – in service organisations - top management commitment, techniques for team building, supplier involvement, recognition and reward, benchmarking, training, and programmes for quality improvement.
- Zu (2009) - *seven factors* (identified from the literature) - top management support, customer relationship, supplier relationship, workforce management, quality information, product/service design, and process management.
- Fotopoulos and Psomas (2009) – *ten factors* – in the Greek service sector - customer focus, supplier management, employee management and involvement, information and analysis, process management, continuous improvement, strategic quality planning, knowledge and education, leadership, and quality tools and techniques.
- Manaf Noor Hazilah (2009) – *eight factors* - in public hospitals in Malaysia - management commitment and leadership, strategic planning, partnership with suppliers, quality assurance, teamwork, training and involvement, management by fact, employee and continuous improvement.
- Shibani et al. (2010) – five factors – in Libyan construction industry- management commitment, communication, work environment and culture, employee involvement and recognition, employees training and development.
- Jamali et al. (2010) – *nine factors* (identified from the literature) – in Iran - top management commitment, customer focus, supplier management, training, strategic planning, employee involvement, product and service design, process management, and quality culture.
- Talib and Rahman (2010) *nine factors* – in the service sector - customer focus, education and training, continuous improvement and innovation,

supplier management, management commitment, employee encouragement, quality information and performance, employee involvement, and benchmarking.

- Kumar et al. (2011) – *eight factors* - in service and manufacturing industries management commitment, continuous improvement, customer satisfaction, training, employee empowerment, teamwork, feedback, and effective communication.
- Irfan and Kee (2013) – *seven factors* – in the Pakistani service sector - top management commitment, visionary leadership, human resource management, customer focus, information analysis, culture, and social responsibility.
- Singh and Sushil (2013) – *fourteen factors* – (identified from the literature) – in the Indian airline industry - top management commitment , employee involvement, training and education, employee empowerment, teamwork, communication, continuous improvement and continuous quality culture, customer involvement, improved service quality, benchmarking, process improvement, on-time performance, increased load factor and customer satisfaction.
- Al-Ababneh and Lockwood (2012) – *twelve factors* – in four- and five-star resort hotels in Jordan - Top Management Commitment, Leadership Support, Quality Department Supplier, Relationship Quality Data & Reporting, Product/Service Design, Employee Management, Process Management, Education & Training, Continuous Improvement, Customer Focus and Quality Planning.
- Psomas and Jaca (2016) – *five factors* – in the Spanish service sector - quality practices of top management, employee quality management, employee knowledge and education, process management, and customer focus.
- Samawi et al. (2018) – five factors – in Jordanian service sector (identified from the EFQM Modle) leadership, human resource focus, process management, customer focus, and information and analysis.

What is noticeable in the literature is that, researchers are identifying even more CSFs. For example, researching into Indian service industries (banking, healthcare, hospitality, and ICT), Talib et al. (2013) secured data from 162 top- and mid-level administrators/managers resulting in the formulation of a 17-factor model. Likewise,

a year later, Ho Voon et al. (2014) focusing on healthcare, developed the HospiSE scale to evaluate service within hospitals, and this contains 21 items all derived from the nine major clusters (total employee involvement, continuous improvement, continuous training, teamwork, empowerment, top management commitment and support, democratic management style, customer satisfaction focus, and quality culture).

It is also interesting to see that within the context of the hospitality industry, a good example of the service sector, researchers have placed importance on the wider environmental issues when considering the CSFs for TQM implementation. Claver-Cortés et al. (2008) for instance, as well as identifying training, ICTs, and information systems, also mention environmental management as having a relationship with organisational performance, and Politis et al. (2009) constructed a business excellence model for Greek hotels which recognised the different cultural, political, economic and social environment from that in other countries. Moreover, Politis et al. (2009) recognised the need for both enablers (human resources management, strategic planning, resources, suppliers/partners, customer and market focus), and results criteria (customer results, people results, society results, financial results, operating results, suppliers'/partners' results) in the pursuit of excellence. The approach taken by Arasli (2012), however, with three-, four, and five-star hotels in Iran was quite different, in that it took Kanji's quality model and identified thirteen (13) CSFs for excellence. Similarly, Tari et al. (2010), and Al-Abaneh and Lockwood (2012) also proposed CSFs in the context of the service industry.

Clearly, from this indication of what is contained in the literature, it is obvious that TQM models are designed to accommodate the particular contexts in which they are implemented, and consequently as noted by Samson and Terziovski (1997), and Prajogo and McDermott (2005), there is great variety in what seems to be important in them. Yong and Pheng (2008) cite the nature of the organisation as an influence, Psychogios et al. (2008) and Zakuan et al. (2010) recognise the importance of the national culture, and Psychogios (2010) acknowledges the employment sector as influential. Hence, the nature and number of CSFs pertaining to effective TQM implementation varies, there is no universally-valid blueprint (Metaxas et al., 2016), and as argued by Ng et al. (2014), the factors that are actually critical are those that need the attention of all players in the organisation.

Given the focus in this study on the Jordanian service sector, it is interesting to explore the existing literature in this connection. Twaissi (2008) has provided some insight by undertaking research in the communication industry and highlighting the existence of eight factors, these being: top management commitment, employee training, customer satisfaction and focus, quality communication and structure, quality information system, policy and strategic planning, supplier relationship, and quality measurement and benchmarking. A comparison of these with factors identified by other scholars shows no difference. Similarly, in the context of a private hospital in Jordan Al-Zu'bi and Judeh (2011) identified seven factors: management commitment, teamwork, customer focus, employee involvement, training, organisational culture, and continuous improvement. These particular factors have also been seen as important in Jordan's hotel sector. Hence, it can be seen that the evidence from the small amount of research on TQM implementation in Jordan's service sector is aligned with that gained from most research performed in other countries globally. In order to attempt to quantify the strength of opinion among researchers relating to the criticality of certain success factors determined for effective implementation, twelve of the most frequently-quoted factors are gathered in Table 2.2 together with details of which scholars have identified them.

Table 2.2: Critical Success Factors for TQM Implementation

Critical Success Factors for TQM Implementation	Supportive Literature
Management, Commitment and Leadership	Saraph et al., 1989; Black, 1995; Flynn et al., 1994; Black and Porter, 1996; Ahire et al., 1996; Tamimi, 1998; Joseph et al., 1999; Ford et al., 1999; Zhang et al., 2000; Motwani, 2001; Antony et al., 2002; Claver et al., 2003; Tari, 2005; Lewis et al., 2006; Ju et al., 2006; Yusuf et al., 2007; Al-Marri et al., 2007; Fotopoulos and Psomas, 2009; Salaheldin, 2009; Koh and Low, 2010 ;Zakuan et al., 2010; Talib and Rahman, 2010; Talib et al., 2013; Hietschold et al., 2014; Al-Ettayyem and Al-Zu'bi, 2015; Sinha, N., et al., 2016; Escrig and de Menezes, 2016; Samawi et al. 2018 ; Obeidat et al., 2018; Shafiq et al. 2019.
Customer Focus and Satisfaction	Black, 1995; Flynn et al., 1994 1995; Black and Porter, 1996; Ahire et al., 1996; Samson and Terziovski, 1999; Zhang et al., 2000; Motwani, 2001; Antony et al., 2002; Brah et al. 2002; Tari, 2005; Lewis et al., 2006; Yusuf et al., 2007; Al-Marri et al., 2007; Fotopoulos and Psomas, 2009; Das et al., 2008); Talib and Rahman, 2010; Talib et al., 2013; Calvo-Mora at el., 2013; Meftah and Gibson, 2013; Hietschold et al., 2014 Jaca and Psomas, 2015; Obeidat et al., 2018; Samawi et al. 2018.

Continuous Improvement and Innovation	Saraph et al., 1989; Flynn et al., 1994; Ahire et al., 1996; Joseph et al., 1999 ; Zhang et al., 2000; Motwani, 2001; Antony et al., 2002; Brah et al., 2002; Claver et al., 2003; Lewis et al. 2006; Ju et al., 2006; Yusuf et al., 2007; Al-Marri et al., 2007; Fotopoulos and Psomas, 2010; Zakuan et al., 2010; Irfan and Kee, 2013; Talib et al., 2013; Arshida and Agil, 2014 ; Samawi et al. 2018 ; Obeidat et al., 2018 ; Shafiq et al. 2019.
Employee Involvement	Saraph et al., 1989; Black, 1993; Flynn et al., 1994; Black and Porter, 1996; Ahire et al., 1996; Tamimi, 1998; Joseph et al., 1999; Zhang et al., 2000; Motwani, 2001; Antony et al., 2002; Claver et al., 2003; Tari, 2005; Lewis et al., 2006; Ju et al., 2006; Yusuf et al., 2007; Al-Marri et al., 2007; Fotopoulos and Psomas, 2009; Talib and Rahman, 2010; Jaca and Psomas, 2015 ; Obeidat et al., 2018.
Training and Education	Saraph et al., 1989; Black, 1993; Flynn et al., 1994; Black and Porter, 1996; Ahire et al., 1996; Tamimi, 1998; Joseph et al., 1999; Zhang et al., 2000; Motwani, 2001; Antony et al., 2002; Sila and Ebramipour 2002; Kaynak, 2003; Claver et al., 2003; Tari, 2005; Rahman and Bullock, 2005; Lewis et al., 2006; Ju et al., 2006; Yusuf et al., 2007; Al-Marri et al., 2007; Fotopoulos and Psomas, 2010; Salaheldin, 2009; Talib and Rahman, 2010; Parast et al. 2011; Phan et al., 2011; Talib et al., 2013; Irfan and Kee, 2013: Montasser and Manhway 2013, Hietschold et al., 2014; Al-Ettatyyem and Al-Zu'bi, 2015 Samawi et al. 2018;.
Employee Encouragement	Saraph et al., 1989; Black, 1993; Flynn et al., 1994; Black and Porter, 1996; Ahire et al., 1996; Tamimi, 1998; Joseph et al., 1999; Brah et al., 2000; Zhang et al., 2000; Motwani, 2001; Antony et al., 2002; Claver et al., 2003; Tari, 2005; Lewis et al., 2006; Ju et al., 2006; Yusuf et al., 2007; Al-Marri et al., 2007; Fotopoulos and Psomas, 2009; Talib and Rahman, 2010; Talib et al., 2013 Hietschold et al., 2014.
Supplier Partnership	Saraph et al., 1989; Black, 1993; Flynn et al., 1994; Black and Porter, 1996; Ahire et al., 1996; Tamimi, 1998; Joseph et al., 1999; Zhang et al., 2000; Zineldin and Fonsson 2000; Motwani, 2001; Antony et al., 2002; Claver et al., 2003; Antony et al., 2004; Rahman and Bullock, 2005; Tari, 2005; Lewis et al., 2006; Ju et al., 2006; Fotopoulos and Psomas, 2009; Salaheldin, 2009; Talib and Rahman, 2010; Zu et al., 2010; Valmohammadi, 2011; Jaca and Psomas, 2015;
Information Analysis/Data	Saraph et al., 1989; Black, 1993; Flynn et al., 1994; Black and Porter, 1996; Ahire et al., 1996; Tamimi, 1998; Joseph et al., 1999; Rao et al., 1999; Zhang et al., 2000; Motwani, 2001; Antony et al., 2002; Claver et al., 2003; Tari, 2005; Lakhal et al., 2006; Lewis et al., 2006; Ju et al., 2006; Yusuf et al., 2007; Al-Marri et al., 2007; Fotopoulos and Psomas, 2009; Talib and Rahman, 2010; Ebrahimi and Sadeghi,

	2013; Hietschold et al., 2014; Arshad and Su, 2015; Samawi et al. 2018.
Strategic Quality Planning	Saraph et al., 1989; Black, 1993; Flynn et al., 1994; Black and Porter, 1996; Ahire et al., 1996; Tamimi, 1998; Joseph et al., 1999; Zhang et al., 2000; Motwani, 2001; Antony et al., 2002; Brah et al., 2002; Claver et al., 2003; Tari, 2005; Pheng and Hong, 2005; Lewis et al., 2006; Ju et al., 2006; Yusuf et al., 2007; Al-Marri et al., 2007; Tari et al., 2007; Fotopoulos and Psomas, 2009; Salaheldin, 2009; Talib and Rahman, 2010; Jaca and Psomas, 2015; Escrig and de Menezes 2016; Obeidat et al., 2018 ; Shafiq et al. 2019.
Benchmarking	Ahire et al., 1996; Zhang et al., 2000 ; Motwani, 2001; Ju et al.,2006; Al-Marri et al., 2007; Yusuf et al., 2007; Talib and Rahman, 2010; Psomas and Jaca, 2014; Zehir et al., 2012; Talib et al., 2013; Hietschold et al. (2014).
Culture and Communication	Ahire et al., 1996; Brah et al., 2000; Valmohammadi, 2001; Motwani, 2001; Antony et al., 2004; Ju et al.,2006; Al-Marri et al., 2007; Yusuf et al., 2007; Talib and Rahman, 2010; Antony et al., 2002; Talib et al., 2013; Ebrahimi and Sadeghi, 2013; Dubey and Gunasekaran, 2015, Hietschold et al., 2014.
Social and Environmental Responsibility	Ahire et al., 1996; Zhang et al., 2000; Motwani, 2001; Ju et al., Antony et al., 2004; Al-Marri et al., 2007; Yusuf et al., 2007; Talib and Rahman, 2010; Talib et al., 2013; Ebrahimi and Sadeghi, 2013; Jalilvandet al. 2018).

2.13.1 Management Commitment and Leadership

The commitment from top management, as evidenced in strong leadership and the promotion of the TQM culture, is an important CSF. TQM is about management, and hence, it is the responsibility of top management itself to initiate a quality orientation and the relevant activities. Top management must provide an obvious demonstration of the new organisational values, of the policies and practices it wishes to promote, and as noted by Jaca and Psomas (2015), it must properly resource the implementation of these new initiatives. Only in such circumstances it is possible to effect a swing in organisational culture that motivates employees to internalise the ideals of a TQM movement (Escrig and de Menezes 2016; Hietschold et al., 2014). Consequently, the whole range of TQM activities must be properly led, and this demands the participation of organisational leaders.

Many scholars confirm the absolute necessity of top management commitment and leadership as shown in Table 2.2. In addition, however, Ebrahimi and Sadeghi (2013) have reported that effective managerial leadership promotes improvement in

all performance indicators. In this respect, Zhang et al. (2000) documented such commitment and leadership to be reflected in the degree of encouragement given to employees to participate, in the provision of all the required resources to support TQM implementation, and in the formulation of a long-term management vision. And Brah et al. (2002) reported on top management's involvement as seen in the promotion of an organisation-wide focus on the positive acceptance of change, and on setting goals – both part of a philosophical approach to improvement. Developing a positive orientation to change is referred to by Brah et al. (2002) as philosophy-orientated, whilst formulating goals is described by Zhang et al. (2000) as action-orientated, thereby representing two distinct routes in the pursuit of excellence. However, it should be appreciated that whilst distinct, both routes can be followed simultaneously if an organisation so decides.

2.13.2 Customer Focus and Satisfaction

The achievement and maintenance of customer satisfaction is crucial if organisations are to enjoy any form of competitive edge over their rivals, since it is only through such a definite customer focus, that a company can hope to secure the loyalty of its customers, at the same time companies need also to anticipate the future needs of their customers (Yunis et al., 2013) and be ready to provide for them as soon as their customers themselves realise they need to be satisfied. However, in order to successfully predict the nature of customers' future needs, organisations must possess certain types of knowledge about their customers and this demands a close relationship. Hence, there is an absolute requirement for effective channels of communication between organisations and their customers (Flynn et al., 1995; Zhang et al., 2000), and for these to be functional during the entire development process such that consumers can provide their feedback at the design stage and when service requirements are debated (Brah et al., 2002; Meftah and Gibson, 2013). A great benefit of such communication arrangements is the fact that organisations can speedily respond when consumer demand fluctuates, ultimately meaning that customers are more likely to be satisfied (Das et al., 2008; Jaca, and Psomas, 2015), especially as they may perceive such organisational reaction as evidence of an improved customer focus. Customer focus and satisfaction can be evaluated in two ways. The first as suggested by Samson and Terziovski (1999), is through the involvement of customers in the ways just referred to as a means of

estimating their current and future requirements. The second as proposed by Zhang et al. (2000) is via the management of complaints and the use of market research.

In the TQM ideology, the whole effort is on continually improving such that the end-user (customer) can realise more benefit (Talib et al., 2013). The customer is, therefore, the focus of all TQM actions, and if those actions are successful, those enhanced customer relationships will be seen in the form of good business performance (Calvo-Mora et al., 2013).

2.13.3 Continuous Improvement and Innovation

The aim of continuous improvement and innovation is fundamental to the TQM philosophy, reflecting the belief that constant enhancement of a product/service will afford an organisation all-round advantages (Irfan and Kee, 2013). These advantages are evident in fewer errors, less re-working and less variability in processes, reduced delivery times and reductions in non-value-adding activities. They enable organisations to learn from their mistakes (Talib et al., 2013). Collectively, these benefits amount to improvements in overall business performance (Zakuan et al., 2010), and a much better organisational future, for example, they bring an increased chance of long-term development and survival. That said, as with all other dimensions of TQM, there must be total commitment from management to a continual focus on all processes to ensure that if weaknesses have developed, they are properly, and swiftly dealt with so that there is no interruption to the levels of customer satisfaction (see for instance, Brah et al., 2002; Mjema et al. 2005; Arshida and Agil, 2013; Shafiq et al. 2019). It is the underpinning idea of continuous attention to improvement and innovation that should permeate all activities within the organisation, and hence filter through to every employee (Yusuf et al., 2007).

2.13.4 Employee Involvement

Another fundamental notion within the TQM philosophy is the participation of all organisational members in the process of continual improvement. This requires all employees irrespective of qualifications, experience, and ranking in the organisational hierarchy to be involved and to internalise the values associated with TQM. Such wholesale involvement of all individuals allows an effective flow of information throughout the organisation in both a vertical and horizontal manner

which in turn supports problem-solving efforts, and the likelihood that those efforts will be successful, as the combined knowledge and understanding of all employees is available. Employees who are empowered to make decisions about their day-to-day operations, and even more wide-reaching decisions, develop a sense of trust in their organisations and their colleagues/managers (Welikala and Sohal, 2008; Jaca and Psomas, 2015). They are more productive through their involvement as this creates within them a feeling of belonging and ownership, both of which help in their internalisation of the TQM philosophy(Ju et al., 2006; Yusuf et al., 2007; Al-Marri et al., 2007). Consequently, all efforts should be made by top management to create structures that support employee participation, and that encourage workers to take responsibility for the processes in which they are involved. Moreover, it should be remembered that within the context of the service sector, employees cannot fail to be involved as they are the interface between the customer and the organisation – they *are* the organisation (Fotopoulos and Psomas, 2009; Talib and Rahman, 2010; Jaca and Psomas, 2015).

2.13.5 Training and Education

Comprehensive and effective employee involvement of the type just described is only achievable if employees possess the knowledge and confidence to take the responsibilities desired of them. Logically, therefore, those individuals must become capable of functioning as decision-makers, and this requires they be fully appraised of the meaning and value of quality, and how they feature within the overall effort to achieve that. They must be able to make their contributions to the organisation (Ahire et al., 1996; Talib et al., 2013). Some organisations do not subscribe to the notion of training as they perceive this as a waste of time – the employees, once trained, take their new skills elsewhere and the investment in training is lost. In the implementation of TQM, however, some of that training is cultural education, quite specific to the organisation concerned, and hence it has immediate value only to that establishment. Consequently, the financial expenses incurred in training are not lost, and as noted by Salaheldin (2009), training costs are correctly perceived as an investment. Certainly, there is much evidence of a strong correlation between workforce training, and the subsequent enhanced performance of employees (Kaynak, 2003; Phan et al., 2011; Irfan and Kee, 2013; Al-Ettayyem and Al-Zu'bi, 2015).

Given the financial investments made in this respect, however, it is imperative that training needs be accurately identified, and in this respect Zhang et al. (2000) developed a tool to determine the nature and extent of training required, and other scholars support its use (see for example, Rahman and Bullock, 2005) as it pinpoints all the various resources possessed by the organisations that can be utilised in the entire training and education function. Within this, the raising of awareness of the TQM concept, and the internalisation of a new culture that enables its implementation is paramount. So too is the idea that through ongoing training and education, employees will become more developed and show their loyalty to the organisation by remaining with it.

2.13.6 Employee Encouragement

Training can be perceived by employees as an encouragement to participate, as well as a reward for commitment to an organisation, as whatever training and education is provided, this has a developmental effect upon them. Such an approach to employee encouragement is beneficial as it does not appear in the form of an instruction, which can often demotivate rather than encourage(Demirbag et al, 2006). To secure genuine feelings among a workforce to identify with the organisation and engage with its new TQM philosophy, it is necessary for a comprehensive reward package to be designed, and this implies attention to other aspects of the job, than financial reward. In this respect, personal achievement is an important element of the reward package since through knowledge of this, an individual can improve and potentially be promoted. This means that a formal appraisal system should be in place, through which employees are well aware of their individual work objectives, what they need (in training or other resources) to achieve these, and whether they are being successful in meeting the expectations associated with those objectives. The appraisal system should be linked with promotion, to ensure proper financial reward, and the reward that comes from public recognition of effort. Evidence is documented (see for example, Yusuf et al., 2007; Fotopoulos, 2009; Talib et al., 2013) of the definite relationship between recognition and other rewards, however the package is comprised, and employee satisfaction; and satisfaction subsequently translates into improved performance. As mentioned previously, in the service sector the encouragement of employees through whatever configuration of rewards is available, is imperative since their positive customer

orientation must be sustained in all scenarios (Brah et al., 2000) even when the customer is posing a challenge.

2.13.7 Supplier Partnership

Within the TQM philosophy, all customers – internal and external – are important, and hence, a focus of attention. Logically, therefore, the relationships with suppliers should be as solid as those with the end customer, but it is a fact that suppliers are frequently the source of problems for organisations (Forza and Filippini, 1998; Zhang et al., 2000) as they fail to deliver on time, or in the right quantity/quality. Such behaviour from suppliers can tarnish the image of the organisation as it has a knock-on effect on what the organisation itself can provide to its customers. Consequently, as part of any TQM initiative, it is necessary to educate those within the supply chain about the nature of TQM and what is required of them. This means effective relationship management, efforts on the part of the TQM organisation to develop genuine partnerships with suppliers who can themselves appreciate what their buyers are trying to achieve. Such action is necessary in the interests of reducing the costs associated with quality control, and the failure to proceed with production due to lack of materials (Salaheldin, 2009; Psomas and Jaca, 2014).

Ultimately, it is the aim of good performance that must be met, and there is evidence (see for example, Antony et al, 2004; Rahman and Bullock, 2005; Al-Qudah, 2006; Valmohammadi, 2011) that effective partnerships with those in the supply chain do improve organisational performance, and that therefore, there is a need to work collaboratively with suppliers to ensure the success of TQM. In an appreciation of the crucial impact that suppliers can have on the performance of an organisation, an evaluation tool for the assessment of the state of supplier co-operation has been developed by Zu et al. (2010). This addresses relationship issues concerned with four major dimensions of that relationship, these being: the length of time there has been a partnership with the supplier(s), the number of high quality suppliers the organisation uses, the extent to which suppliers are actively involved with the organisation, and the degree of help and support provided to suppliers by the organisation. Using this evaluation tool, organisations wanting to implement TQM can make decisions as to the suitability of their existing suppliers, and where existing collaborations may need to be strengthened.

2.13.8 Information Analysis/Data

As already mentioned, information must flow unhindered throughout the organisation if TQM is to enjoy successful implementation, since all members must be party to data that is relevant to them. This requires that all employees from all levels of the hierarchy are capable of accessing information and knowing what to do with it. The essential feature of the information system is, therefore, that it is capable of being used appropriately by both management and employees, and of providing an uninterrupted stream of accurate data to guarantee quality improvement (Rao et al., 1999). That flow of information should consist of data gathering and information distribution, which enables effective monitoring of performance. As noted by Arshad and Su (2015), with such information to hand, comparisons can easily made of before and after situations, and hence, quality initiatives can be properly evaluated. This kind of comparative data underpins the development/adjustment of various performance measures (Hietschold et al., 2014; Ebrahimi and Sadeghi, 2013). In recognition of the importance of accurate data availability and its effective dissemination, Lakhal et al. (2006) constructed a tool to determine how information circulates around organisations, whether that information is used to highlight areas for improvement, and basically whether the information system is good enough to support TQM implementation.

2.13.9 Strategic Quality Planning

TQM is an investment for the future as much as for the present, and as seen in previous discussions, requires a cultural change in organisations as they re-engineer their processes in line with their aspirations. This demands a strategic approach in the thinking of management such that the achievement of quality becomes an aim embedded in every part of the organisation, and fully integrated with the organisation's mission and vision for the future. The point is made by Brah et al. (2002), that only with strategic thinking is it possible for systems to achieve excellence over and over again, and to continue to be robust in years to come. Consequently, in organisations seriously wishing to implement TQM, it is necessary for a formal quality plan to be developed, which establishes what the organisation's future should look like, and that sustains the focus of all members on the culture of quality that is being sought (Zhang et al., 2000; Shafiq et al. 2019). Such focus can be kept to the fore provided that the strategic quality plan is clear in the goals to be achieved, in what the organisation perceives to be its priorities, and how these are

to be realised. Moreover, with this level of articulation in a formal document, the various objectives established can be appropriately costed and suitable budgets earmarked to ensure that the necessary improvement activities are funded (Pheng and Hong, 2005; Jaca and Psomas, 2015).

Empirical evidence of the positive relationship between strategic quality planning and performance comes from several scholars (see for example, Salaheldin, 2009; Tari et al., 2007), in their attempts to provide a workable tool to establish how much strategic planning is present in organisations and the degree to which such planning is actually implemented, Tari et al. (2007) address issues like customer and market requirements, goal-setting, and comparisons of desired and actual achievements. From using this instrument it becomes obvious to organisations whether their planning amounts to genuine action for improvement.

2.13.10 Benchmarking

In developing their strategic thinking and plans, organisations naturally take note of how they are positioned in the marketplace in relation to their competitors. This activity leads to organisations benchmarking themselves against their rivals in terms of their use of best practice in their operations (Ahire et al., 1996; Psomas and Jaca, 2014). Essentially, this represents a learning exercise for organisations as they engage in such comparison (Talib et al., 2013), and simultaneously conduct a self-assessment from which they are able to highlight areas for improvement (Zhang et al., 2000). Moreover, through such benchmarking, and the exposure to the best practice adopted in other companies, organisations can become aware of new techniques and other operational strategies to achieve their improvements. Clearly, benchmarking is advantageous for organisations as it brings the chance to raise standards. Without the use of benchmarking, organisations would have no real appreciation of how well they were performing against their rivals, and as observed by Zehir et al. (2012), such isolation leads to ignorance and can result in failure to realise that quality improvements are required.

Hietschold et al. (2014) have designed a tool to assist organisations in this matter, showing how much they engage in benchmarking, and what use is made of the information they receive from the process. This is a valuable instrument in as much as a statistically significant correlation has been found between the adoption of benchmarking and business performance (see Das et al., 2008).

2.13.11 Culture and Communication

It has been noted already that good communication is a requirement in organisations aiming to implement TQM but over and above the usefulness of effective communication channels to discuss work/task-related issues, the communication system is also a vehicle for disseminating the new culture which such organisations must instil if TQM is to be successful. That culture must reflect a genuine appreciation of the value of quality, and the worthwhileness of pursuing it, and all employees must internalise that culture, showing their acceptance of the change in atmosphere and operations. As noted by Maletič et al. (2014), it is relatively easy to disseminate a new culture once the workers have become psychologically in tune with the values expressed in it. If there is no quality culture, there is no chance of the TQM philosophy even being appreciated as obstacles to the fundamental ideas, such as the goal of continuous improvement, are likely to be ingrained in the thinking of workers (Talib et al., 2013). Despite the importance of creating the right culture, however, many organisations do not act to do that (Antony et al., 2004) with unwelcome consequences seen in the failure of the TQM initiative.

Effecting a change in culture relies upon good communication of the reasons for the change, the benefits to be realised, and the means by which the change will occur; and it is essential when trying to implement TQM that such knowledge is taken on board (Ebrahimi and Sadeghi, 2013). Informing the workforce of the rationale for the new quality goals and practices, and highlighting the relationship between the acceptance of a quality philosophy and the long-term survival of the organisation, serves to encourage employees to lend their commitment to the TQM initiative (Hietschold et al., 2014; Brah et al., 2000; Valmohammadi, 2011). Likewise, the efforts made in training and education discussed in Section 2.13.5 help to bring about the cultural shift as staff are prepared for the change, and equipped to assume roles with greater degrees of authority an empowerment. An instrument to evaluate change in organisational culture and communication techniques has been designed by Antony et al. (2004), with a view to evaluating the level of awareness among workers of the quality concept, and measuring the level of departmental co-ordination.

2.13.12 Social and Environmental Responsibility

Corporate Social Responsibility (CSR) is not a new concept but with increasing rivalry among organisations, one way to gain competitive edge is through the altruistic and philanthropic work undertaken by an organisation since customers often look at the wider impact of organisations on their community and society in general. Consequently, organisations that accept their responsibility for society and the environment create a favourable image (Antony et al., 2004), among the community and their customers as an establishment that wishes to add quality to the lives of many individuals who are not actually employees or direct customers. It is therefore, in the organisational interest to acknowledge social and environmental responsibility (Zhang et al., 2000). Organisations that have a reputation for adding value to the wider community, for subscribing to initiatives relating to sustainable development, and generally for conducting their business in a moral way, can enjoy improved business performance (Talib et al., 2013; Jalilvandet al. 2018). Where they do not acknowledge their responsibilities in this way, they can lose custom (Ebrahimi and Sadeghi, 2013). The fundamental tenet of TQM – continuous improvement for quality outcomes – can be seen in an organisation's attention to its environment.

2.14 Benefits of TQM Implementation

The benefits to be gained from TQM implementation have already been discussed earlier in the chapter, essentially as reasons for the vast amount of work that has been done by the quality gurus and other scholars but it is useful to summarise, and to begin by stating the observation by Kumar et al. (2018) that TQM represents an approach for attaining excellence. Recognition of this is seen in the fact that it has been adopted by many successful organisations such as IBM, British Airways, Hewlett-Packard, and Motorola (Yusof and Aspinwall, 2000; Sila, 2007).

In obtaining excellence, many factors are at play. For example, financial performance, customer satisfaction, development of human resources, and improved product/service quality; and the effective implementation of a TQM programme is known to precipitate such benefits. When enjoyed collectively, these outcomes contribute towards the long-term survival of an organisation. Moreover, the TQM philosophy is applicable to all types of organisation, in all types of industry.

Clearly, that universal applicability means that the particular nature of the TQM initiative must be unique to each organisation in order to recognise its individuality

(Fotopoulos and Psomas, 2009; Yunis et al., 2013), and that implies that there is no blueprint that can be taken off the shelf.

Considering the benefits separately, it can be seen that the development of human resources within an organisation is a definite outcome of successful TQM implementation because the emphasis on employee involvement, and the provision of the education and training to underpin and facilitate that, leads to a much more highly skilled and developed workforce. Furthermore, the empowerment given to individuals and teams functions as a motivator, encouraging employees to take ownership for (and improve quality in) their areas of responsibility (Brah, 2000, Antony et al., 2002; Evans and Lindsay, 2013). This scenario leads to greater staff creativity and innovation, the logical outcome of which is enhanced competitiveness for the organisation.

The improved communication strategies demanded by TQM implementation serve to enhance interaction between all organisational members and make for the smooth transmission of knowledge to all those who need it. They also operate to consolidate the values of TQM and hence, to embed the new culture, as they provide a mechanism for sustaining awareness of the new orientation and integrating this within daily routines. The result is that all individuals within the organisation become customers and suppliers of others within the same organisation and are treated as such (Dubey and Gunasekaran, 2015, Psomas and Jaca, 2016; Augustyn et al. 2019).

With the shift in organisational culture comes a much more satisfying work environment in which staff are more capable through their training, their greater involvement with others and the wider organisation, and their empowerment. The standards of behaviour that are associated with the TQM culture increase the psychological well-being of workers; and the increased interaction through group and team working, together with the imperative to collaborate are helpful not only in satisfying the social needs of employees, but also in finding solutions to quality problems (Baird et al., 2011).

Finding such solutions results in increased productivity, and as the focus of all efforts in TQM is on identifying where poor quality exists and aiming to eradicate that, it follows that the ability to find solutions that eliminate the causes of problems is valuable for the organisation because of its positive effect on productivity. Moreover, with the empowerment of employees to deal with problems, some difficulties are

identified and the causes removed, without ever bringing the issues to management's attention. This has a knock-on effect on managerial time – essentially leaving more of this available for higher-level issues. The results of this type of working are that overall quality of products/services increases, and rework is reduced (Bayazit and Karpak, 2007; Lam et al., 2014; Valmohammadi and Roshanzamir, 2015; Shafiq et al. 2019), thereby saving time, money, and effort, making the work process more efficient, reducing the cycle time, and ultimately increasing productivity (Bu et al., 2017).

TQM implementation also brings the desired outcome of higher levels of customer satisfaction which arise by virtue of a combination of initiatives under the quality umbrella. Better quality products/services are an obvious satisfier, but so too are the opportunities for customers to make their contribution to produce/service design as they become the focus of organisational efforts. At the same time, the work undertaken to discharge their social and environmental responsibilities, provides organisations with more opportunities to tap into customer feelings. The ultimate result is enhanced customer satisfaction (Brah et al., 2000).

2.15 Organisational Performance – Evaluation after TQM Implementation

The concept of 'organisational performance' is essentially related to where that organisation stands in relation to others, where it is positioned in the marketplace, and ultimately, the extent to which it is able to deliver a return to its shareholders (Brah et al., 2000; Lönnqvist, 2004; Moullin, 2007; Salaheldin, 2009; Psomas and Jaca, 2016; Mehralian et al., 2017; Shafiq et al., 2019; Augustyn et al. 2019). However, no decent financial return can be directed to shareholders if other goals are not met beforehand, and consequently, organisational performance can be conceived in terms of the extent to which primary performance objectives (within the organisation), and secondary measures (e.g. meeting customer needs) are achieved (Slack et al., 2010).

From this it can be understood that organisational performance is not associated purely with making profit, although traditionally it has been believed that the measurement of financial ratios, as for example, profitability, return on assets

(ROA), return on investments (ROI), and return on equity (ROE), would give a good indication of how a firm was performing. Indeed, Cheng and Choy (2013) observe that financial performance is considered to reflect how good a company is at deploying its assets to generate revenues, and ultimately make profit that traditional thinking has increasingly been challenged, however, being criticised as being non-strategic, lacking any forward and long-term orientation (Kaplan and Norton, 1996), and failing to take a holistic view of what organisations are actually achieving. The response to such criticism has been to seek a more balanced set of performance indicators by considering non-financial aspects as well as the financial dimensions of performance (Nair, 2006; Ho et al., 2016; Simon et al., 2015). The belief in this respect is that the former are related to the organisation's long-term operational objectives, whereas contemporary financial measures are no indication of what the future may bring (Blazevic and Lievens, 2004; Prieto and Revilla, 2006).

In fact, Yunis et al. (2013) and Kumar et al. (2018) make the observation that no consensus has yet emerged on how to measure organisational performance consequent upon TQM implementation. This is perhaps not surprising since throughout this chapter it has been indicated that TQM initiatives are perceived differently by different organisations, in different industrial sectors, and in different countries. Naturally, therefore, the way in which subsequent outcomes are measured must differ and that means there is no solid agreement on how to proceed with evaluation of performance. This section explores the contributions to the literature in this respect.

Perhaps the first criterion for attention is how much better the TQM programme has been able to meet the needs of customers than the previous effort - the 'before and after' analysis. In this connection, Slack et al. (2010) suggest that the organisational objectives must be the focus, and Demirbag (2006) notes that the difference between these and the outcomes must be capable of measurement by procedures in place for that purpose. However, in making that measurement, all the TQM practices must be fully investigated to establish their contribution to the outcome, and to be assured that other external factors have not been influential.

In a model that widens the units of analysis, Salaheldin (2009) suggested three dimensions of performance as being: operational, financial and non-financial performance. The focus in the operational dimension is on internal operations, while

in financial performance the financial outcomes are the object, and in the non-financial element the attention is on the organisation's standing in the market and its success in product development. This seems to create a more holistic picture of corporate performance than when only the financial outcomes are considered, which as observed by Ebrahimi and Sadeghi (2013) and Zehir et al. (2012), are insufficient to provide a comprehensive account or organisational success after TQM implementation. The traditional way of measuring organisational performance has been concerned with financial ratios to the exclusion of everything else, but as long ago as Kaplan and Norton (1996) highlighted this approach as indicative of short-term thinking. The response has been for researchers to seek a balance in evaluating performance, including the non-financial dimensions as well as the financial ones (Ho et al., 2016; Simon et al., 2015).

Other researchers have provided their own lists of measurement criteria for use after TQM implementation, summarised as follows:

- Kumar et al. (2009) - *four types of indicator* - employee relations, customer satisfaction, operating procedures, and financial.
- Politis et al. (2009) – *six types of indicator* – in hotels - financial outcomes, operating performance, employees, customers, suppliers/partners, and society.
- Sharma and Gadenne (2010) – *three types of indicator* - subjective measures, including management perceptions of QM programme performance - overall company performance, improvements to the competitive position of the company, and whether the quality programme has been a positive development for the company.
- Mensah et al. (2012) – *four types of indicator* - financial and market performance, organisational effectiveness, customer satisfaction, and employee satisfaction.
- Talib et al. (2013) – *six types of indicator* - product, processes and service quality, employee service quality, employee satisfaction, customer satisfaction, and supplier performance.
- Calvo-Mora et al. (2014) – *three types of indicator* – quality, operational, and economic-financial.
- Karimi et al. (2014) – *six types of indicator* – in service companies - product and service outcomes, customer focused outcomes, financial and market

outcomes, human resource outcomes, organisational effectiveness outcomes, and social responsibility outcomes.

- Psomas and Jaca (2016) – *four types of indicator* – in 151 Spanish service firms - financial performance, operational performance, customer satisfaction, and product/service quality.
- Quang et al. (2016) – *three types of indicator* - customer satisfaction (customer evaluation, response to customer standards), financial performance (bad quality costs, manufacturing unit costs, market share, sales revenue, and return on sales), and operational performance (delivery on-time, quality inputs, rate of defect products, lead-time, and flexibility).
- Foster (2017) - *eight types of indicator* – financial ratios, productivity ratios, customer-related results, operating results, human resources, quality measures, market share data, and structural measures.

From this summary, it can be seen that both objective and subjective measures feature in the ideas of scholars. Indeed, focusing particularly on the outcomes of TQM implementation in the hotel sector, Claver-Cortés et al. (2008) argue that because the industry deals with intangible experiences, it is imperative to include both objective and perceptual measurement.

Although differences exist between these taxonomies proposed by researchers, it is clear that when measuring performance, this is generally done by referring to the dimensions of: operations, quality, finance, market, innovation, and customer satisfaction, although not all evaluation efforts include all of these indicators. Consequently as noted by Martínez-Costa et al. (2009), it is not sensible to compare the results from one organisation with another. Indeed, Choi et al. (2009) have highlighted the lack of agreement in the literature even on what counts as performance. The advice provided by Kanji (2002) is to use a comprehensive system that measures as many indicators as seem appropriate to the organisation concerned (both financial and non-financial), and that are sufficiently flexible to cater for changes in the internal and external environments. By adopting such an approach, organisations can gain a holistic picture of the strength, continuity, and sustainability of their total quality effort. In this connection, Idris and Zairi (2006) note that the Balanced Score methodology allows for the consideration of both qualitative and quantitative measures, and thus captures the entirety of organisations' operations and performance.

Table 2.3 presents the key performance indicators as identified in respect of both financial performance, and non-financial performance, together with details of some of the researchers who have explored these issues.

Table 2.3: Dimensions of Operational Performance – Financial and Non- Financial

Dimensions of OP	Key Performance Indicator	Relative Literature
Financial performance	(1) Cost of quality; (2) Cash flow; (3) Market share growth; (4) Sales volume, growth, improvement; (5) Export growth; (6) Inventory reduction/turnover; (7) Cost improvement; (8) Profit improvement; (9) Overall profitability; (10) Return on investment; (11) Relative market share/Sales growth/ Profitability/Return on assets; (12) Engineering change rate in production; (13) Overall financial performance, competitive position.	Powell (1995); Terziovski et al. (1997); Lee (2004); Idris and Zairi (2006); Fuentes et al. (2006); Prajogo, 2007; Salaheldin (2009) ; Yunis et al. (2013); Karimi et al. (2014); Jaca and Psomas (2015) ; Psomas and Jaca (2016); Foster (2017) ; Kumar et al. (2018) ; Shafiq et al. (2019); Augustyn et al. (2019).
Internal or operational performance	(1) Overall quality performance; (2) Reliability (warranty claims cost as a percentage of total sales); (3) Timeliness/delivery; (4) Quality improvement/defects as a percentage of production volume; (5) Productivity; (6) Waste Reduction; (7) Production performance improvement; (8) Order cycle time; (9) Supplier Delivery performance improvement; (10) Flexibility to change volume.	Powell (1995); Flynn et al. (1995); Ahire et al. (1996); Terziovski et al. (1997); Samson and Terziovski, 1999; Lee et al (003); Rahman and Bullock (2005); Fuentes et al. (2006); Salaheldin (2009) ; Yunis et al. (2013); Psomas and Jaca (2016); Kumar et al. (2018); Shafiq et al. (2019).
Customer satisfaction	(1) Customer relations/ Satisfaction; (2) Customer complaints (3) Relative customer retention/ Loss of customers; (4) Relative new products' success rate; (5) Customer returns due to bad quality; (6) Product reliability; (7) Level of satisfaction customer; (8) Level of absenteeism.	Flynn et al. (1995); Terziovski et al. (1997); Rahman and Bullock (2005); Idris and Zairi (2006); Yeung et al. (2006); Fuentes et al. (2006); Salaheldin (2009) ; Yunis et al. (2013); Karimi et al. (2014) ; Psomas and Jaca (2016) ; Foster (2017) ; Kumar et al. (2018) ; Shafiq et al. (2019) .
Employee satisfaction	(1) Employee morale; (2) Employee growth; (3) Employee productivity.	Terziovski et al. (1997); Rahman and Bullock (2005); Salaheldin (2009) ; Yunis et al. (2013); Karimi et al. (2014) ; Foster (2017) ; Kumar et al. (2018); Shafiq et al. (2019).

Whilst it is not the business of this chapter to determine exactly how to measure events to determine whether the targets in respect of these performance indicators are met, Table 2.4 does provide details about measurement performance indicator that will be used in this study.

Table 2.4: The Measurement of Non-financial and Financial Performance

Non-Financial performance (operational)	Supportive literature
• Percentage of suppliers' on-time deliveries. • Reputation for providing quality service. • Overall level of customer satisfaction. • Skill level of employees. • Level of employee satisfaction. • Productivity of employees. • Number of repeat customers. • Number of customer complaints. • Level of employee absenteeism. • Percentage of on-time deliveries. • Level of employee turnover.	Brah et al. (2000); Salaheldin (2009); Ebrahimi and Sadeghi (2013); Calvo-Mora et al. (2013); Dubey and Gunasekaran (2015); Akhtar et al. (2014); and Al-Zu'bi (2015); Jaca, and Psomas (2015); Talib et al. (2013);; Yunis et al. (2013) ; Karimi et al. (2014) ; Psomas and Jaca (2016) ; Foster (2017) ;Kumar et al. (2018) ; Shafiq et al. (2019) ;Augustyn et al. (2019).
Financial performance	**Supportive literature**
• Overall financial performance. • Net profit as a percentage of net assets. (Return on Asset) • Revenue growth. • Gross profit as a percentage of sales (return on sales). • Market share.	Brah et al. (2000) ; Salaheldin (2009); Yunis et al. (2013); Karimi et al. (2014); Jaca and Psomas (2015); Psomas and Jaca (2016); Shafiq et al. (2019)

2.16 Organisational Performance after TQM Implementation

Having considered how organisations can and do measure their performance post-TQM implementation, it is appropriate to consider what claims are made in the literature regarding the actual outcomes, in which connection, Wisniewska and Szczepanska (2014) note the consensus that financial outcomes are improved as a result. Support for this contention comes from Dahlgaard et al. (2013), and Calvo-Mora et al. (2014) who also note the significant improvement in non-financial outcomes.

Moreover, a number of empirical studies into TQM practices and organisational performance, both in manufacturing and services, demonstrate increased business performance (higher productivity and customer satisfaction), increased market share and greater long-term profitability (Fening et al., 2008; Brah et al., 2000; Shenaway et al., 2007; Arumugam et al., 2008; Clegg et al. 2013).That said, other

researchers have not found such positive outcomes, particularly with respect to financial results (see for example, Corredor and Goni, 2010; Macinati, 2008; Benner and Veloso, 2008; Samson and Terziovski, 1999; Dow et al., 1999; Ho et al., 2001).

What should be understood from these varying accounts and findings is that as said previously, organisations implement TQM differently according to the nature of their business, where they are positioned in the market, where they are in the world, and of course the degree of genuine commitment held by top management. Consequently, they use different measurement criteria and quite possibly their expectations of the end result vary. Nonetheless, there is good evidence that after TQM implementation in service industries, there is a noticeable improvement, despite it being difficult to measure (see for example, Yang, 2006; Lam et al., 2012; Hasan and Kerr, 2003; Brah et al., 2000; Kumar et al., 2011; Claver-Cortés et al., 2008; Sila and Ebrahimpour, 2003; Wang et al., 2012; Talib and Rahman, 2010).

Consequently, it could be expected that the implementation of TQM in the service sector in Jordan might produce the same positive results. In this respect, it is important to note that a major reason for Jordan's move towards a TQM philosophy in the service sector is to become, and remain competitive. International markets are increasingly competitive, and to sustain position in such environments both productivity and overall performance must be consistently of a high quality. Indeed, this is a driving force among the many reasons put forward by organisations for adopting TQM. In this connection, Wisniewska and Szczepanska (2014) confirm the positive outcomes in respect of financial results of TQM implementation, and other researchers add to this confirmation by including the favourable influence resulting from effective TQM implementation in non-financial areas as well as financial ones (Brah et al., 2000, Salaheldin's, 2009; Dahlgaard et al., 2013; Calvo-Mora et al., 2014; Psomas and Jaca, 2016; Shafiq et al., 2019).

Not surprisingly, given the long pedigree of TQM, many researchers have explored the outcomes of TQM implementation in both the manufacturing (where QM was first introduced) and the service sectors, and the majority of these investigations give support to the claim that with effective implementation of the philosophy, improvements in business performance in terms of improved productivity and customer satisfaction are forthcoming, thereby leading to a larger share of the

market and sustainability in the long term (Fening et al., 2008; Brah et al., 2000; Shenaway et al., 2007; Arumugam et al., 2008; Clegg et al., 2013; Karimi et al., 2014; Foster, 2017; Kumar et al.,2018). That said, there have been other studies that have been unable to find no link (or a weak one at best) between these two variables, and particularly where financial results are used as the measure of success (Corredor and Goni, 2010; Macinati, 2008; Benner and Veloso, 2008; Samson and Terziovski, 1999; Dow et al., 1999; Ho et al., 2001). Again, a caution is issued in relation to the nature of implementation since this has the great potential to vary from organisation to organisation.

If implemented according to the generic model, a positive relationship should ensue between TQM adoption and organisational performance, as argued by the quality gurus (Deming and Crosby):
Deming (1986:1) – "productivity increases with improvement of quality. Low quality means high cost and loss of competitive position."
Crosby (1980:1) – "if you concentrate on making quality certain, you can probably increase your profit by an amount equal to 5% to 10% of your sales."

These assertions are made on evidence provided by many companies that launched QM programmes, Crosby (1984), citing the instance of a textile manufacturer saving $700,000 in the first six months after implementing a quality initiative, and describing similar outcomes from both manufacturing and service companies that profited from error reduction, cutting the cost of maintaining quality, eradicating customer complaints, and lowering the costs associated with material handling. More recently, it was confirmed by Jitpaiboon and Rao (2007), who conducted a meta-analysis of 421 different items concerning TQM practice that appeared in 50 refereed publications, that both productivity and financial performance were highly influenced by the effective implementation of TQM.

Salaheldin (2009) also confirmed this outcome but added that the performance outcomes promoted by TQM were not the end of the story because in themselves they were responsible for further promoting the financial performance of the organisation. Salaheldin's (2009) study involved several multi-dimensional constructs that showed financial performance to result from operational performance, and that was an outcome of the continuous improvement ethic

engendered by TQM. Likewise, similar findings were obtained by Al-Ettayyem et al. (2015) in a recent investigation of eleven commercial banks in Jordan, in which both financial and non-financial factors were the focus. This phenomenon of financial performance promoting greater financial performance was clearly in evidence in this study, demonstrating the complex web of inter-relationships between the different dimensions of TQM.

The key is undoubtedly in the nature of the implementation, which Jaca and Psomas (2015) found to impact substantially upon the non-financial performance reported by 72 Spanish service companies, whilst less so in respect of financial outcomes. Also in the Spanish context (both manufacturing and service enterprises), it has been found (see Bou-Llusor et al., 2009; Tari et al., 2007) that TQM implementation heavily influences organisational performance. And in the latest study by Psomas and Jaca (2016) which involved 151 Spanish service firms, a variety of TQM factors connected with top management, employees, and customers, were seen to have a significant impact upon the different dimensions of performance. Indeed, it is shown that skills such as effective people management, and the ability to properly align business strategies with TQM objectives, are vital to the continued growth of an organisation.

Not surprisingly, the large amount of research conducted in America has supported the favourable relationships between organisational performance and TQM, and in a study by Douglas and Judge (2001) it was demonstrated empirically that TQM efforts in US hospitals have a significantly positive correlation with financial performance. Earlier research also in America by Hendricks and Singhal (1999) also pointed to this association. These researchers surveyed 600 quality award-winning organisations within America to conclude this outcome, simultaneously confirming the performance advantage in respect of their operating revenue, total sales, total assets, return on sales, and return on assets over companies that had not won such an award.

Earlier, in the UK, Zairi et al. (1994) surveyed the audited financial accounts of 29 companies that had implemented TQM, finding from the five-year spread of data that almost three-quarters of those organisations (22) performed better than the industry averages in respect of profit margin, return on total assets, turnover per employee, profit per employee, total assets per employee, fixed asset trends and

average remuneration. And the evidence from Australia is similar, with a significant and positive correlation between product quality and innovation on the one hand, and the implementation of TQM practices on the other, being reported in manufacturing and service enterprises by Prajogo and Sohal (2003). At the same time, Hasan and Kerr (2003) also focused on Australian service organisations, demonstrating that TQM implementation (mainly the facilitating role of top management and efforts towards generating customer satisfaction) precipitate greater productivity and quality performance.

In support of all these findings, Gryna et al. (2007) add those coming from a study of the extensive Profit Impact of Market Strategies (PIMS) database, to the effect that in over 450 manufacturing and service organisations, quality is identified as the most important influence on organisational performance; and particularly in respect of the service sector, there is abundant evidence of the association between organisational performance and TQM practice. Lam et al. (2012) also found the same relationship in the context of the Malaysian service sector, as did Jaca and Psomas (2015) in respect of three-to-five star Spanish hotels, where it was shown that a quality philosophy had a positive influence on customer satisfaction. In fact, there is much to confirm the strong link between TQM adoption and organisational performance in the service sector (Brah et al., 2000; Kumar et al., 2011; Al-Shobaki et al., 2010; Pattanayak et al., 2017; Qasrawi et al., 2017). Taking the case of the luxury hotel industry, Sila and Ebrahimpour (2003) found from their analysis of certain TQM practices (leadership, guest and market focus, and information and analysis, human resource focus, processes, strategic planning), that a strong positive association between these and the overall improved performance of the three hotels in question was evident. And more recently, it has been found by Wang et al. (2012) that hotel performance is mediated by the enhanced market orientation generated by TQM practices, and hotel performance. Such increased performance was reported in the dimensions of customer focus, internal/external co-operation, continuous improvement, process management, employee training, empowerment, and rewards.

Studying the outcome of TQM practices in other service industries, Talib and Rahman (2013) concentrated on health-care, food supply and distribution, education, banking, and IT, documenting a strong positive improvement in performance in all of these. As indicated earlier, however, the importance of

effective implementation is the key, in which respect these researchers reported the need for several CSFs to be given attention.

There is no doubt that a committed approach to the adoption of the TQM philosophy can bring benefits to both the financial and non-financial performance of those organisations that genuinely strive to embrace TQM practices (see for example, Gubey and Gunasekaran, 2015; Calvo-Mora et al., 2014; Baird et al., 2011; Kumar et al., 2009, 2011; Claver-Cortés et al., 2008; Sin et al., 2005; Brah et al., 2000). Yang (2006) in particular, observed not only improvements in product/service quality but also in the general reputation of the company delivering these. Specifically in the case of the study by Baird et al. (2011) TQM implementation was seen to be associated with improvements in operational performance, while in that conducted by Lam et al. (2011) it was shown to be linked with market performance, in the study undertaken by Ng et al. (2014), it was positively correlated with product quality and customer satisfaction and loyalty, and in that performed by Boulter et al. (2013) there was a direct link with increases in sales and operating income.

Clearly, there is abundant evidence of the success of TQM implementation in many industries and across the globe. However, it is true to say that the vast majority of the studies testifying to this outcome have been conducted outside the Arab World. It is also the case that there is some dissenting evidence, showing where TQM has not released the promised benefits, and in this connection the question can be asked as to whether TQM is culture-bound in some way, or whether it has simply not been implemented properly, that is to say, whether the factors which are known to be critical for its success as discussed earlier in this chapter, have been absent. Consequently, there is a need to extend studies of TQM success using both financial and non-financial indicators as confirmation or otherwise, to countries where little research has been undertaken, and Jordan as a developing country is a logical context.

2.17 The Research Model

Having reviewed the related literature (see appendix6, table 2.2, 2.3 and 2.4), the researcher has developed a model to demonstrate the potential causal relationships among the independent variables – the CSFs (Management Commitment and Leadership, Customer Focus and Satisfaction, Continuous Improvement and Innovation, Employee Involvement, Training and Education, Employee Encouragement, Information Analysis/Data, Strategic Quality Planning, Benchmarking, Culture and Communication, Social and Environmental Responsibility), and the dependent variable (Financial performance, and Non-financial performance). This proposed model is produced as Figure 2.6, and will be used as a framework for appreciating and improving the status of TQM in Jordanian service organisations. It also shows also the presumed relationships among all research variables through the research hypotheses.

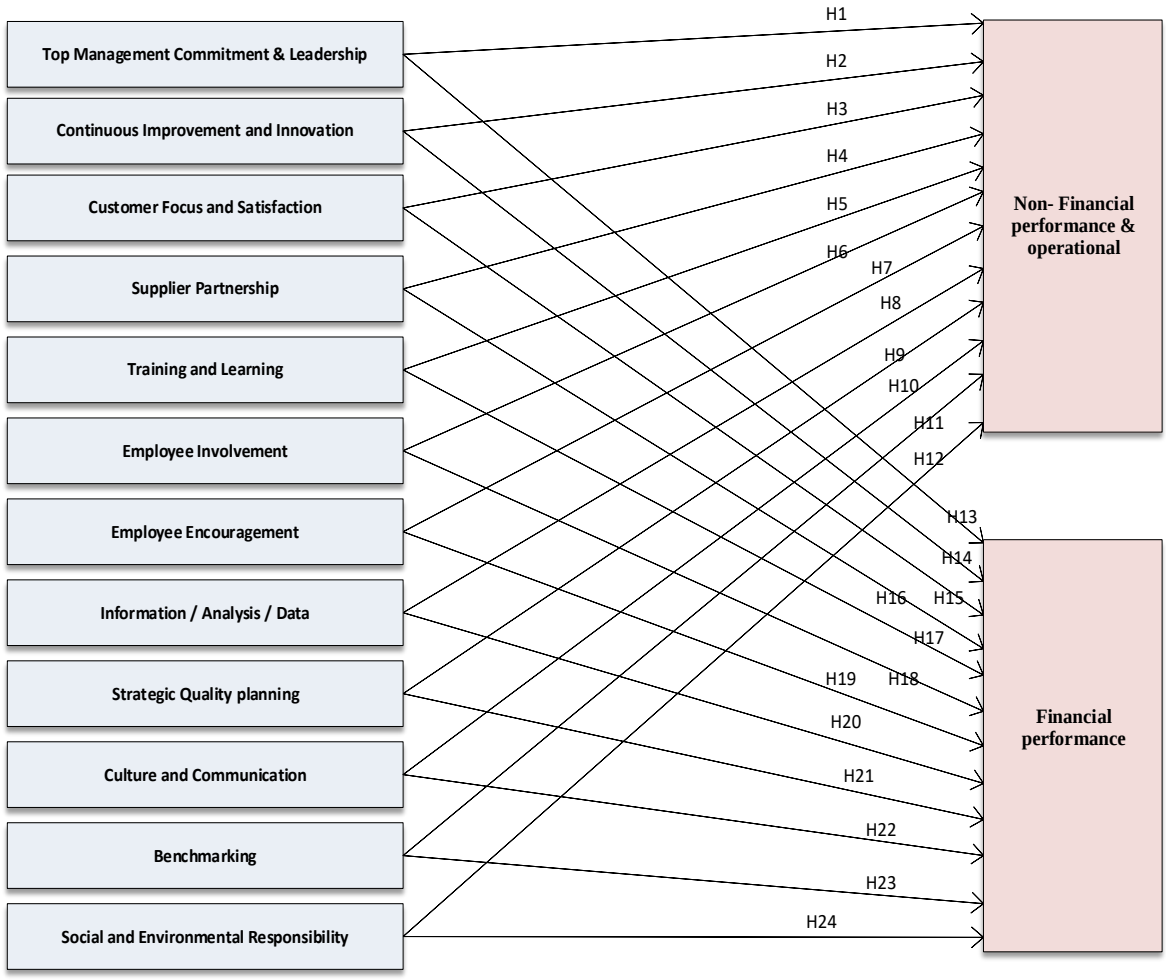


Figure 2.6: Model of TQM in the Service Sector (designed by the researcher)

2.18 Summary and Gaps in the Literature

Summarising this literature review it can be seen that TQM holds the promise of continuous improvement which is acknowledged as the road to enhanced quality. However, the implementation of this philosophy demands a change in the traditional manner of doing business as it re-moulds the management culture, and places the customer at the heart of its focus. It is also revealed in the literature that a fragmented approach to TQM is prevalent and that arises because of ambiguity and lack of consistency regarding the TQM concept, and the general absence of hard empirical evidence which hinders the potential to generalise across geographical boundaries. Indeed one problem, is the fact that TQM is a Western-generated concept, and insufficient in-depth research exists in respect of non-Western settings. In addition, there a lack of research studies on implementation of TQM in service industries especially in Jordan. And another appears in the lack of consistency of terms of the measurement of quality, again an outcome of any universal instrument.

Clearly, this chapter has charted, in its comprehensive review, the history of the quality movement and the great contributions made by the quality gurus to the lifting of quality in organisations globally. In doing this it has highlighted the benefits of TQM and the conditions required for its successful implementation, observing the all-important one of organisational culture. The outcome of the absence of such conditions has been shown in the fact that not all TQM initiatives are successful. It has also been shown how organisations attempt to evaluate the worthwhileness of their TQM programmes, using both financial and non-financial indicators; and finally, the chapter has considered what hard evidence exists of success or otherwise by noting some of the many studies of TQM implementation in both manufacturing and the service sector, in different country settings around the world. The next chapter details the methodology adopted to conduct the empirical aspect of the study.

3 Chapter Three: The Research Design and Methodology

3.1 Introduction

This chapter provides an overview of the study in terms of its philosophy and approach, and presents the methods chosen for the collection and analysis of data. Consideration is given to the research population, the sample used, and the types of statistical methods to be employed. The methods of data collection employed in order to establish the level of TQM implementation within the service sector in Jordan and the overall firm performance in this respect, are also discussed. The orientation of the study is considered, which leads to a discussion of the quantitative philosophy, and the use of a questionnaire survey as the primary tool. The chapter is structured as follows:

i) The philosophies of the research and the selection of the methodology are briefly discussed;
ii) The research design is explained;
iii) The methods of data collection are presented. This presentation includes details relating to the construction of the questionnaire, the pilot study, and the final questionnaire;
iv) The statistical techniques for analysing the data are discussed.

3.2 Ontology and Epistemology

Ontology is a concept that relates to the nature of being. In the research context it explains the way in which the researcher views the nature of the research topic, and consequently, ontological issues involves a consideration of how reality is defined within that research (Bryman, 2015).

Two ontological positions were highlighted by Saunders et al. (2012) and Bryman and Bell (2011), i.e. constructivism and objectivism. Constructivism has the assumption individuals develop and continuously revise reality, along with their perceptions which are subjective within social contexts. Usually, different meanings with regard to reality are developed by people based upon personal experience, with the result being that the existence of reality is founded upon diverse, multiple meanings (Cresswell, 2014). On the other hand, objectivism represents the view that social reality and existence has independence; as such, a researcher

addresses social phenomena through considering them to be facts that are external and beyond her or his control. Objectivism has the stance that reality has autonomous existence with a structure that has immutable form and, as such, only one reality is seen as being in existence and that same reality is considered as being shared by everyone.

The positivist viewpoint is that there is only one reality and that is external; this demands an objective approach to data collection and analysis, and such an approach can be seen in the use of a questionnaire which can gather data that can be analysed through the use of statistics. Positivists are interested in the development of theories that have been based upon verifying hypotheses (Bhattacherjee, 2017) that are proposals about relationships between two or more concepts. For a positivist then, theory can be defined as a relationship between concepts that has been validated in order to provide an explanation for a particular phenomenon or several phenomena (Kanellis and Papadopoulos, 2009).

In contrast, the interpretivist viewpoint holds that there is more than one particular reality, and that realities vary from one context to another and from one organisation to another (Walsham, 2014). Consequently, interpretivist researchers perceive their role as involving a process of interpretation and comprehension.

From an ontological perspective, this study is underpinned by a positivist philosophy, as it assumes that one single reality exists, and that a comprehensive description of that reality can be obtained in the responses to the questionnaire.

In respect of epistemology, this relates to what counts as knowledge, and how that knowledge can be gained, and here there are two possibilities. The first springs from the idea that reality, and hence, fact and knowledge, are socially-constructed. The researcher accepts that knowledge is constructed within its context, and aims to acquire an understanding of a scenario or process by interpreting it based on his/her previous background, knowledge, and experience (Walsham, 2006). As noted by Lee and Hubona (2009), such an approach accepts subjectivity as being inevitable. The second possibility is underpinned by the positivist position, believing that knowledge can be established through testing the perceived reality. If, in the testing of that reality, there is no contact directly between the knowledge and the researcher, it is believed that research objectivity can be assured (Hair et al., 2007).

There are different implications in terms of axiology from the use of different epistemologies, i.e. objectivity or subjectivity.

The other dimension of philosophy warranting consideration is epistemology. Epistemology deals with possibilities for knowledge with regard to reality and that knowledge may be acquired (Burrell and Morgan, 1979; Furlong and Marsh, 2010). Epistemology reflects on how knowledge is acquired by people and how people know of the existence of their perceived reality (Crotty, 1998). For Hallebone and Priest (2009), the epistemological stance of a researcher is a reflection of the assumptions that she or he has with regard to the ways in which the creation, synthesis, offering and use of knowledge occur. For social research, two positions with regard to epistemology are well known, i.e. positivism and interpretivism; these are discussed within the section that follows.

3.3 The Research Philosophy

The term ‘research philosophy’ refers to the manner in which researchers think about and address the issue of knowledge development (Saunders et al., 2016). Consideration of the research philosophy underpinning a study is important since it aids in the determination of, and reason for, the research design applied to the issue(s) in question (Easterby-Smith et al., 2018). Saunders et al. (2009) assert that research philosophies or paradigms are the way in which researchers think about knowledge and its development. This process can be described as the philosophical position from which a research methodology is informed and determined (Crotty, 1998). As Bryman and Bell (2015) made clear, the selection of a research methodology is helped by an appreciation of the relationship between social science and philosophy. Based on the views of researchers with regard to the research process, four different philosophical perspectives can be identified, these being: interpretivism, positivism, pragmatism, and realism (Saunders et al., 2012). Collis and Hussey (2013), on the other hand, classified research paradigms, broadly, into two different types, namely, the interpretivist (phenomenological) paradigm and the positivistic paradigm; a paradigm was referred to by them as “the progress of scientific practice based on people’s philosophies and assumptions about the world and the nature of knowledge” (Collis and Hussey, 2013:46). From such a viewpoint, the beliefs of people about their environment or circumstances would, inevitably, have an impact upon the design of research and the procedures followed.

3.3.1 Positivism

A positivist research philosophy believes it is possible to have knowledge of circumstances and environments that is accurate and unambiguous, with things within those situations being given positions. Likewise, in a positivist stance, human behaviour is believed to be measurable in an objective fashion (Haralambos, 2013). Positivism facilitates the application of scientific methods to the study of people and society considering the comprehensive approaches it depends upon can be beneficial (Crotty, 1998). Rather than speculation, positivist science is founded upon direct experience and so, knowledge has the firm and exclusive basis of a posited 'reality' that is not founded upon vague or 'woolly' speculation. Positivist approaches then, arrive at findings through direct observation using scientific methods, and they involve close links with empirical methods (Williams, 2017). According to Bryman (2015), positivism can be considered as an epistemological stance advocating the application of the methods used within the natural sciences for research into social and economic realities. The philosophical underpinnings of natural science are adopted within positivism, resulting in the potential for generalisations that are law-like, with similarity to findings acquired by natural and physical scientists (Saunders et al., 2016). Within a positivist paradigm, technology and scientific discoveries drive progress and, with the confidence brought by the use of scientific methods, knowledge based on science is considered both certain and accurate. Positivism is entirely objectivist; world objects, from a positivist stance, are seen as having meaning that is independent of any prior conscious consideration of them. Also, there is a need for a distinction to be maintained between knowledge that is objective and empirically verifiable, and knowledge that cannot be verified, and this latter type of knowledge is subjective (Easterby-Smith et al., 2012).

Researchers subscribing to a positivist philosophy consider issues in an objective way, choosing methodologies that are well-structured and that yield observations that are quantifiable and that lend themselves to statistical analysis. The positivist approach considers it possible to study a problem without the actual research approach itself having too great an impact on the issue in question (Collis and Hussey, 2013). For those taking a positivist stance, the quantitative methods that are commonly used are those that employ statistics for the analysis of data. These methods involve surveys with large samples, and the modelling of answers to propositions through the use of structural equations. This means that relationships amongst variables are testable through the use of techniques of regression and path

analysis (Bryman, 2015). Positivist approaches are founded upon an objectivist epistemology. Reality is considered as an 'external' phenomenon that can be arrived at by way of observation, experiment and comparison (Crotty, 2009). The reality experienced by a researcher through sensual perception, is considered as being independent from that perception, and from any bias or belief that the researcher may have. Consequently, it is believed that the research involved is value-free, and the positivist researcher thus becomes one who assumes the role of objective analyst (Blumberg et al., 2014). So, positivism supposes that a researcher makes objective analyses and interprets the data collected in a rational way (Saunders et al., 2016).

3.3.2 Interpretivism

Interpretivism or phenomenology emerged as a theoretical perspective that took a totally different approach to understanding and explaining human behaviour and social realities than positivism (Blumberg et al., 2014). The interpretive paradigm was considered by Newman (2013:78) "as the systematic analysis of socially meaningful action through the direct detailed observation of people in natural settings in order to arrive at understanding and interpretations of how people create and maintain their social worlds". Interpretive approaches seek interpretations of the world and social life that are historically situated and culturally derived rather than positivist approaches that follow observation purported to be detached and value-free that use methods based on the natural sciences. Rather than identifying universal characteristics for explanation and consequent control and predictability in a supposedly scientific way, interpretivist approaches are concerned with the interactions amongst people; therefore, studying the social world, history and society requires research procedures to be based upon an entirely different logic (Crotty, 2015; Bryman, 2015).

Interpretivist approaches view the social world of management science and business as being too complex for reduction to generalisations that are law-like. Interpretivism sees the social world and complex management situations as being unique; as such, interpretivist methodologies are inappropriate for generalisation as business organisations are in flux and people have varied interpretations of the unique and complex nature of their world(s) (Saunders et al., 2016). Rather than employing supposedly objective and statistical methods, knowledge is developed differently by interpretivist philosophy through a focus on descriptive and subjective methods for dealing with situations that are complicated (Easterby-Smith et al.,

2012). For interpretivist researchers, social realities are seen as being constructed socially with people giving them meaning. Also, interpretivist researchers are considered an element of the milieu under observation and so there is acknowledgement that interpretive knowledge is generated that is driven by values and interests. Qualitative methods using in-depth interviews, ethnography, grounded theory and so on are commonly used within interpretivist research for the collection and analysis of data (Newman, 2013). There is a great deal of complexity to social research and so it does not sit comfortably with the expounding of definite laws and theories with scientific bases. Hence, given the complexities faced by social science, interpretivist research investigates factors behind the generalised, rationalised comprehension of a situation or process (Saunders et al., 2009).

3.3.3 Realism

Another philosophical stance possible in scientific enquiry is that of realism. This is founded upon a belief that that there is a reality in existence within the world that has independence from the beliefs and thoughts of humans (Saunders et al., 2009). Realism shares principles with both interpretivism and positivism, i.e. it neither accepts nor rejects interpretivist or positivist approaches (Blumberg et al., 2014). Realism stands in opposition to idealism since the former acknowledges the existence of an independent reality. Realism is a kind of epistemology and, therefore, it has similarity with positivism in that there is an assumption that scientific approaches can be used for the development of knowledge. There are two kinds of realism, however, a critical realism wherein researchers look to see behind surface appearances and a direct realism wherein researchers consider that they are perceiving the world in an accurate way (Bryman and Bell, 2015).

3.3.4 Pragmatism

Pragmatism is yet another philosophical approach and this accepts that the world has its objective realities, which can be researched scientifically. However, in addition, pragmatism assumes that individualities can have an impact upon the individual perceptions and so, there is an acceptance that research has a subjective quality. This philosophical view provides science with multiple interpretations and explanations. Both subjective and objective criteria are used in pragmatic approaches (Blumberg et al., 2014). Consequently, a pragmatist philosophy lies between interpretivism and positivism and a researcher may adopt different approaches within the same research project; the fundamental principles of

pragmatism are such that a variety of epistemologies can be employed (Bryman and Bell, 2015).

These four kinds of research philosophy have been compared by Saunders et al. (2016) in relation to four types of feature, i.e. the ontology, the epistemology, the axiology, and the techniques for collection of data; this comparison is shown within Table 3.1

Table 3.1: Comparison of the Four Research Philosophies

Concept	Positivism	Interpretivism	Realism	Pragmatism
Ontology	External, objective and independent of social actors	Socially constructed, subjective, may change, multiple	Is objective. Exists independently of human thoughts and beliefs or knowledge of their existence (realist), but is interpreted through social conditioning (critical relict	External, multiple, view chosen to best enable answering of research question
Epistemology	Only observable phenomena can provide credible data, facts. Focus on causality and law like generalisations reducing phenomena to simplest elements	Subjective meanings and social phenomena Focus upon the details of situation, a reality details, subjective meanings motivating actions	Observable phenomena provide credible data, facts. Insufficient data means inaccuracies in sensations (direct realism). Alternatively, phenomena create sensations which are open to misinterpretation (critical realism). Focus on explaining within a context or contexts	Either or both observable phenomena and subjective meanings can provide acceptable knowledge, dependent upon the research question. Focus on practical applied research integrating different perspectives to help interpret the data
Axiology	Research is undertaken in a value-free way, the researcher is independent of the data and maintains an objective stance	Research is value bound, the researcher is part of what is being researched cannot be separated and so will be subjective	Research is value laden; the researchers biased by worldviews, cultural experiences and upbringing. These will impact on the research	Values play a large role interpreting results, the researcher adopting both objective and subjective points of view
Data collection techniques	Highly structured, large samples, measurement, quantitative, but can use qualitative	Small samples, in-depth investigations, qualitative	Methods chosen must fit the subject matter, quantitative or qualitative	Mixed or multiple method designs, quantitative and qualitative

Source: Saunders et al. (2016)

The classification of Creswell and Clark (2017) refers to the phenomenological paradigm as being a qualitative one and the positivistic paradigm as being a quantitative one. Collis and Hussey (2014), on the other hand, introduce more

primary features of the methodologies and methods of research of both the phenomenological and positivistic paradigms, and these are shown in Table 3.2.

Table 3.2: Features of the Phenomenological and Positivistic Paradigms

Concept	Positivistic paradigm	Phenomenological paradigm
Data collection technique	Quantitative	Qualitative
Epistemology	Objectivist	Subjectivist
Practice	Scientific	Humanistic
Research philosophy	Experimentalist, Traditionalist	Interpretivist
Sample	size Large samples	Small samples
Research approach	Hypothesis testing	Generating theories
Collected data	Highly specific and precise	Rich and subjective
Location	Artificial	Natural
Reliability	High	Low
Validity	Low	High
Generalisability	Generalises from sample to Population	Generalises from one setting to Another

Source: Collis and Hussey (2013).

In light of the discussions above, and based upon the explanations of both Collis and Hussey (2014) and Saunders et al. (2016), it is considered that a positivist stance is more appropriate for meeting the objectives of the research, as it brings the advantages of objective criteria, researcher independence, deduction, quantitative measurement, generalisation, and exploration of relationships and causality amongst variables.

There are five distinctive features of research undertaken according to a positivist philosophy, these being: 1) it often employs data that is quantitative; 2) it has a deductive nature (testing of theory); 3) it uses control so that hypotheses can be tested; 4) it employs a methodology that is structured so that replication can be facilitated; and 5) it aims at explaining causal relationships amongst variables (Gill and Johnson, 2010; Collis and Hussey, 2013). In this study there is a reliance upon the testing of theory rather than the building of theory, and hence, the hypotheses are tested via a deductive approach instead of an inductive one. Therefore, a positivist approach is adopted in which data is collected through a survey questionnaire, and an analysis is made via statistical techniques to test the hypotheses formulated. The use of a positivist approach also brings the benefit of being able to generalise the findings. Hence, a positivist philosophy was selected in order to comprehend causation amongst variables and so that explanation could be

provided of the antecedents in relation to the causal variables (Crotty, 2009). Moreover, this study is concerned to undertake objective testing of the primary constructs, either the dependent variables of performance or independent variables (CSFs, TQM). The achievement of the research objectives is considered more likely to occur through the adoption of a positivist approach that suggests the study will be conducted in a way that is value-free, and that the researcher will maintain a position that is objective and independent (See Table 3.2 above). In the study, the primary constructs within the proposed model are selected according to the theoretical background established in the literature, i.e., not derived from the opinions or thoughts of the researcher. Furthermore, a self-administered questionnaire is used with the research sample so that there is no interference from the researcher and in such circumstances the data has greater objectivity as it is not influenced by the researcher's beliefs (Sekaran and Bougie, 2016).

3.3.5 The Research Design

The design of a research study can be considered as the plan or framework that guides the data collection and analysis. It is the basic logic, strategy or plan that informs the undertaking of a research project (Oppenheim, 2000; Larsen et al., 2017), and a proper design is essential for any research project since it enables the questions of the research to be turned into the steps it is necessary to take to achieve that project. The particular research design chosen has importance for decisions concerning which processes, strategies, methods and types of sampling are adopted (Robson and McCartan, 2015). Indeed, there are several inter-related decisions that researchers must make, and the research design helps them in determining these, and thereby answering the relevant question(s) posed by the research (Sekaran, 2015). Choices made in respect of the design of a research project depend upon the research purpose(s) and, as noted by Das (2010), there are three basic kinds of research design, these being: i) descriptive, ii) exploratory, and iii) explanatory. Each type of research project has its own particular objective(s) and the research design types listed have their own characteristics in terms of the formulation of hypotheses, the setting of the study, and the methods of collecting data (Bryman, 2015). These different possibilities in research design are now considered briefly.

i) *The descriptive study* provides an accurate account of the profile of events, situations or people, and tends to require the collection of much data about the topic in question. As Robson and McCartan (2015) have noted, descriptive studies can have designs that are fixed and/or flexible. They can be undertaken for the determination and description of the characteristics of a situation and its variables and, therefore, have the aim of providing researchers with a profile or description of phenomena at various levels such as that of the organisation, the individual, the industrial sector and so on (Sekaran, 2015). Descriptive studies have been considered to be aspects of and/or forerunners to exploratory kinds of research. Thus, prior to undertaking an exploratory study, a descriptive study is needed so that a clear picture can be developed of the phenomena under investigation (Saunders et al., 2016).

ii) *The exploratory study* is concerned with investigating what is occurring, and has a focus on asking questions and trying to discover new insights. Exploratory studies assess phenomena from a new perspective, and help generate hypotheses and ideas for research in the future. Robson and McCartan (2015) have characterised the approach as being flexible. When little or no information is available from any previous research efforts, exploratory approaches are useful in securing a better understanding of the nature of a problem (Sekaran, 2015). Likewise, if a problem is vague and imprecise, an exploratory study can be used for the sake of clarification through the interviewing of experts, a literature review or through undertaking interviews in a focus group (Tashakkori and Teddlie, 2010).

iii) *The explanatory study* is concerned with clarifying problems or situations under investigation and, in providing an explanation of patterns and relationships identified amongst variables, this type of study can have a either a fixed design and/or be flexible (Easterby-Smith et al., 2012; Saunders et al., 2016). In explanatory studies, hypotheses are tested to provide explanations of the nature of particular relationships or to indicate the differences amongst independent variable groups. They can also be used for explaining variance in respect of dependent variables or for predicting outcomes (Sekaran and Bougie, 2016).

Based upon the research questions asked in this study, and the consequent objectives formulated, it is considered that the approaches of both explanatory and descriptive studies are suitable for addressing the issues. Indeed, the research questions could be answered by way of an explanatory approach, a descriptive approach or a combination of the two (Saunders et al., 2016). In terms of the implementation of TQM and performance (non-financial, and financial), a descriptive study is employed to delineate service sector characteristics. An explanatory design (testing of hypotheses) then assists in explaining the nature of the relationships between different variables through the testing of a hypotheses set, and testing the variance of dependent variables by way of independent variables. The research design allows the researcher to undertake an examination of any relationships that exist between dependent and independent variables. Hence, an explanatory study was chosen in order to determine the relationship between organisational performance and the implementation of TQM within the service sector, in terms of both its nature and intensity. Furthermore, the chosen design facilitates the determination of the strength of the relationship between organisational performance and TQM.

3.3.6 The Research Approach

The approach taken to research can be classified as being either inductive or deductive (Saunders et al., 2016), and it determines the kind of relationship between the research and theory (Collis and Hussey, 2013). The inductive approach is characterised by the collection of data, the analysis of that data, and the development of theory from that analysis (Gray, 2013). Such theory is generated, as noted by Gill and Johnson (2010) by establishing general propositions in relation to the nature of the issue under investigation. A deductive approach, on the other hand, is seen when research has a focus on testing an already-established theory to see whether it can be empirically verified (Saunders et al., 2012). The basis of the hypotheses is the existing knowledge, which is tested in ways that are empirical and through the use of statistical methods (Bryman and Bll, 2015).

There is a need for the philosophies and approaches to research to be matched and, in general, an inductive approach matches a philosophy that is interpretivist, and a deductive research approach matches more closely a philosophy that is positivist (Sekaran, 2015). The adoption of a deductive approach tends to lead a researcher towards the use of experimental or survey strategies (Collis and Hussey, 2013), that seek to describe causal relationships that exist between variables, and

to test hypotheses and result in generalisations about the social behaviour of people (Saunders et al., 2016). This study adopts a deductive approach, thereby taking the existing theoretical offerings in the literature, and producing hypotheses about phenomena that already exist (Bryman and Bell, 2015). The following reasoning led to this choice: the literature in relation to organisational performance and TQM is extensive, and therefore, facilitated the definition of a theoretical framework and development of hypotheses by the researcher; generalisations could be made so that plausible statements could be developed in relation to the phenomenon under investigation; causal relationships amongst variables could be established; and the adoption of a cross-sectional survey methodology allowed savings in effort, resources, and time.

A deductive approach is thus employed to enable the measurement of facts related to variables and to describe the causal relationships amongst variables so that explanations can be given of the relationships between performance and the implementation of TQM within the service sector (Saunders et al., 2016). In this deductive reasoning exercise, a quantitative methodology is adopted in order to analyse associations, via the testing of hypotheses concerned with cause and effect relationships (Creswell, 2013). Quantitative data can be supplemented by qualitative data which helps in the instrumentation and expansion of concepts, whilst the quantitative data, itself, can help support the qualitative data through the finding of a sample that can be considered representative and the location of samples that are deviant (Amaratunga et al., 2002; Karami et al., 2006).

With regard to time horizons, two approaches to data collection are possible, these being longitudinal, and cross-sectional (Collis and Hussey, 2013; Sekaran, 2015). The former has the aim of continuously investigating problem dynamics, and allowing for such investigation to endure over time (Collis and Hussey, 2014), whilst the latter involves a positivist methodology that has been designed in order to acquire data from various contexts simultaneously. With the cross-sectional approach, data collection occurs only once and within a short timeframe so that a snapshot is acquired of a situation that is ongoing. Undertaking an approach that is cross-sectional, then, enables investigation of correlations amongst variables within large samples; according to the literature, this approach is the most commonly used. Because of limitations in resources and time, a cross-sectional strategy is followed within this study thus allowing for an investigation of relationships between the dependent and independent variables as seen at one point in time.

3.4 The Research Strategy

The research strategy is simply the action plan formulated to achieve the project goal(s), and it is devised in order to show how a researcher intends to answer the study questions (Kumar and Phrommathed, 2005). Many different research strategies that can be employed to tackle different kinds of research exist, including archival research, survey, experiment, case study, grounded theory, action research, and ethnography. Furthermore, each of these strategies can be used in research that is explanatory, descriptive or exploratory (Yin, 2003). Essentially, the strategies or combinations of strategies chosen depend upon the questions and objectives of the research, the extent of the knowledge that already exists, the researcher's philosophy and needs, and the available resources and time. In order to arrive at a suitable research strategy for this study, it is necessary to review the study's focus (aim and objectives).

In this respect, the four questions in this study lean more towards the validation of existing theories, and Hair et al. (2015) have argued that such studies aim at testing hypotheses that have been formulated as a result of considering those theories. So, it was considered most appropriate to conduct a survey using a questionnaire which, given the size and scope of the research sample and the geographical distances involved, involved relatively lower costs (Zhang, 2000). By way of caution however, it must be noted that a survey questionnaire can be considered as practical only if there is an unambiguous and straightforward research objective (Bourque and Fielder, 1995). In the different areas of study related to the adoption of TQM, several research projects have effectively used the questionnaire survey for the collection of data and information (see, for example, Saraph et al., 1989; Black, 1995; Flynn et al., 1994; Black and Porter, 1996; Brah et al., 2000; Samat et al., 2006; Talib et al., 2013; Ooi et al., 2015; Jaca and Psomas, 2015). In general, questionnaire surveys have been seen as useful for acquiring large amounts of information with regard to TQM, though with a low level of detail. For this research project, a questionnaire survey was used to acquire TQM performance-related information from a broad range of contexts within the Jordanian service sector. The data acquired is valuable in examining the influence of TQM upon the non-financial and financial performance within the firms studied. As the research focuses on investigating the effects of TQM upon performance within the service sector, the quantitative approach of using a questionnaire survey is thought to be most appropriate. Numerous models can already be found within the literature related to

TQM theory and, given the robust theoretical foundation for identifying associated variables and the relationships amongst them, a causal design that uses a questionnaire survey is considered the most appropriate (Brah et al., 2000; Zhang, 2000; Jaca and Psomas, 2015).

3.5 The Research Method

Easterby-Smith et al. (2012) have proposed three primary research methods, i.e. qualitative, quantitative, and mixed methods. Qualitative approaches involve the collection of data that is open-ended and textual, through the use of strategies involving interviews and/or case studies. Such methods are able to provide greater degrees of in-depth information in regard to the nature of an issue (McCusker and Gunaydin, 2015, Brannen, 2017, Padgett, 2016). Quantitative methods on the other hand, involve the collection of numerical data by way of a survey strategy or experimentation. Methods that are quantitative are able to provide high levels of precision in measurement, and high levels of both statistical power and data reliability. Finally, mixed methods research involves the collection of data on one occasion or sequentially through the use of a combination of both qualitative and quantitative methods (Walliman, 2017).

With quantitative methods, data analysis can be performed using statistical procedures, which are considered to be objective and promote generalisability. Consequently, this study employs a quantitative method in respect of data gathering, and statistical procedures for the analysis of data. Additionally, as the study is deductive in nature, it is undertaken according to scientific processes which present the possibility of establishing causal relationships amongst different types of variable. In this respect, the analysis was performed to enable the identification of relationships, and the impact of the different variables included in the proposed framework. Since the stated hypotheses underwent testing in operational form, the outcomes allowed for inferences to be made in relation to core meanings and directions of relationships between performance and the implementation of TQM and CSFs, and their strength and performance.

3.5.1 The Data Collection Method

Research methods have been defined by Bryman (2015) as those techniques employed in the collection and generation of data. Within business research, there are two main ways to gather data, these being, primary and secondary. Primary data is collected via interviewing subjects and obtaining completed questionnaires from them, and these methods represent both qualitative and quantitative approaches (Silverman, 2015). Predetermined instruments can be used by researchers for the collection of quantitative data through, for example, questionnaires that bring forth statistical information. Alternatively, or as well, researchers can use qualitative approaches for data collection related to observations and words. Secondary data are those collected by other people (survey or documentary) and produced in some published form (Saunders et al., 2016). Such forms are written documentary sources such as reports, journals and books, and non-written sources such as CD-ROMs and television programmes.

3.5.1.1 The questionnaire

The use of a questionnaire is normally associated with a deductive approach. Questionnaires have most commonly been used to answer questions of a 'who?', 'where?', 'how many?' and 'how much?' nature, and they are often employed by researchers in the field of management and business (Saunders et al., 2012). Most of the literature related to the performance of organisations and TQM has involved the use of questionnaires. Cohen et al., (2007, p. 317) defines a questionnaire as "a widely used and useful instrument for collecting survey information providing structured, often numerical data, being able to be administered without the presence of the researcher, and often being comparatively straight forward to analyse". The use of the technique has featured in the work of numerous authors over the last thirty years (see, for example, Saraph et al., 1989; Denison and Spreitzer, 1991; Flynn et al., 1994; Ahire et al., 1996; Chang and Wiebe, 1996; Dellana and Hauser, 1999; Al-Khalifa and Aspinwall, 2000; Chapman and Al-Khawaldeh, 2002; Baidoun, 2004; Prajogo and McDermott, 2005; Al-Marri et al., 2007; Jung and Hong, 2008; Salaheldin, 2009; Zu et al., 2010; Vecchi and Brennan, 2011).

Bryman (2015) considered the questionnaire to be the most appropriate way to collect information from the managers and staff of organisations. Indeed, as stated by Saunders et al. (2016), a questionnaire may be self-administered, requiring no researcher presence, and providing anonymity. Questionnaires may be delivered personally by hand to all of the participants for later collection (known as a delivery

and collection approach), or through the mail (known as a postal questionnaire). There is also the option of delivering and returning questionnaires electronically via email (known as an online questionnaire). In some surveys, especially those within market research, telephone questionnaires are used. And finally, structured interviewing can be conducted, wherein the researcher/interviewer meets the participants in person in order to ask them the questions on the instrument in a face-to-face session.

For this research, questionnaires were chosen as the main tool for the collection of primary data, and were hand-delivered for self-administration by the participants. An online approach would have required the email addresses of all participants, and a postal approach could not be guaranteed to produce sufficient responses given the political and socio-economic environment of Jordan, and the weak nature of the postal service. Consequently, the hand delivered, self-administered approach to questionnaire surveying was the most appropriate in the circumstances of Jordan. The completed questionnaires were collected after a suitable period.

3.5.1.2 Questionnaire Design

The questionnaire was developed after due consideration of the comprehensive literature review in the field of TQM. The intention of the instrument was to assess the effects of the CSFs related to TQM implementation in the context of the Jordanian service sector (Appendix 1)

At the development stage, questionnaires that had been successfully used by other researchers, and therefore considered to be valid, were considered and adaptations made to the instrument for this study. Such questionnaires came from Zhang et al. (2000), Brah et al. (2000), Jayaram et al. (2010), Zu et al. (2010), Antony et al. (2004), Talib (2013), Calvo-Mora et al. (2016), and Salaheldin (2009).

Eventually, a questionnaire containing three distinct parts was devised as follows:

Section A includes eight questions of a general nature concerning the existence of a quality initiative within the company. It seeks to establish the length of time of such programme in years, and took three years as an indication of a firm with experience in TQM. This decision was informed by the advice of Dawson and Patrickson (1991), and Brah et al. (2000), who contend that for consistent performance benefits to be seen from TQM implementation, there must be at least three years' experience. Additionally, this section sought details about the industrial context of the company,

considered necessary because of the various internal and external variables impacting upon TQM effectiveness. From the answers to these questions, the researcher was able to generate an index of industry differences.

Section B focuses on the QM practices already in force in the company, and does so using 85 questions relating to the 12 CSFs associated with successful TQM implementation. The items were all believed to be relevant to the particular situation of the study, after the in-depth literature review.

Section C seeks to measure the company's business performance, using financial and operational aspects as the units of assessment. Subjective performance measures rather than financial statements in the public domain were used on the basis that the survey included four different types of industry within the service sector, and that within these four different types there were indeed, many variations. This strategy is recommended by Brah et al. (2000) as a means of removing the effect of diverse capital structures, and accounting conventions relating to depreciation. Additionally, it was understood that the sample would include many companies in private hands, which may not actually produce such information for public consumption, or which may consider their financial information as confidential. Within this section, business performance was divided into: strategic business performance, dealing with major corporate goals such as profitability, market share, sales turnover and return of capital; and non-financial business performance, and dealing with the day-to-day running of the organisation. The non-financial performance measures were sub-categorised into f groups, these being: Employee satisfaction, process, Product Quality, personnel, and customer relationship. Brah et al. (2000) advised the use of eleven operational business performance measures, and together with these, the researcher included five key items from a comprehensive performance measurement system of strategic business performance indicators. This strategy was adopted for brevity and to encourage a good response rate. Most of the scales featured were of the Likert type, ranging from 1 strongly agree, to 5 strongly disagree, with 3 being the mid-point marked as 'neutral'.

In respect of the measurement of variables, closed questioning was employed. All of the questions were presented through use of a 5-point Likert scale. For all of the constructs based upon the corresponding items, mean scores were computed.

Higher mean scores reflect higher levels of implementation of TQM and higher performance levels (see Table 3.3).

Table 3.3: Main Dimensions of the Study

Dimension	Description
Questions related to Demographic Profile	• Information about the respondents' experiences in the company, their position, and departments, and details about the industrial context of the company
Questions related to Management Commitment and Leadership	• Our top management actively participates in quality management and improvement process. • Our top management learns quality-related concepts and skills. • Our top management strongly encourages employee involvement in quality management and improvement activities. • Our top management arranges adequate resources for employee education and training. • Our top management discusses many quality-related issues in top management meetings. • Our top management focuses on product quality rather than yields. • Our top management pursues long-term business success. • Our top management actively encourages change in moving towards 'Best Practice'. • Our top management clearly identifies quality goals for employees to achieve. • Our top management views quality as more important than cost and schedules objectives. • Our top management implements a culture of trust/involvement/commitment in moving towards 'Best Practice'.
Questions related to Customer Focus and Satisfaction	• Our company knows our external customers' requirements • In designing new products and services our company uses the requirements of domestic customers. • Our company has an effective process for resolving external customers' complaints. • Customer complaints are used as a method to initiate improvements in our company's current processes. • Our company systematically measures external customer satisfaction. • Our company collects extensive complaint information from customers. • Customers' feedback are utilised for quality improvement • The communication training process emphasises customer focus. • Quality-related customer complaints are treated with top priority. • Our company has been customer focused for a long time.
Questions related to Continuous Improvement	• Our company improves systematically key processes to achieve better service. • We regularly measure the services and processes quality. • Our company regularly monitors improvement in quality of service and processes. • We have a programme aimed at finding time and cost reductions in internal processes. • Our company uses "the seven quality control (QC) tools" * extensively for process control improvement. • Our company employs the PDCA (plan-do-check-adjust) cycle extensively for process control and improvement. • I believe targeted quality-related data assesses the performance of all the departments. • I believe suitable feedback is provided to employees on their quality performance. • Our decisions regarding quality improvement are always based on objective data.
Questions related to Employee Involvement	• Our company undertakes employees' involvement-type quality programmes (e.g. quality circles, quality improvement teams or other). • Building Quality awareness among employees is an ongoing process in the company. • The company utilises teamwork structures for process improvement. • Employees' suggestions are given high consideration in our company. • Reporting work problems is encouraged in our company. • Employees are keenly involved in quality-related issues.

	• Top management push the decision-making to the lowest practical level.
Questions related to Training and Education	• Our company encourages employees to accept the education and training we provide. • Our company gives quality awareness education to employees. • Employees are trained in problem-solving skills. • Employees are trained in teamwork. • Our company regards employees as valuable, long-term resources worthy of receiving education and training throughout their career • Our company allocates sufficient funds for employee training on quality matters. • Employees' performance is measured and recognised in order to support quality programmes. • Most employees in our company are trained on how to use quality management methods (tools).
Questions related to Employee Encouragement	• There is regular formal measurement of employee satisfaction. • We have a transparent and effective appraisal system for recognising and rewarding. • Our company provides a safe and healthy work environment. • Our company stresses teamwork and team spirit. • Our company improves working circumstances in order to distinguish employee quality enhancement efforts. • Our company improves working circumstances in order to distinguish employee quality enhancement efforts. • Our company motivates, supports and encourages employees. • Position promotions are based on work quality in our business. • Our management motivates employees and fully develops their potential. • Recognition and remuneration activities efficiently encourage employee attention to quality improvement.
Questions related to Supplier Partnership	• Our company strives to establish long-term relationships with suppliers. • Our company relies on a small number of high quality suppliers. • Our suppliers are evaluated according to quality, delivery performance and price, in that order. • Our company has a thorough supplier rating system. • Our suppliers are involved in our quality training. • Our company provides technical assistance to our suppliers. • Our suppliers are selected based on quality instead of price or schedule.
Questions related to Information/Analysis /Data	• Our company presents and transmits important information to employees. • Our company collects and analyses data related to its activities. • Our company harnesses information to improve its key processes, products and services. • Our company has precise data about the competition used to identify areas of improvement.
Questions related to Strategic Quality Planning	• Our company bases the development and implementation of strategies and plans on data concerning customers' requirements and the firm's capabilities. • Our management sets objectives for managers. • Our management sets objectives for all employees. • Our management communicates its strategy and objectives to the whole staff. • Our management involves the employees in the setting of its objectives and plans. • Results are evaluated by comparing them to planned results, in order to make improvements.
Questions related to Culture and Communication	• Continuous quality improvement is part of all employees' responsibility rather than of the quality department alone. • Our company attaches importance to starting employee coaching with the concept of quality rather than the policy. • All employees are ready and willing to be trained and educated with new concept on quality. • Our company establishes long-term goals related to quality. • Our company develops a company-wide culture of quality.
Questions related to Benchmarking	• Our company is engaged in extensive benchmarking of competitors' service that are similar to our primary service. • Our company has engaged in extensive benchmarking of other companies' business processes in other industries. • Benchmarking has helped improve our service. • The quality system in our company is continuously improving.
Questions related to Social and Environmental Responsibility	• Our company considers public health issues as a company responsibility.

	• Our company considers public safety issues as a company responsibility. • Our company considers environmental issues as a company responsibility. • Our company extends its quality commitment to the external community.
Questions related to Non-Financial Performance and Operational	• Our company has a high percentage of suppliers' on-time deliveries. • Our company has a high reputation for providing quality service. • Our company has a high overall level of customer satisfaction • Our company has a high skill level of employees. • Our company has a high level of employee satisfaction. • I believe our company has high productivity. • Our company has a high number of repeat customers. • Our company has a low number of customer complaints. • Our company has a low level of employee absenteeism. • Our company has a high percentage of on-time deliveries. • Our company has a low level of employee turnover
Questions related to Financial Performance	• Over the last three years, we had increases in debt-to-equity ratio. • Over the last three years our company has increases in net profit as a percentage of net assets (return on asset). • Over the last three years our revenue growth has increased. • Over the last three years our company has increases in gross profit as a percentage of sales (return on sales). • Over the last three years our company has increases in gross profit as a percentage of sales (return on sales). • Over the last three years our market share has increased.

3.5.2 Pilot Study

Pilot testing is essential in respect of any research instrument to establish and remedy any shortcomings of the instrument before it is administered on a large scale (Bryman and Bell, 2015; Saunders et al., 2016). The pilot study also brings the advantage that the process to be followed when administering the instrument is tested. For example, the suitability of the intended sample to answer the questions posed, and the appropriateness of the intended method of approaching participants, are important aspects (Saunders et al., 2016; Bryman and Bell, 2015).The value of conducting a pilot study can be summarised as being to:

- Establish the feasibility of an instrument and pinpoint any weaknesses.
- Establish whether the instrument incorporates the appropriate questions, is comprehensible in its format, and suitable for the chosen sample.
- Establish the suitability of the data collection method (i.e. whether electronic, face-to-face, etc.).
- Evaluate the entire data collection process (i.e. the time involved, willingness of participants).
- Test data entry, coding of the items, and appropriateness of statistical tests.
- Secure preliminary data that can provide guidance for the subsequent procedures (i.e. will the sample be big enough?)

3.5.2.1 Validity and Reliability of the Piloted Questionnaire

Validity

As Field and publishing (2018) note, as a concept, validity refers to the ability of an instrument to measure what it intends to measure. So that validity can be ensured, the researcher had to undertake a number of actions as follows:

i) Validity of content – This refers to the ability of the questions contained in the instrument to give coverage that is accurate (Saunders et al., 2016). Content validity is confirmed by the researcher through the underpinning provided by the existing literature in the field, in addition to the accreditation of the questionnaire from an expert panel including academics, and the assessors who are responsible for the King Abdullah QM award, both before and after the necessary translation.

ii) Validity in linguistic terms – Linguistic validity refers to the wording of the questions and the use of suitable concepts so that the wording of the questionnaire can be totally understood. Two steps were undertaken to ensure this: Translation of the questionnaire into Arabic by two separate, independent translators; and the deployment of the aforementioned expert panel to provide assurance that appropriate concepts are used in the translated questionnaire

iii) A pilot study was conducted to find possible difficulties and problems that respondents might face while working through the items. Comments about the clarity of wording, the order of the items, instructions, and the time taken to complete the questionnaire were all taken into consideration when preparing the final version.

Reliability

As noted by Field (2012), reliability indicates the consistency of the results throughout periods of time and under diverse conditions, for example, by various clusters of participants. The internal reliability of this pilot study has been thoroughly tested by examining the correlation of each item included in either the questionnaire or in the construct (sub-scale) within the questionnaire with the other items or constructs across the questionnaire. Cronbach‘s alpha coefficient is considered the most frequently used test of inter-item consistency reliability (Tan, 2018). In general, higher coefficients (closer to 1) indicate better inter-item reliability that implicitly

leads to a better measurement instrument. Instruments with coefficients less than 0.6 are considered as having poor reliability (Nunnaly, 1978; Sekaran, 2003; Field, 2017; Hair et al., 2015).

In order to assess the internal consistency of the items in the questionnaire (all scale measures), Cronbach's alpha test was performed by running the data using IBM SPSS version 24. As is shown in Table 3.4, all the items and constructs within the questionnaire are reliable as all the Alpha scores exceed 70%. In fact, for most constructs, they exceed 80% and 90%, thus exhibiting excellent reliability.

Table 3.4: Internal Reliability of the Questionnaire

Construct	Number of Items	Cronbach's Alpha	Comments
All questions	101	0.953	Accepted
Management Commitment and Leadership	11	0.899	Accepted
Customer Focus and Satisfaction	10	0.909	Accepted
Continuous Improvement	9	0.842	Accepted
Employee Involvement	7	0.811	Accepted
Training and Education	9	0.876	Accepted
Employee Encouragement	8	0.776	Accepted
Supplier Partnership	7	0.736	Accepted
Information/Analysis/Data	4	0.838	Accepted
Strategic Quality Planning	6	0.876	Accepted
Culture and Communication	5	0.855	Accepted
Benchmarking	4	0.947	Accepted
Social and Environmental Responsibility	4	0.790	Accepted
Non-Financial Performance	11	0.879	Accepted
Financial Performance	5	0.776	Accepted

3.5.3 Sampling Techniques

The term 'census' relates to the collection and analysis of data from all of the potential group members within a population (Wilson, 2014; Singh and Masuku, 2014), but in the vast majority of research projects it is impossible to try to pursue such an objective. Indeed, it is rare for a researcher to seek to undertake a complete population census because of time and cost constraints (Hair et al., 2015). The term 'population' in relation to a project of research can be described as "the set of units that sample is meant to represent" (De Vaus, 2013:69-70); since locating all population elements is practically impossible, for the sake of conducting valuable business research, an appropriately selected sample of the population can offer an adequate amount of precise information (Hair et al., 2011). It can, however, be rather complicated to define a population; there is a need to break the approach down from the general to the more particular (Wilson, 2014). Also, the study context

and the nature of the research questions have a significant bearing. So, in order to address the questions of this study and the testing of the model proposed, the application area selected was the service sector in Jordan. As noted by Hair et al. (2015), representative samples can be acquired through a set of procedures that are well-defined, as explained in the sections that follow.

The sampling frame

The achievement of representativeness in relation to the whole population is the central aspect of sampling (Wilson, 2014). As noted by Collis and Hussey (2015), for the purposes of generalisation, the data acquired from a representative sample within positivistic research may be considered true for the entire population. Collis and Hussey (2014:209) noted that the sampling frame is "a record of the population from which a sample can be drawn". In this study, the sampling frame is the list of service sectors within the Jordanian economy which included: banking; healthcare (hospitals); the ICT sector (including services for computer software and IT enabled services, and telecommunication); and hospitality (hotels). These four sectors were chosen since together they comprise a high percentage of Jordan's GDP Central Bank of Jordan (CBJ, 2016). These sectors are also highly labour-intensive providing substantial employment opportunities (Labour Ministry, 2010), and the net annual income of the service sector in Jordan continues to grow Central Bank of Jordan (CBJ, 2016). It is also a fact that these service industries are sufficient in size to enable enough data representative of nearly all of the key features of excellence that could be encountered by management and factors in relation to quality as perceived by customers, to be captured (Al-Marri et al., 2007; Yusuf et al., 2007; Van Dun et al., 2011). Moreover, these service industries provide a good reflection of that sector within Jordan since they demonstrate a wide variety of levels of implementation of TQM/Quality Management (QM). In order to acquire a suitable sampling frame from which the eventual sample could be derived, the researcher spent much time and effort engaged in a search of the website of the Ministry of Industry and Trade of Jordan (MIT, 2017). Subsequently, a list was generated by the researcher that included the firm name, its senior manager or owner, a contact telephone number and the email address of the organisation. This list helped in the selection of the method of sampling and in the identification of a suitable size of sample. In total, 1,355 companies representing each of the four categories mentioned, appeared in this list during the research period. Whilst it is the case that

such companies often update their data, the data for this study was taken from published material between September 2015 and May 2017.

Sampling methods

The sampling approach for the study was based on three considerations, these being: the nature of the study, the study's objectives, and time and budget constraints (Hair et al., 2015). It is possible to use two main types of sampling that appear within the literature for the data collection in this current study, i.e. the non-random (non-probability) technique, and the random (probability) technique.

The non-random (non-probability) technique, often called judgemental sampling, is a way of providing a range of approaches that are normally based upon subjective judgment for selection within both the early exploratory phases of a study, and the later questionnaire survey (Tan, 2018). Those types of non-random sampling that are used most often are judgemental sampling, quota sampling, convenience sampling, and snowball sampling (Hair et al., 2015:211).

Random (probability) sampling, on the other hand, is the sampling technique that is most representative and that is largely associated with studies that are survey-based (Saunders et al., 2016). Random/probability sampling has the objective of selecting elements that ought to be founded upon random procedures, giving elements a selection chance of non-zero (Beins, 2019). The types of random techniques that are used most frequently are stratified sampling, cluster sampling, and simple random sampling. Stratified sampling calls for the splitting up of the target population to sub-groups that are relatively homogenous. Cluster sampling involves the creation of groups that may or may not be the same in nature (Thompson, 2012). With the simple random type of sampling, each of the elements of the population targeted has an equal chance of selection (Hair et al., 2015). This research project employed stratified sampling as it was considered capable of gathering sufficient information from the entire population in order to make inferences from the results of the statistical testing to be performed. The ability to be precise is an advantage of stratified sampling, which Malhotra (2007) notes, has a primary objective of increasing research precision without increasing the costs involved. Many studies related to TQM have applied a stratified sampling technique when collecting data, as for example, those by Sila and Ebrahimpour (2005), Lakhal et al. (2006), Arumugam et al., 2009; Sit et al. (2009). For this research project, four strata act as divisions of the target population (N=1,355), i.e. banking (714), ICT

sector (250), hotel sector (230), and hospitals (110). As already mentioned, each of these strata contains the total number of organisations obtained from the mentioned source Ministry of Industry & Trade (i.e. MIT, 2018), as shown in the brackets.

Sample size

The population selected was based upon positions in departments within the organisations in the sector; the participant had to be a general manager, a manager, a financial manager or a quality manager. The reasoning behind the selection of the sample was based upon the following:-

i) In theory at least, managers are highly educated with a good understanding of the practice of TQM, policies, planning, training, decision-making, and issues of empowerment and engagement. Managers play a key role within organisations and have a strong bearing upon factors such as constraints that could have an impact upon TQM effectiveness, and the organisational culture as a whole;

ii) Within organisations, quality managers play key roles in TQM implementation. Quality managers offer opinions, commitment and support to ensure that there is successful performance of the functions of TQM within organisations. They ensure there is due establishment and implementation of the processes of TQM and that awareness of the requirements of the customer(s) is promoted throughout the different levels of the organisation. Quality managers tend to have a broad range of knowledge and experience with regard to the challenges and issues faced for TQM implementation;

iii) Finance managers also play a key role in quality management implementation on a daily basis. As such, they have been targeted so that their views can be established in relation to impacts of TQM implementation levels upon the financial performance of the organisation.

The rationale for selection was based upon the work of Brah et al. (2000), which identifies the need for four essential characteristics to be present before an information source within an organisation can be considered good. The first is the need for such sources to be the executors of top management decisions; the second is the need to occupy a position that enables the source to interact with both the shop floor and top management since people in such positions can understand

organisational performance from a managerial standpoint, as well as appreciating the reactions to quality practice amongst employees. The third requirement is that the information source can understand the quality-related problems that could impact upon an organisation, and the fourth is that the source must possess the appropriate information to respond to questionnaires related to quality and the issues related to the practice of TQM. As Table 3.5 shows, there are currently approximately 1,355 hospitals, private sector banks, communications companies and hotels in the service sector in Jordan. According to researcher's calculations, and as indicated above, it was proposed to employ a stratified sampling technique as has been recommended in the work of Saunders et al. (2009). The Yamane (1967) formula, often used in social science to determine the size of sample necessary to allow for reliable statistical analysis, was applied. This formula is represented as:

$$n = \frac{N}{1 + N * e^2} = \frac{1355}{1 + 1355 * (.05)^2} = 308.8$$

Where, n is size of the sample, N the population, e the sampling error (acceptable error is usually 0.05). Administration of the questionnaire to the different kinds of organisation, i.e. the hospitals, the hotels, the banks, and the communications firms, was done in accordance with their proportion of the population so that the sample chosen was as representative as could be, as shown in Table 3.5. Also, anonymity was assured to participants since their names were not requested and confidentiality was provided in respect of the answers. AMOS 24 and SPSS 24 were used to analyse the questionnaire data.

Hair et al. (2015) consider that the minimum size of sample needed for factor analysis depends upon the complexity of the research model. Generally, ten cases for each of the variables for analysis is judged to be the minimum accepted. SEM, however, needs a sample that is larger when compared to other techniques that multivariate and it is suggested that samples between one and four hundred observations are appropriate for SEM with any quantitative data set. The sample in the current study is aligned with both the above requirements. Specifically, there are twelve different variables contained in the research model, rendering a minimum of one hundred and twenty observations (10 x 12), i.e. a lower figure than the 400 of the sample (see above in Chapter Two Furthermore, the size of sample of 309 does

confirm the condition for SEM (one hundred to four hundred). Hence, there is confidence in the ability of the statistical analyses to be robust.

Table 3.5**:** Sample

Type of Industry	***Number***	***Percentage of Population***	***Number Required for Collection***
Banks	714	53%	163
Hotels	250	18%	56
Hospitals	110	8%	25
Communications	281	21%	65
Total	1355	100%	309

3.5.4 Methods of Statistical Analysis

The procedures applied in the data analysis range from advanced SEM to correlation analysis. In order to screen the collected data, univariate statistical analyses were performed, and initial statistical analyses were conducted using SPSS Version 24 in order to examine the validity and reliability of the study scales (Coakes and Steed, 2010). SEM through use of AMOS Version 24 allowed for the examination of the questions of the research and the testing of the hypotheses. The statistical tests employed are described further in the following sections.

3.5.4.1 The Data Screening

Data screening was undertaken in order to enhance the data. As noted by Fidell (2013), the use of univariate statistical analysis allows for the acquisition of a high quality data set. Specifically, data screening is performed to ensure that all of the responses entered are sensible, that outliers can be detected, and that the researcher can be assured that the response distribution is not in violation of the assumptions of normality required for multivariate analysis (Hair et al. (2015). Fidell (2013) pointed out that outliers ought to be identified from the multivariate, bivariate and univariate perspectives using Mahalanobis D2 measures and scatter plots. This is in fact, the method used most for detecting outliers (Kline, 2016). Furthermore, evaluations of skewness and kurtosis, were undertaken in line with the recommendations for those procedures given in the work of Hair et al. (2015).

3.5.4.2 Treatment of Missing Data

Data can be missing for a variety of reasons such as a refusal to answer particular questions, insufficient knowledge to provide an answer or errors during the process of data entry. Whilst it may not be possible to completely eradicate the issue of

missing data, it may be reduced considerably (Van Buuren, 2018). It has been recommended that researchers can reduce the levels of missing data by using questionnaires that are self-administered, that are well designed, and that have been extensively pre-tested (Little and Rubin, 2014). Another means of solving missing data problems, is the use of the imputation method which involves estimation of missing observations based upon the other values that are valid amongst other observations within the set of data in question (Hair et al., 2015). Whilst imputation, through calculation of replacement, leads to certain disadvantages such as distortion of the data distribution or reduction in distribution variance, the approach can be implemented with ease and it does provide cases with a complete data set (Hair et al., 2015). Moreover, if there is a relatively low number of missing items, there is a preference for using the method of mean substitution. Within this current research project, there was a low level of missing data and, therefore, the decision was made to employ the method of mean imputation substitution recommended by Hair et al. (2015).

3.5.4.3 Outliers

The term ‘outliers’ refers to cases with scores that are significantly different from other values within a particular data set (Byrne, 2016). Univariate outliers have extreme values for one particular variable and may be discovered through inspection of Z score frequency distribution (Kline, 2016). Multivariate outliers, on the other hand, have values that are extreme for more than one variable or have atypical patterns of scores; for example, a case could have scorings that are from two to three standard deviations over the mean for all of the variables in question (Kline, 2016). A case could be considered a multivariate outlier if the sample pattern is uncommon, even though no individual scores are seen as extreme (Kline, 2016). Multivariate outlier detection is harder than for the univariate type, so there are specific computer programmes that can be used for identification of cases of SEM that make the biggest contribution to forms of multivariate non-normality (Kline, 2016). An approach for detection of multivariate outliers that is very popular is to compute the Mahalanobis distance (D2) (squared) of each of the cases; the statistical measure looks at the distance in units of standard deviation amongst a value set for a case and the means for the sample for all of the variables (the centroids) (Byrne, 2016). In samples that are large, the squared Mahalanobis distance has a distribution as statistics for Pearson chi-square (X^2) with the degree of freedom for them at an equal level to the variable number. If a D2 value that has

a P value that is relatively low within the appropriate distribution of chi-square, then a null hypothesis rejection may result with the case considered as coming from the same matching population as the remainder of cases (Kline, 2016). Within the current research, AMOS 24 has been undertaken through computation of D2.

3.5.4.4 Data Normality

Data normality is the most important assumption underlying multivariate analysis. The normality relates to the degree to which the sample data distribution equates to a normal distribution (Hair et al., 2015). A commonly-used approach is to screen data for univariate normality in order to aid the researcher's understanding of whether or not the multivariate normality is problematic (Weston et al., 2008; Hair et al., 2015). Multivariate analysis may be assumed if univariate normality is shown for the variables (Weston et al., 2008). Assessment of the normality can be made through the two primary measures of kurtosis and skewness. The term 'kurtosis' is in reference to the degree to which a distribution is peaked or flat when compared with a normal distribution (Hair et al., 2015). If a kurtosis is negative then it has a lower degree of peakedness than a normal distribution, whereas a kurtosis that is positive shows there is more peakedness than in a distribution that is normal (Weston et al., 2008). The term 'skewness' is in reference to the degree to which there is symmetry for a distribution either side of a mean. If a distribution is skewed negatively then it has a left sided long tail with values towards the values that are low upon the horizontal axis; it would have a mean that is lower than the median, which is lower than the mode. A distribution that is skewed positively, on the other hand, has a distribution with a long tail towards the right, i.e. in the direction of the higher horizontal axis values. Positively skewed distributions have means that are higher than the value of the median (that is greater the mode value) (Hair et al., 2015). Kline (2016) noted that if kurtosis values are lower than 3 and skewness values are lower than 3, there is the suggestion that the normality assumption has not been seriously violated. Within the current research, there has been checking of data normality in relation to individual measurement item distribution for all study variables through evaluation of the values of skewness and kurtosis by way of employing SPSS Version 24.

3.5.4.5 Reliability and Validity of the Measurement Models

As Bryman (2016) noted, two key criteria within the evaluation of social research are validity and reliability. In this respect, the scores that are analysed within SEM have to be both valid and reliable (Kline, 2016). To accord with the recommendations given in the work of Hair et al. (2015), numerous procedures are used within this study for the assessment of both the validity and the reliability of the models of measurement.

Reliability of the Models

The term 'reliability' refers to the degree to which scores or measures have freedom from error that has been caused by random measurement (Kline, 2016); it has been estimated that one minus the observed variance percentage occurs due to random error. The Cronbach's alpha (coefficient alpha) is the measure most commonly used for assessing reliability; it provides assessment of the whole scale consistency (Hair et al., 2015); the statistic provides measurement of the extent to which there is consistency in the answers over all of the items for a particular measure (Kline, 2016). If there is a low level of reliability for internal consistency, the item content could be heterogeneous, and the total score would not be the best potential analysis unit for measurement (Kline, 2016). Within this research, the Cronbach's alpha values of each of the constructs are assessed through use of the SPSS statistical 24 software and shown within this chapter. Coefficient alpha is significantly problematic in that it has positive relationships with the number of the items of the scale. If the number of scale items is increased, the coefficient alpha value increases; so, the Cronbach's alpha could be inflated inappropriately through inclusion of a number of items that are redundant (Hair et al., 2015). It has been suggested that measures of reliability are derived from the results of the CFA in order for the problem to be overcome (Hair et al., 2015). In research related to operations management, Shah and Goldstein (2006) recommended that it is important to report at least one construct reliability measure based upon a model of estimated parameters such as AVE or CR (composite reliability). Within this thesis, the reliability of each of the constructs was measured using the CR. CR is frequently employed within SEM models; that way, the same variable of a latent type is reflected consistently by all of the measures (Hair et al., 2015). Values of reliability are, in general, considered acceptable if they lie between 0.60 and 0.70. Values of 0.70 or more showed that reliability is good (Hair et al., 2015). For Kline (2016, p.59),

coefficients of reliability with values approximately 0.70 can be considered "adequate", values about 0.80 can be considered "very good" and values about 0.90 can be seen as "excellent". The formula used for calculating the CR involves computation from the squared sum of the regression weights (λ) or factor loadings for each of the constructs, and the summed error variance construct terms (ε). As such:

$$CR = \frac{(\sum_{i=1}^{n} \lambda_i)^2}{(\sum_{i=1}^{n} \lambda_i)^2 + (\sum_{i=1}^{n} \delta_i)}$$

Where δ is a representation of the error variance, and λ is a representation of the regression weight standardised.

Validity of the Models

The term 'validity' refers to the degree to which an item set or scale gives an accurate reflection of the concept of theory in question (Hair et al., 2015). The most commonly used types of validity are discriminant and convergent validity. Discriminant validity gives assurance that construct measures have empirical uniqueness and represent the phenomena in question in a way that is not captured by other measures within a SEM (Hair et al., 2015). If there has been no establishment of discriminant validity, constructs are able to influence variation for not just the variables observed (that they are related to in theoretical terms); consequently, a researcher is unable to assure that outcomes in support of hypothesised relationships, within a structural model, result from the statistical analysis, or are, in fact, real (Henseler et al., 2015). It has been suggested by Fornell and Larcker (1981) that there is achievement of discriminant validity when a latent construct has accounted for more variance within its associated variables than when shared with any other variables in the same model. So that this condition can be achieved, the AVE (Average Variance Extracted) of each construct ought to be compared with the squared correlations of them with other model constructs (Hair et al., 2015). The AVE gives a representation of the average variance amount explained by a construct within its items/observed variables in relation to the overall variance shown by its indicators (Voorhees et al., 2016). There is evidence of discriminant validity if the square root of an AVE of a construct has a value higher than the estimation of the correlation between that particular construct and all of the other constructs (Hair et al., 2015). It was explained by Fornell and Larcker (1981) that for any two particular constructs (X and Y), the AVEs for X and Y have to be

higher than the correlation squared (shared variance) that is between them. Within this research, the assessment of the discriminant validity is undertaken through comparison of the square root of the values of AVE with the estimate of the correlation between the constructs through use of the reliable Excel package of statistical tools on the AMOS analysis outputs (Gaskin, 2017). The discriminant validity results are shown in Chapter Four.

Convergent validity relates to the extent to which the items of a construct correlate with one another (Hair et al., 2015). In this study, convergent validity is established through the examination of factor loadings of statistical significance for each of the constructs. Convergent validity is indicated by estimates of standardised loading with values of 0.5 or over (Hair et al., 2015). The results of the convergent validity are also shown in Chapter Four.

3.5.4.6 Statistical Procedures

So that the relationships between the study variables could be established, a number of multivariate analyses were undertaken including SEM, CFA and EFA, all of which are described further in the sections that follow.

Exploratory Factor Analysis (EFA)

The primary application of factor analysis is in achieving factor scores for inputting within succeeding stages of analysis (Pallant, 2016; Field, 2017). Hence, the EFA was undertaken before the SEM analysis. The method of principle component analysis with varimax rotation was selected, as this is the most commonly used rotation type in research connected with operational management for the simplification of factors instead of variables (Hair et al., 2015).

Confirmatory Factor Analysis (CFA)

Normally, CFA techniques are used to determine which observed variable sets share the common variables or covariance characteristics that are best able to describe constructs (Perry et al. (2015). CFA is very similar to EFA except with the constraints that have been derived from hypotheses are rooted within the analysis. Such constraints can exist as the amount of hypothesised factor, the connection nature amongst factors, and the factor loading magnitude for all of the variables (Kline, 2016). Within this research, CFA was undertaken to evaluate the latent

variable unidimensionality, the discriminant validity, and the convergent validity (Hair et al., 2015).

Structural Equation Modelling (SEM)

As it allows for modifications and theoretical model assessment, SEM has been much used within research in the social sciences that use quantitative approaches (Kline, 2016; Field, 2017; Pallant, 2016). Indeed, SEM has proved to be very helpful in the examination of interdependent relationships between a numbers of latent variables (Hair et al., 2016). It has been designed to assess how well a proposed conceptual model is able to fit with the collected data, as well as to ascertain structural relationships between latent variable sets (Byrne, 2016). The process of modelling was achieved by using a covariance matrix procedure involving a Maximum Likelihood Estimation or MLE. MLE is an approach that is one of the most commonly used and that has efficiency if assumptions have been met in relation to multivariate normality (Hair et al., 2016). This study employed SEM for examination of the hypotheses relating to the link between the performance model and TQM as mentioned in Chapter Two. Anderson and Gerbing (1988) note the two stages involved in the structural test, with the first being for ascertaining that construct measurement is good, and the second stage requiring structural relationship evaluation. In this research study, the generation and estimation of the structural models and measurement were done through the use of AMOS 24 and SPSS 24.

Measures of Overall Goodness-of-fit

There is no single statistical test which is considered the best to describe the predictive power of a structural model (Hair et al., 2015). Indeed, the determination of which indices can be considered as acceptable for estimation of goodness-of-fit is a fairly complex matter; and Byrne (2016) has stated that particular indices have been shown to operate somewhat differently given the sample size, estimation procedure, model complexity and/or violation of the underlying assumptions of multivariate normality and variable independence. Consequently, goodness-of-fit assessment is still subjective, and researchers decide upon which indices ought to be used to best describe model fit, and the degree to which a described fit can be considered as good, based upon their particular understandings of the data, the model and the variety of indices (Perry et al. 2015). Alternatively, a mixture of measures can be used for the evaluation of the goodness-of-fit for a structural model

overall; amongst the measures used within this study are incremental fit measures, parsimonious fit measures, and absolute fit measures (Hu and Bentler, 1999; Cheung and Rensvold, 2002; Hair et al., 2015; Markus, 2012).

Absolute Fit Measures Absolute fit Indices measure the degree to which a proposed model is able to reproduce the data observed (Hair et al., 2015). They can make a direct assessment of how well a model fits with the data observed (Schermelleh-Engel et al., 2003; Hooper et al., 2008). Absolute fit measures only provide assessment for the overall model fit (both the measurement and structural models combined) and do not make comparisons with other models. They include the index for goodness-of-fit (GFI), the approximation of root mean square error (RMSEA), the standardised root mean residual (SRMR), and the statistic of Chi-squared (χ^2) (Byrne, 2016; Hair et al., 2015; Markus, 2012). Chi-squared (X^2) is the most widely known index employed in assessing the goodness of fit overall; however, the conclusions it draws with regard to the significance of a model are, in general, overlooked (D'Agostino, 2017).

Likelihood-ratio Chi-squared statistics are considered to be the major overall fit measure (Hair et al., 2015); the measure is the only statistically-based one that is available in relation to goodness-of-fit within SEM. The suggestion of a significant X^2 is that a model does not have a fit to the sample data, whilst a model that has a good fit to the data is evidence by a X^2 that is non-significant. As noted by Hu and Bentler (1999), the discrepancy between the estimated and observed matrices is assessed by the Chi-squared (X^2) value. The Chi-squared statistic does have two limitations, as noted by Kenny (2014), these being that: a) chi-square can only tell us whether two variables are related to one another. It does not necessarily imply that one variable has any causal effect on the other and b) with the majority of statistics, big samples increase the level of power which results in significance for a size of effect that is small (Brown 2014; Kenny, 2014). It is typical for researchers, then, to consider further indices of fit in order to determine whether there is an acceptable model fit (Schermelleh-Engel et al., 2003). One of the initial statistics of fit for addressing Chi-squared value limitations is the Normed Fit Chi-square ratio of discrepancy (CMIN/DF), which is known as a ‘practical’, ‘ad hoc’ or ‘subjective’ fit index that may be utilised instead of the X^2 (Byrne, 2016). Since the Chi-squared statistic is sensitive to the size of sample, various alternative fit indices have been

proposed by researchers for assessing model fit. All measures of goodness-of-fit are some function of the degrees of freedom and the Chi-square (Hox and Bechger, 1998).

The ***goodness-of-fit index (GFI)*** provides an estimate of a model's goodness-of-fit when compared to entirely non-fitting data (Hooper et al., 2008; Ho, 2006; Weston and Gore Jr, 2006; Brown 2014). A range for the index goes from one (a perfect fit) to zero (a poor fit); the lower the index, the poorer the model goodness-of-fit. It is widely accepted that there is a need for a value of at least 0.90 for a good fit to be indicated (Hair et al., 2015).

The root mean square residual (RMR) represents the mean square root of squared residuals, i.e. the mean of residuals between estimated and observed input matrices (Hair et al., 2015). The RMR has a range from one (a poor fit) to zero (a perfect fit); the higher the value, the poorer is the goodness-of-fit (Hair et al., 2015).

Incremental Fit Measures These are also known as comparative fit indices, and they serve to compare the model proposed with an alternative model that functions as a baseline and that is normally known as the null model (Hair et al., 2015). Indices of fit that employ comparative statistics locate the model that has been hypothesised somewhere along the continuum (Byrne, 2016; Tabachnick and Fidell, 2013; Brown, 2014). At one continuum extreme lies the model of independence which tallies with variables that are completely unrelated and that have a number of degrees of freedom that is equal to the data points number less the estimated variances (Byrne, 2016; Tabachnick and Fidell, 2013). The model without estimated parameters or the null model is the independence model (Brown, 2014). As with the case of the model that is just identified, the model that has a zero figure for degrees of freedom is the one that lies at the other spectrum extreme, i.e. the model that is the perfect or full saturated model (Byrne, 2016; Kline, 2015). The model that is saturated is indicated with all of the parameters (Hair et al., 2015). Statistics that are comparative include indices such as the Tucker-Lewis Index (TLI), the Comparative Fit Index (CFI), the Incremental Fit Index (IFI) and the Normed Fit Index (NFI) (Byrne, 2016; Ullman and Bentler, 2012).

The Adjusted Goodness-of-fit Index (AGFI) is an extension of the GFI through adjustments made to the degrees of freedom for the null model (Schermelleh-Engel et al., 2003; Brown 2014). The range for AGFI goes from one (a perfect fit) to zero (a poor fit); the lower the index, the poorer the level of goodness-of-fit. It has been

generally agreed that a value of at least 0.90 is a standard for a fit that is good (Hair et al., 2015).

The Normed Fit Index (NFI) provides an indication of the percentage of fitness increment in comparison to the independent model acting as a baseline (Bentler and Bonett, 1980). Whilst the NFI has been used widely, it has been found to provide an under-estimation of model goodness-of-fit when samples are small. The range for the NFI goes from one (a perfect fit) to zero (a poor fit); the lower the score for the index, the poorer the goodness-of-fit. It has been commonly agreed that for a fit to be considered good, it ought to have a value that is at least 0.90 (Hair et al., 2016; Byrne, 2016).

The Comparative Fit Index (CFI) relates to comparisons between the estimated model and a null or independence model (Kenny, 2014; Byrne, 2016). The range of the index goes from one (a fit that is perfect) to zero (a fit that is poor); so, the higher the level of index, the better is the goodness-of-fit level. It has been commonly agreed that a good fit is represented by a value that is at least 0.90 (Hair et al., 2015; Byrne, 2016).

Parsimonious Fit Measures These measures give information with regard to which is the best between a competing model set, with consideration given to the fit when compared with the complexity. Parsimonious measures of fit are helpful when comparing two models and their respective fit to the data. The most common types in use are the Parsimony Normed Fit Index (PNFI), and the Adjusted Goodness-Of-Fit Index (AGFI) (see, for example, Byrne, 2016; Hair et al., 2015; and Schumacker and Lomax, 2010).

There has been a great deal of debate over what is a good or adequate fit. Hair et al. (2015) note that it is helpful to employ three or four indices to provide adequate evidence of model fit, and note that as well as value, at least one incremental and one absolute fit index ought to be reported. It was argued by Tabachnick and Fidell (2018) that if similar conclusions are reached by all indices, personal preference can dictate the choice of indices; however, the authors suggested the use of RMSEA and CFI since they are the fit indices that are reported most often. It is interesting to note that a review of SEM-based studies in operations management revealed that the conclusions in regard to model fit were most commonly founded upon incremental and absolute fit indices. As the review noted, the indices that were most commonly employed were the absolute fit indices (RMSEA) and Normed fit Chi-

square, in addition to the incremental fit indices (IFI and CFI) (Kenny, 2016; Byrne, 2016; Hair et al., 2015). For this current research, then, five fit indices are reported that represent two different types of goodness of fit (incremental and absolute), as well as the significance value, Chi-squared and degrees of freedom associated with them, in order to conclude the exact fit of the model. Table 3.6 provides a summary of the primary fit statistics that were employed within this research.

Table 3.6: Main Fit Indices Used in the Study

Fit index	Kind	Recommended values
CMIN or X^2 (Chi-square)	Absolute fit index	Non-significance with a p-value larger than 0.05 (p> 0.05)
(CMIN/DF) (Normed fit Chi-square)	Absolute fit index	Values less than 2 and as high as 5 indicate a reasonable fit
(RMR) (The root mean square residual)	Absolute fit index	
CFI (Comparative Fit Index)	Incremental fit index	Values close to 0.90 or 0.95 indicate a good model fit.
IFI (Incremental Fit of Index)	Incremental fit index	Values close to 0.90 or 0.95 indicate a good model fit.
RMSEA (Root Mean Square Error of Approximation)	Absolute fit index or parsimonious fit index	Values of 0.05 to 0.08 indicate a good fitting model. Values larger than 0.10 indicate poor fitting models.

Source: Hair et al. (2015), Byrne (2016)

3.6 Research Ethics

Within social research, the issue of ethics and the way in which researchers conduct themselves is an important one which requires a number of considerations to be made in the overall design and conduct of the study. Ethical considerations fall into three key classifications. Firstly, there are those considerations which are brought to bear by the various professional institutions to which researchers may belong. In this respect, a social researcher may be guided in his/her behaviour by the guidance established by a professional institution in relation to how social research ought to be conducted (Wellington, 2015; Leedy and Ormrod, 2013). Secondly, there are considerations concerning the procedures concerned with the collection of data, such as how participants are selected, the need to ensure those participants are fully aware of their likely role in the study, and the requirements to obtain their informed consent (Oldendick, 2012). And thirdly, there are considerations regarding the protection of participants, as provided by assurances of anonymity and confidentiality, and the safeguarding of their privacy (Kimmel, 1988). In this study, the associated ethical issues were duly considered prior to undertaking the fieldwork. This involved obtaining official approval from the Liverpool John Moores

University Research Ethics Panel, which assures itself that the ethical standards set by the Institution are adhered to in research studies. In keeping with the University regulations, all details regarding the nature of the participants, the research instrument, and the letter of invitation for presentation to potential participants were submitted on the relevant application form for consideration by the Ethics Panel. In procedural terms, in order to gain permission for completion of the questionnaire, a brief interview was undertaken with each of the potential participants; this procedure could serve as an ethical standard relating to the protection of privacy throughout the study context. Additionally, all of the questionnaires were distributed within service firms with an accompanying letter that clarified the research purpose, indicated the voluntary nature of any participation, the fact that data would be anonymous and that confidentiality would be maintained throughout. As such, anonymity was ensured and there was protection for personal privacy. Moreover, there was neither the gathering nor disclosure of any participant information that was confidential. The approach taken aligned with the ethical standard requiring that no harm comes to participants. In completing the questionnaire, respondents were asked to complete all questions according to their own particular views. Instructions were clearly presented, and reassurance provided that there were no wrong or right answers. Furthermore, the design and piloting of the questionnaire was such that any potential misunderstandings and confusion were minimised or eliminated (Bryman, 2016). At the start of each questionnaire section there were instructions related to how to respond to the scales of measurement. With the chances of participant deception so reduced or eliminated, the procedures established met the principles for an ethically sound piece of research.

3.7 Chapter Summary

This chapter has presented a comprehensive discussion of the research methodology. Within the first part of the chapter, philosophical issues have been debated, before moving on to the second major issue which is the elaboration of the quantitative design of the study. This has been presented so as to highlight details of the unit of analysis, the sampling, the conduct of the pilot study, and the data collection procedures. The third part of the chapter has focused on the survey instrument and the operationalisation of the research constructs. An explanation of the scaling and structure of the questionnaire has been given. In the final part of the chapter, details of the statistical analysis have been presented, and included the methods employed, the process of data purification, and refinement of scales,

procedures for validation and the techniques of statistics such as SEM, CFA, goodness-of-fit measures and EFA.

The chapter has provided a theoretical reasoning for the choices made in respect of the methodology chosen. Table 3.7 presents a summary of all the elements within the research, and the choices made to arrive at a precise design.

Table 3.7: Aspects of the Research Design and Rationale.

Aspect of the research	*Type chosen*	*Reasoning behind selection*
Research philosophy	Positivist	Positivism leads to a design that is quantitative for the acceptance or rejection of hypotheses. As such, this research involved the testing of hypotheses for the validation of theory.
Overall approach	Deductive approach	The research approach commences from theory, leading to the development of hypotheses, the collection and analysis of data, the presentation of findings and the drawing of inferences in support of theory.
Research method	Quantitative methods	Quantitative methods enable the relationships between variables to be measured effectively.
Research strategy	By survey	This research employed a survey strategy as it permitted the collection of quantitative data that could then be quantitatively analysed through the use of both inferential and descriptive statistics. The collected data from the use of the survey strategy may then be employed for suggesting possible reasons and in the production of models of the specific relationships amongst the variables.
Time horizon	Cross-sectional	Single collection of data through the use of both secondary and primary data.
Sampling approach	Probability sampling	The inclusion criteria for the survey was based upon the experience, relevance and qualifications of the leaders of industry who were the designers and implementers of policy and decision makers.
Collection of data	Questionnaire survey	The questionnaire survey was sent to managers, financial manager and quality manager in the organisations and the researcher collected the data.
Analysis of data	Quantitative analysis	The descriptive type of statistics are undertaken using SPSS 24 EFA, CFA and SEM using AMOS Version 24

4 Chapter Four: Data Analyses and Findings

4.1 Introduction

This chapter presents the analysis of the quantitative data collected via the technique detailed in Chapter Three. This analysis is made through the use of the SPSS 24 statistical package and SEM based upon the software AMOS 24. The chapter is comprised of three main sections. The first presents the descriptive data. An initial consideration of the findings is undertaken looking at the rate of response and the processes of screening and cleaning the data. A discussion follows of the respondent profiles/demographics, and a preliminary check is made in respect of the reliability of the main constructs explored within the questionnaire. The second main section addresses the data reduction/factor extraction that was achieved via the EFA, and contains the CFA findings and a discussion of the procedures relating to the validation of the measurement model. Finally, the structural model is introduced and discussed together with the causal relationships discovered amongst the proposed variables in the model.

4.2 Data Screening and Cleaning Prior to Analysis

Prior to the analysis of the data, a number of steps must be undertaken to ensure the data are suitable for such analysis. The first step is for the data to be screened. The screening and cleaning of data can be considered a critical step, particularly if it is intended to undertake multivariate analysis (Hair et al., 2015). For data cleaning purposes, two initial kinds of analysis were undertaken, those being to consider any missing data, and to discover any outliers. To further confirm the suitability of the data, screening for normality, linearity and reliability was undertaken before any inferences from the results were made.

4.2.1 Missing Data

Hair et al. (2015) consider there to be two basic methods to solve the problem of missing data, as follows:

i) The imputation method known as the ‘all-available’ approach. This depends upon the use of valid data for the replacement of missing values

and can take a number of forms such as employing replacement values (regression imputation or mean substitution);

ii) The ‘complete case’ or List wise deletion method. This approach relies upon the deletion of the cases that have any data missing from the later analysis.

In this study, the proportion of missing values was only 0.38 %. Hair et al. (2015) consider that if the proportion of missing data is below 10% then one of the methods of imputation may be applied. As highly recommended by of Tabachnick and Fidell (2014), and Hair et al. (2015), the missing values were therefore substituted with the mean of the variable concerned.

4.2.2 Outliers

Once the missing values had been treated, the next step was to logically consider the outliers (multivariate and univariate) that represented cases with extreme and/or odd scores when compared with other observations in the dataset. Data entry errors, sampling techniques that are erroneous, missing calculation values and responses that are extreme on scales that are multi-point are amongst the numerous outlier causes (Kline, 2016). Hair et al. (2015) describe outliers as types of observation that have unique combinations of identifiable characteristics with distinct differences when compared with other observations, and classified them into four different categories as follows:

a) Observations that have occurred due to extraordinary events;
b) Errors that are procedural because of mistakes whilst entering or coding data;
c) Observations that are extraordinary and that the researcher is unable to explain;
d) Observations that fall under the ordinary value range for each variable.

In this study, the detection of outliers was undertaken from multivariate and univariate perspectives. The identification of the univariate outliers was from the z-score values from the questionnaire dataset. It is suggested by Tabachnick and Fidell (2013) that data should be considered as univariate outliers for elimination from the later analysis if the z-score value is greater than ± 3.29. Additionally, they also suggested that standardised score extremeness is dependent upon the sample size (N), with it being expected that there would be a number of standardised scores

greater than 3.29 if N is very large. Based upon the z-score, no items within the dataset were found to be univariate outliers (z-score greater than plus or minus 3.29).

Detection of multivariate outliers was then undertaken by calculating the Mahalanobis distance (D^2) which is a representation of the distance between a case and the multidimensional distribution mean. Following this, there was comparison of the D^2 calculated with the critical value of 131.041, a value of Chi-squared distribution (χ^2) corresponding to a figure of 85 for degrees of freedom (equalling the number of variables in the current research), and to probability for p of less than 0.001. The findings showed that the dataset had two multivariate outliers. The results appear in Table 4.1 revealing a range of the χ^2 value for the cases from a value of 132.14912 to 137.63562; so, further consideration was needed since the values had the potential to affect the necessary statistical multivariate tests such as SEM and factor analysis.

Table 4.1: Multivariate Outliers

ID	Mahalanobis distance (D^2)	Probability_MD	Outlier
20	137.63562	.00027	1
46	132.14912	.00081	1
257	130.84469	.00104	0
270	127.34296	.00202	0
21	127.05619	.00213	0
37	126.07798	.00255	0
158	125.47812	.00285	0

Whilst removing the cases of outliers would lead to enhancement of multivariate analyses, it could still precipitate negative effects upon the generalisability of the results (Tabachnick and Fidell, 2014; Hair, 2017). As Kline (2016) noted, if the number of outliers is small, there may not be a problem; hence, it was decided to retain outliers within the study.

4.2.3 Normality

A determination of normality was achieved by considering the distribution of the actual data to see the way in which they were symmetrically and normally distributed (Kline, 2016; Byrne, 2016; Hair, 2017). So, the approach of using skewness and kurtosis measures was used for testing the univariate normality for each of the

variables. Utilising SPSS, the skewness and kurtosis statistical values of the dataset were tested; it was discovered that all of the values lay within respective levels. As shown in Table 4.2, support for normality in the univariate distribution is given by all values since all skewness values lie below the 3 cut-off point and none of the kurtosis values are greater than 0.96 (Kline, 2016).

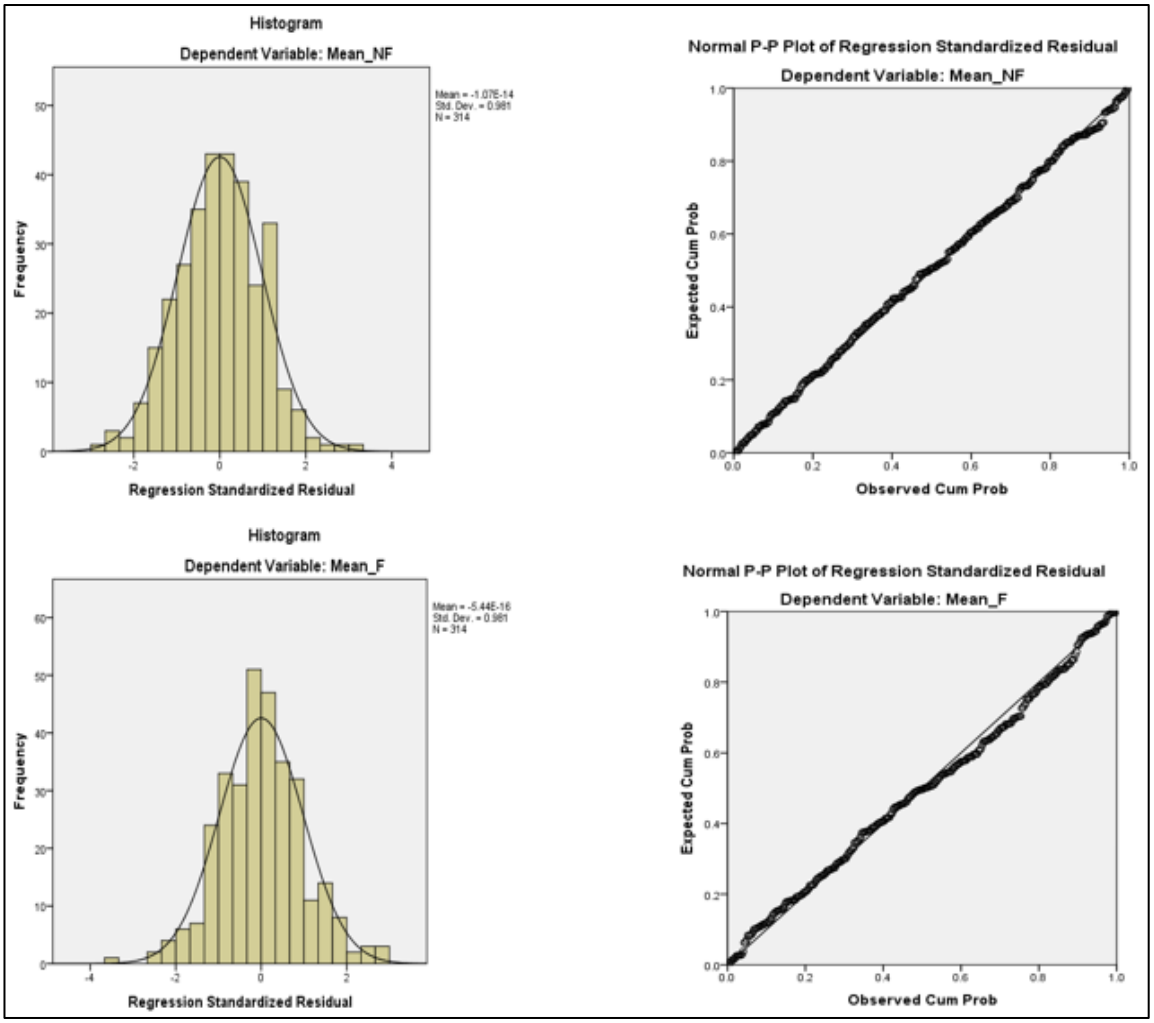
Table 4.2: Normality Indicators

Items	Skewness	Kurtosis	Items	Skewness	Kurtosis	Items	Skewness	Kurtosis
MC1	-0.183	-0.665	**EI5**	0.023	-0.490	**SQ3**	-0.014	-0.464
MC2	-0.307	-0.517	**EI6**	-0.276	-0.096	**SQ4**	-0.061	-0.629
MC3	-0.263	-0.680	**EI7**	-0.154	-0.607	**SQ5**	-0.006	-0.664
MC4	-0.219	-0.682	**TE1**	-0.245	-0.725	**SQ6**	-0.012	-0.733
MC5	-0.096	-0.803	**TE2**	-0.036	-0.584	**CC1**	-0.028	-0.751
MC6	-0.215	-0.634	**TE3**	0.017	-0.764	**CC2**	-0.076	-0.705
MC7	-0.179	-0.693	**TE4**	-0.164	-0.817	**CC3**	-0.062	-0.721
MC8	-0.126	-0.861	**TE5**	-0.087	-0.611	**CC4**	-0.138	-0.456
MC9	-0.314	-0.586	**TE6**	-0.069	-0.775	**CC5**	-0.043	-0.861
MC10	-0.219	-0.561	**TE7**	-0.402	-0.352	**BM1**	0.343	-0.591
MC11	-0.316	-0.533	**TE8**	0.061	-0.593	**BM2**	-0.020	-0.745
CF1	-0.383	-0.320	**TE9**	-0.250	-0.768	**BM3**	0.010	-0.818
CF2	-0.265	-0.622	**EE1**	-0.095	-0.527	**BM4**	-0.020	-0.745
CF3	-0.102	-0.393	**EE2**	-0.339	-0.557	**SR1**	-0.287	-0.582
CF4	-0.338	-0.645	**EE3**	-0.235	-0.772	**SR2**	-0.226	-0.831
CF5	-0.299	-0.696	**EE4**	-0.113	-0.896	**SR3**	-0.010	-0.633
CF6	-0.167	-0.427	**EE5**	-0.129	-0.927	**SR4**	-0.195	0.032
CF7	-0.276	-0.348	**EE6**	-0.454	-0.554	**NF1**	-0.041	-0.607
CF8	-0.331	-0.630	**EE7**	-0.096	-0.279	**NF2**	-0.139	-0.836
CF9	-0.103	-0.390	**EE8**	-0.179	-0.721	**NF3**	-0.085	-0.900
CF10	-0.236	-0.962	**EE9**	-0.099	-0.865	**NF4**	-0.089	-0.700
CI1	-0.179	-0.259	**SP1**	-0.082	-0.729	**NF5**	-0.080	-0.646
CI2	-0.086	-0.131	**SP2**	0.371	-0.362	**NF6**	-0.008	-0.817
CI3	-0.155	-0.144	**SP3**	0.010	-0.523	**NF7**	-0.258	-0.892
CI4	-0.072	-0.245	**SP4**	0.154	-0.644	**NF8**	-0.105	-0.702
CI5	-0.280	0.205	**SP5**	0.124	-0.618	**NF9**	-0.150	-0.818
CI6	0.024	-0.213	**SP6**	0.119	-0.652	**NF10**	-0.197	-0.477
CI7	-0.271	-0.569	**SP7**	0.151	-0.706	**NF11**	-0.286	-0.756
CI8	-0.125	-0.343	**IA1**	-0.152	-0.784	**F1**	-0.137	-0.633
CI9	-0.185	-0.346	**IA2**	-0.167	-0.765	**F2**	-0.226	-0.680
EI1	-0.013	-0.369	**IA3**	-0.045	-0.678	**F3**	-0.300	-0.628
EI2	-0.195	-0.649	**IA4**	-0.089	-0.837	**F4**	-0.173	-0.542
EI3	-0.204	-0.099	**SQ1**	-0.067	-0.523	**F5**	-0.168	-0.682
EI4	-0.090	-0.252	**SQ2**	-0.035	-0.580			

MC: Management Commitment and Leadership, **CF**: Customer Focus and Satisfaction, **CI**: Continuous Improvement, **EI**: Employee Involvement, **TE**: Training and Education, **EE**: Employee Encouragement, **SP**: Supplier Partnership, **IA**: Information/Analysis/Data, **SQ**: Strategic Quality Planning, **CC** Culture and Communication, **BM**: Benchmarking, **SR:** Social and Environmental Responsibility**,** **NF**: Non-Financial Performance, **F**: Financial Performance

From the residual type of analysis, a further assessment of the normality was undertaken through the use of the P-P plot of expected normality of the residuals of regression, as shown in Figure 4.1. An acceptable normality level was indicated since there was a line formed of the standardised residuals and the predicted value (standardised).

Figure 4.1: Visual Indications of Normality



4.2.4 Reliability

The term ‘reliability’ in relation to measurement instruments concerns the degree towards which, over time, consistent, stable and accurate responses are yielded. With consistent results, conclusions may be drawn that results have not been influenced by chance findings (Field, 2017; Saunders et al., 2016). It is noteworthy that the performance of a test for internal consistency within the early data analysis stage was undertaken to confirm that all of the constructs had scores of Cronbach’s alpha that were acceptable prior to the further application of any statistical techniques such as SEM and factor analysis. So, in order for an assessment of internal consistency in respect of all the measurement items within the survey, a test for Cronbach’s alpha was undertaken by running of the data through the SPSS 24 software. Table 4.3 presents the results of the reliability testing which reveal the scores for Cronbach’s alpha in respect of all of the individual constructs to be within a range from 0.794 to 0.934, and to have an overall score of 0.982. Hence, all values

are above the level recommended of 0.7 (Cronbach, 1951; Nunnaly, 1978; Santos, 1999; Sekaran and Bougie, 2016; Field, 2017; Hair et al., 2015), and accordingly, it is reasonable to believe that, up to this data analysis stage, no problem of internal consistency had been revealed.

Table 4.3: Reliability Test Results

Construct	*Number of Items*	*Cronbach's Alpha*	*Comments*
All questions	101	0.982	Accepted
Management Commitment and Leadership	11	0.893	Accepted
Customer Focus and Satisfaction	10	0.926	Accepted
Continuous Improvement	9	0.831	Accepted
Employee Involvement	7	0.852	Accepted
Training and Education	9	0.901	Accepted
Employee Encouragement	9	0.900	Accepted
Supplier Partnership	7	0.806	Accepted
Information/Analysis/Data	4	0.876	Accepted
Strategic Quality Planning	6	0.839	Accepted
Culture and Communication	5	0.807	Accepted
Benchmarking	4	0.794	Accepted
Social and Environmental Responsibility	4	0.730	Accepted
Non-Financial Performance	11	0.934	Accepted
Financial Performance	5	0.907	Accepted

4.2.5 Correlations and Multicollinearity

Table 4.4 shows the correlation matrix for all of the dependent and independent variables within the study, prepared to enable the detection of any multicollinearity and correlations between the variables. Multicollinearity occurs if the independent model variables have a strong association with one another. In this respect, the ideal situation is for there to be a high level of correlation between the dependent variable and independent variables, but little or no correlation between the independent variables (Hair et al., 2015). High multicollinearity levels have a negative impact upon the validity of the results obtained via the model since they introduce imprecision into the estimation of the coefficients of regression and, occasionally, can affect the sign of them as well (Hair et al., 2015). One method by which multicollinearity can be assessed is by examining the correlation matrix for the variables. The existence of high correlations (i.e., 0.90 or greater) amongst independent variables could indicate that there is a problem with multicollinearity (Hair et al., 2015). As presented in Table 4.4, the correlation matrix does not show

the existence of a multicollinearity problem since the highest level of correlation is around 0.767, i.e., lower than the value of 0.90 suggested by Hair et al. (2015).

Moreover, Table 4.4 provides insight into the relationships amongst all of the variables within the study, revealing that all of the correlations are positive amongst the TQM CSF, and the organisational performance financial and non-financial variables, with the majority of them also having significance at a 5% level. There is variety in the magnitude of the positive correlations amongst the twelve critical success factors (the variables that are independent) with the organisation's financial performance (the variables that are dependent). Additionally, the results from the correlation matrix provide confirmation of the positive effect brought by the twelve critical success factors (the variables that are independent) upon the organisation's financial performance (the variables that are dependent). The results confirmed the positive relationships amongst the hypothesised research constructs, as explained in Chapter Two. The correlation matrix offers channels by which relationships amongst all of the variables can be seen to work, and the relationships, validated through the use of SEM are shown within the chapters that follow.

Table 4.4: The Correlation Matrix of all Variables of this Study

Variables	MC	CF	CI	EI	TE	EE	SP	IA	SQ	CC	BM	SR	NF	F
MC	1													
CF	.767**	1												
CI	.574**	.582**	1											
EI	.622**	.650**	.632**	1										
TE	.775**	.738**	.563**	.615**	1									
EE	.622**	.691**	.576**	.646**	.655**	1								
SP	.534**	.609**	.524**	.664**	.571**	.639**	1							
IA	.526**	.606**	.460**	.587**	.589**	.693**	.606**	1						
SQ	.383**	.376**	.356**	.258**	.319**	.334**	.280**	.242**	1					
CC	.637**	.620**	.552**	.523**	.595**	.587**	.471**	.482**	.483**	1				
BM	.694**	.642**	.485**	.619**	.708**	.705**	.573**	.645**	.282**	.541**	1			
SR	.572**	.639**	.493**	.523**	.591**	.557**	.406**	.424**	.297**	.555**	.494**	1		
NF	.787**	.807**	.626**	.666**	.795**	.766**	.620**	.714**	.360**	.673**	.779**	.637**	1	
F	.794**	.822**	.665**	.689**	.784**	.752**	.605**	.652**	.378**	.684**	.710**	.684**	.888**	1

MC: Management Commitment and Leadership, **CF**: Customer Focus and Satisfaction, **CI**: Continuous Improvement, **EI**: Employee Involvement, **TE**: Training and Education, **EE**: Employee Encouragement, **SP**: Supplier Partnership, **IA**: Information/Analysis/Data, **SQ**: Strategic Quality Planning, **CC** Culture and Communication, **BM**: Benchmarking, **SR:** Social and Environmental Responsibility**, NF**: Non-Financial Performance, **F**: Financial Performance

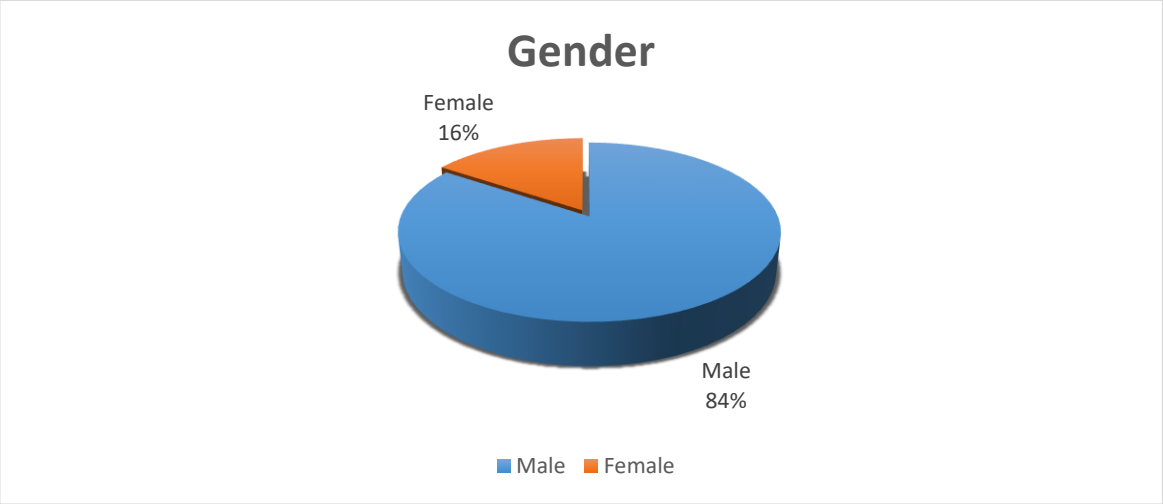
4.3 Demographic Profile

4.3.1 Respondents' Profile

Gender:

As Figure 4.2 shows, the majority of respondents (84%) were male. The small minority (16%) of female respondents is due to the nature of work within the service sector, and the cultural perception that managerial work is more appropriate for men than women and that, therefore, females can be actively discouraged from working in managerial positions.

Figure 4.2: Gender Distribution

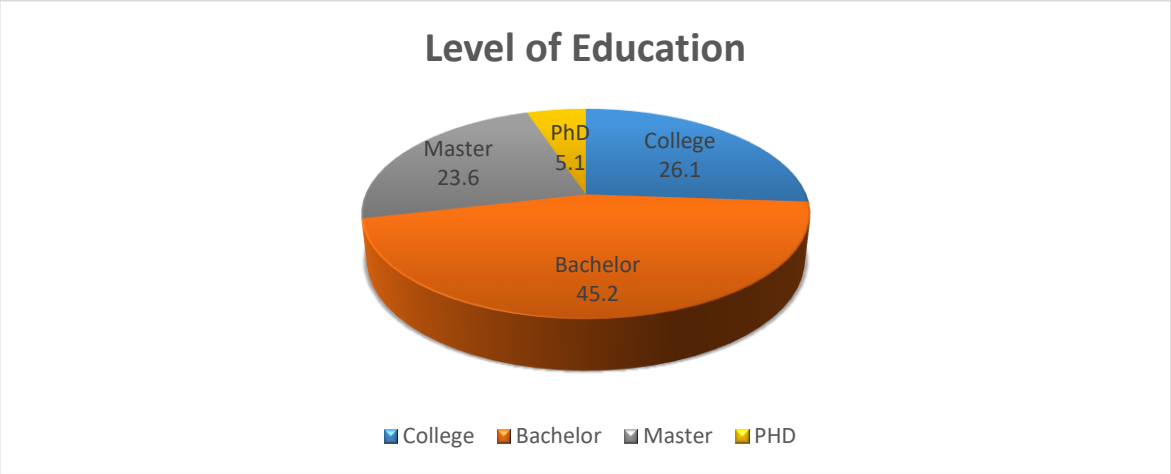


Level of Education:

In relation to the level of education, the descriptive statistics reveal that the most commonly achieved level of education was a Bachelor's degree, with 45.2% of respondents reporting possessing such a qualification. Following this, 26.1% of respondents had a college degree and the lowest respondent shares were 23.6% for Master's degrees and just 5.1% for PhD degrees. The relatively high proportion of respondents with Bachelors' degrees may be attributed to the fact that firms operating in the service sector stipulate that managerial posts must be occupied by university graduates as the positions need high levels of skill, knowledge and professionalism in order to achieve sound decision-making. However, in general, all sectors within the Jordanian economy require people to have at least a Bachelor's degree. In fact, it is worth noting that the Jordan educational index is at the level of 70%, meaning that the country's population is considered to be highly educated (UNDP, 2016). Consequently, it is expected that the questionnaire would be

answered by well-educated people having sound knowledge with regard to quality management and organisational performance.

Figure 4.3: Level of Education



Position:

In relation to job title, the descriptive statistics show the post of general manager to be the most common among the respondents (45%). The next largest grouping was that of financial managers who comprised 35% of the respondents and, and this was followed by operations managers who accounted for the remaining 20%. These statistics indicate that the participants were all key firm personnel, who are expected to have substantial awareness of the main terms and practices being explored by the study. Indeed, individuals with these job titles were targeted particularly since they were considered to be the most able and knowledgeable in terms of the traditions and values within the firms, and the TQM practice being implemented. In fact, the majority of authors in the field of research into operations management have followed this selection criterion, opting for respondents with the same job titles as those featuring in this study (see, for example, Fullerton and Wempe 2009; Ghosh, 2012; Hofer et al., 2012; Khanchanapong et al., 2014; and Rahman et al., 2010).

Figure 4.4: Job Position

Years in Service:

As shown in Figure 4.5, the largest proportion of respondents (43%) had four to five years of experience in their respective firms. The next largest proportion of respondents (26%) had six to ten years of experience. Those respondents with fewer than three years of experience comprised 25% of respondents, and the remainder, (6%) reported having over ten years of experience. In the main, therefore, the responses come from individuals with considerable work experience, and this contributes to the claim that the results are valid. Moreover, the results also indicate that the Joradnian service sector is relatively stable in its terms of its personnel.

Figure 4.5: Years of Service

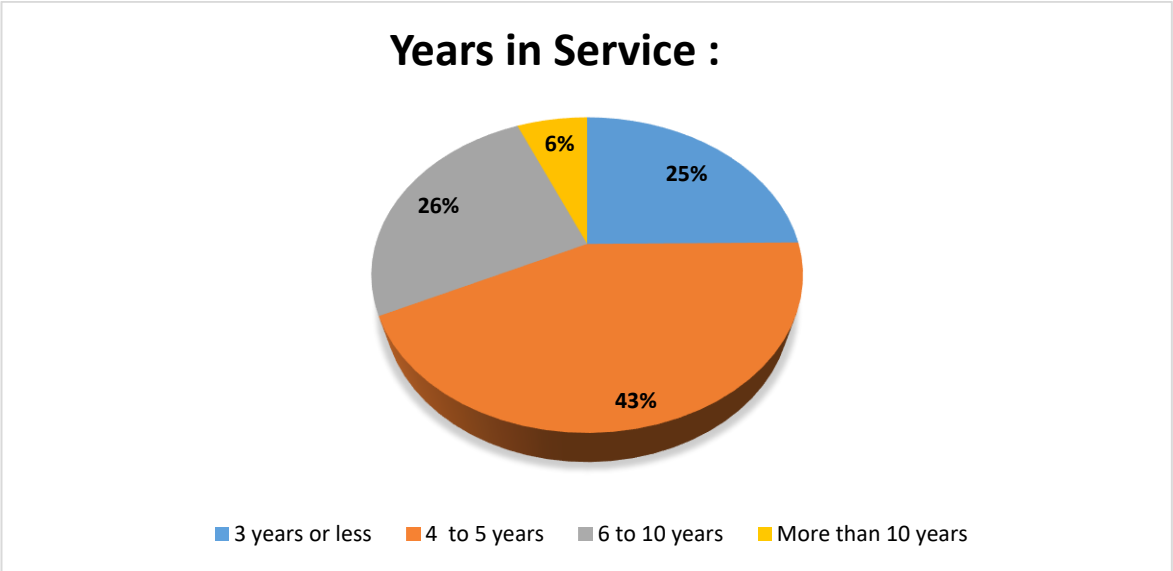


Table 4.5 provides a summary of the demographic profile of the respondents.

Table 4.5: Demographic Profile of Respondents

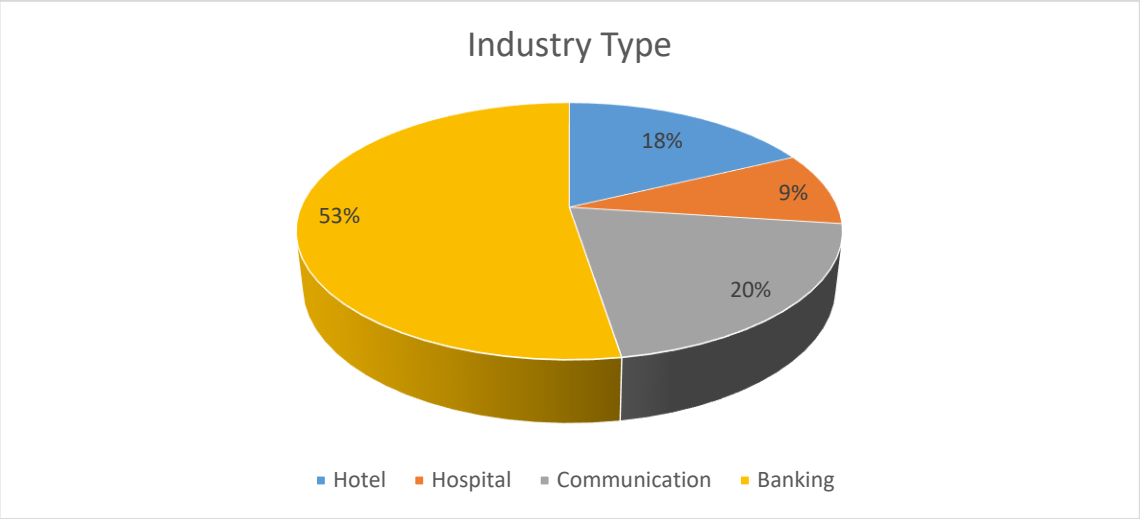
Variable		***Frequency***	***%***
Gender	Male	256	84.4
	Female	49	15.6
Level of Education	Secondary Education	0	0
	College	82	26.1
	Bachelor	142	45.2
	Master	74	23.6
	PhD	16	5.1
Years in Service	3 years or less	78	24.8
	4 to 5 years	135	43.0
	6 to 10 years	81	25.8
	more than 10 years	20	6.4
Position	Manager	140	44.6
	Financial Manager	110	35.0
	Quality Manager	64	20.4

4.3.2 Organisational Profile

Industry Type

As indicated earlier, the study focused on four sections of the Jordanian service sector, these being: communication, hospitals, hotels and banking, as shown in Figure 4.6. The largest share of the sample (53%) is accounted for by individuals working in the banking sector, and this group is followed by people working in the field of communication (20%). Thereafter, the hotel sector comprised 18% of respondents, while the least proportion (9%) consisted of individuals working in hospitals. It is considered that this respondent profile represents a fair range of areas within the Jordanian service sector. Moreover, the representation from these four dimensions of the overall sector ensured a reasonable degree of variation in the types of organisational and the particular kinds of quality practice and initiatives implemented, hence confirming that the findings were able to serve the study's objectives.

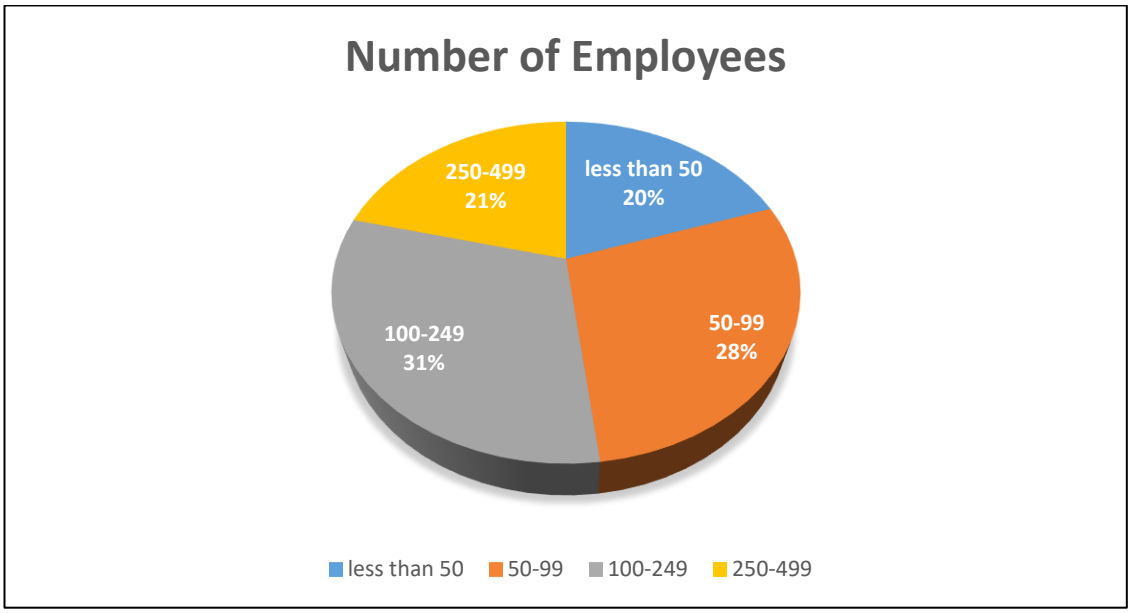
Figure 4.6: Industry Type



Number of Employees

The data collected was separated into four groups based upon the number of employees within the firm in question. The groupings covered, firms with lower than 50 employees (20%), with between 50 and 99 employees (28%), with between 100 and 249 employees (31%), and with over 250 employees (21%). Figure 4.7 shows the different categories in this respect.

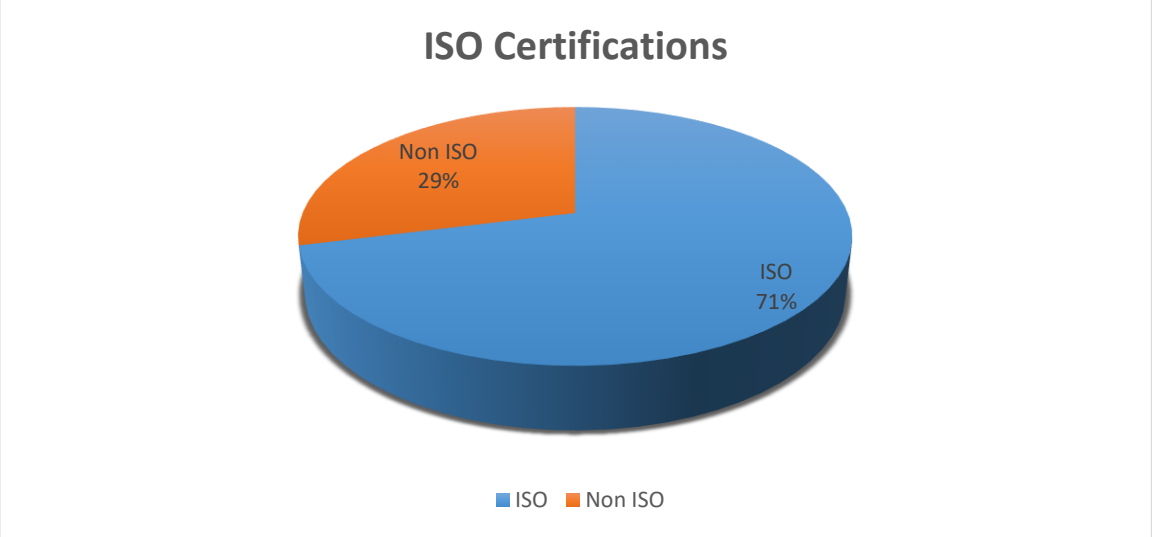
Figure 4.7: Firm Size (By Number of Employees)



ISO Certification

Figure 4.8 shows that 71% of the sample firms are certified with ISO 9001, while the remaining 29% are not. These proportions testify to the substantial application of ISO within the Jordanian service sector, and hence to the appreciation of the importance of implementing quality strategies like TQM. The importance of ISO certification in providing a strong foundation upon which even better quality system can be built was stressed by Chapman and Al-Khawaldeh (2002) can be built. Thus, it can be seen that the Jordanian service sector does indeed strive for the enhancement of its competitiveness within international and local markets by ensuring it operates according to international standards.

Figure 4.8: ISO Certification



Quality Awards

Figure 4.9 reveals that 45% of companies in the sample were winners of either local or international awards for quality. International awards for quality include the American Quality Award and the EQA. Local awards that were enjoyed by 24% of the sample, relate to motivation and include certificates for participation. The remaining 28% of the participating companies had not achieved any type of quality award. Companies receiving an international award only numbered 4% of the sample. Overall these results reflected the Jordanian service sector's awareness of the importance of awards for quality, and their interest in striving to obtain these, and such an appreciation seen within the context of globalisation, served to give the companies involved a high degree of competitive advantage.

Figure 4.9: Quality Awards

TQM Implementation

Regarding TQM implementation, 35% of all participating firms reported having four to six years of experience, and this represented the largest single proportion. A further 29% indicated having from one to three years of experience, and another 23% indicated that they had over six years of experience. The lowest proportion of firms (15 %) were relatively new to TQM reporting having less than a year's experience of implementation. Figure 4.10 depicts this breakdown.

Figure 4.10: Experience of TQM Implementation

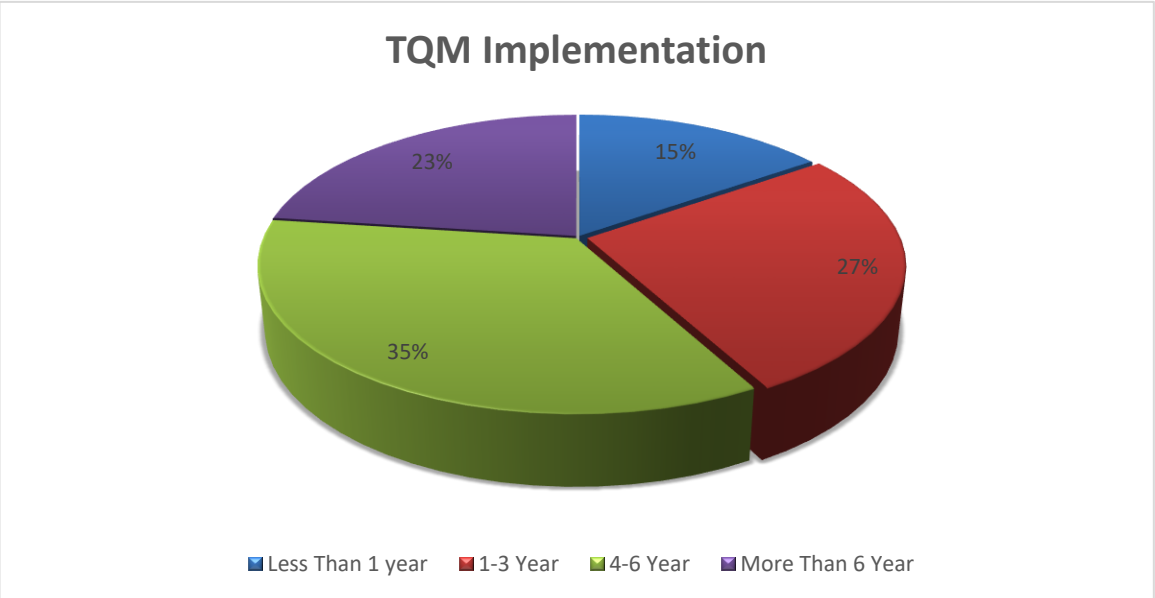


Table 4.6 provides a summary of the profile of the organisations.

Table 4.6: Profile of Organisations

Variable		***Frequency***	***%***
Industry Type	Hotel	56	17.8
	Hospital	29	9.2
	Communication	64	20.4
	Banking	165	52.5
Number of Employees	Less than 50	62	19.7
	50-99	89	28.3
	100-249	97	30.9
	250-499	66	21.0
	More than 500	0	0
ISO Certifications	Yes	223	71.0
	No	91	29.0
Quality Award	Only local award	74	23.6
	Only international Award	13	4.1
	Local and international quality award	140	44.6
	Nothing	87	27.7
TQM Implementation	less than 1 year	48	15.3
	1 to 3 years	84	26.8
	4 to 6 years	110	35
	More than 6 years	72	22.9

MC: Management Commitment and Leadership, **CF**: Customer Focus and Satisfaction, **CI**: Continuous Improvement, **EI**: Employee Involvement, **TE**: Training and Education, **EE**: Employee Encouragement, **SP**: Supplier Partnership, **IA**: Information/Analysis/Data, **SQ:** Strategic Quality Planning**, CC:** Culture and Communication, **BM**: Benchmarking, **SR:** Social and Environmental Responsibility**, NF**: Non-Financial Performance, **F**: Financial Performance

4.4 Results from Data Analysis of Responses

This section presents the analysis of the responses (see also Appendix 2 which displays the results). The analysis is produced in sub-sections relating to the major research constructs and includes information about central tendencies and sample dispersion. There were fourteen major constructs included in the questionnaire, and these were measured using 101 different study items/statements through the use of a 5-point Likert scale with a range from 'strongly agree' to 'strongly disagree'. The respondents were asked to show their agreement or disagreement with all of the statements, and the responses were coded as follows: a number 1 indicated strong disagreement with the statement in question, a number 2 indicated disagreement, a number 3 showed neutrality, a number 4 indicated agreement with the statement, and a number 5 showed there was strong agreement. Further to this, since the Likert scale average is 3, i.e. 5+4+3+2+1 divided by 5, it is clear that a mean of less than 3 indicates overall disagreement, whilst a mean of over 3 shows agreement with the statements for consideration.

Management Commitment and Leadership (MC)

The respondents were asked for an indication of the extent to which top levels of management within Jordanian service companies were committed to the adoption of TQM. The findings revealed that the mean of the scores for the 11 items employed in measuring Management Commitment and Leadership (MC) lay between the values of 3.71 and 3.82, with a range in standard deviation from a value of 0.854 up to 0.900. The overall mean of 3.77 is an indication that respondents were in agreement with statements related to the commitment evident amongst top management in respect of TQM implementation.

Customer Focus and Satisfaction (CF)

The measurement of Customer Focus and Satisfaction (CF) was undertaken by way of numerous statements. Respondents were asked state their agreement or otherwise with the statements relating to CF within their firms, using a 5-point Likert scale. The findings showed that the mean CF scores lay between the values of 3.67 and 3.83 and that the standard deviations were between the values of 0.824 and 0.972 with an overall mean of 3.69. These outcomes confirm that there is total agreement with regard to CF in relation to TQM implementation within the Jordanian service sector.

Continuous Improvement (CI)

The findings showed that Continuous Improvement (CI) was indeed implemented to a high level within the service sector in Jordan. The means were seen to range from the value of 3.48 up to 3.75 with standard deviations ranging from the value of 0.774 up to 0.872 and an overall mean of 3.64. Hence, the indication from these findings is that there is total agreement with regard to efforts for CI in the context of TQM implementation within the Jordanian service sector.

Employee Involvement (EI)

The construct with regard to Employee Involvement (EI) was operationalised through the use of 7 items that were measured using a 5-point Likert scale that had a range from 1 equating to no implementation up to 5 equating to complete implementation. The responses showed that in general, service sector firms do involve employees in processes since the means ranged from a value of 3.47 up to 3.62 with standard deviations ranging from .731 up to .860, and an average score

(out of 5) of 3.55 for EI. Hence, high levels of implementation of EI are present in the Jordanian service sector.

Training and Education (TE)

Nine items were used to measure Training and Education using a 5-point scale, and the average of the mean scores emerged as 3.57. Also, since there was a value of 1.073 for the average of the standard deviation, it was indicated that there was little dispersion from that 3.57 mean score. There was a range from the value of 3.47 up to 3.62 for observed mean ratings and the standard deviations ranged from a value of 0.825 up to 0.927. These results indicated that there were high levels of training and education among employees who were involved in the implementation of TQM within the Jordanian service sector.

Employee Encouragement (EE)

The construct for Employee Encouragement (EE) was operationalised through the use of nine items that were measured using a 5-point Likert scale with a range from 1 which equated to no implementation up to 5 which equated to complete implementation. Appendix 2 shows the descriptive statistics for the entire construct and for all of the items. The study respondents were asked for their opinions with regard to three statements concerning the extent to which EE is implemented in the context of TQM, and the outcomes of their responses were mean ratings within a range from a value of 3.52 up to 3.82, and standard deviations that ranged from a value of 0.807 to 0.961. The average mean was 3.63. Hence, the indication is that there was a relatively high level of Employee Encouragement in the context of TQM within the Jordanian service sector.

Supplier Partnership (SP)

The Supplier Partnership (SP) construct relating to the involvement of suppliers in the TQM implementation, was operationalised through seven times which were measurement on a 5-point Likert scale ranging from 1 (no implementation) to 5 (complete implementation). Appendix 2 presents the descriptive statistics for the entire construct and for all of the items. The findings showed the mean item scores used in the measurement of SP to range from a value of 3.37 up to 3.73, and the standard deviation to be in the range from 0.824 up to a value of 0.887. A figure of 3.49 for the overall mean shows that there was agreement by the respondents with

the SP-related statements in regard to TQM implementation. The results showed that Jordanian service firms paid attention to the feedback gained from suppliers and were involved in programmes or activities that designed to develop their suppliers.

Information/Analysis/Data (IA)

Four items were employed in the measurement of the construct of Information/Analysis/Data (IA). The findings showed the mean item scores in this respect to lie between a value of 3.64 and 3.67, and the range of standard deviations to be from a value of 0.853 to 0.918. The value of 3.652 for the overall mean provides an indication of the agreement of the respondents to statements related to IA which shows that IA was implemented to a high level within the service sector in Jordan.

Strategic Quality Planning (SQ)

Six items measured via a 5-point Likert scale were used in respect of the construct Strategic Quality Planning (SQ), the midpoint 3 being the neutral position between the levels of disagreement and agreement. All of the mean scores had values over 3, thereby indicating high agreement amongst respondents. The lowest mean score was 3.54 and the highest 3.66. Furthermore, with a value of 3.599 for the average mean score and 0.69 for the standard deviation average, SQ could be considered as being highly implemented within the service sector in Jordan.

Culture and Communication (CC)

The Culture and Communication (CC) construct was operationalised through the use of four items that were measured via a 5-point Likert scale with a range from 1 (no implementation) to 5 (complete implementation). Appendix 2 presents the statistics for the entire construct and for all of the items. With respect to CC, the respondents showed agreement with all of the construct item measurements with averages between the values of 3.57 and 3.62, and with a range of standard deviations between the value of 0.811 and 0.920. The value of the average mean was 3.60 and so, being higher than the 3 midpoint, the findings reflected a high implementation level.

Benchmarking (BM)

The Benchmarking (BM) construct was measured using four items, and a 5-point Likert scale. An average mean score of 3.44 was obtained, and the average standard deviation was 0.783, thus indicating very little dispersion from the 3.44 mean score. The ratings of the observed means were in the range between 3.38 and 3.46 and the standard deviations ranged from 0.972 to a value of 1.017. These findings show that Benchmarking is a clear dimension of TQM as implemented within the Jordanian service sector.

Social and Environmental Responsibility (SR)

The Social and Environmental Responsibility (SR) was operationalised through the use of four items that were measured using a 5-point Likert scale with a range from 1 equating to no implementation, to 5 equating to complete implementation. Appendix 2 shows the statistics for the entire construct and for all of the items. The average mean score was 2.81, while the average standard deviation was 0.690, thereby indicating that there was little dispersion from the mean score of 2.81. With ratings for the observed mean having a range from a value of 2.50 to 2.96, and the range of the standard deviations being from a value of .910 to 1.020, it is clear that there is a low level of social and environmental responsibility in TQM implementation within the Jordanian service sector.

4.4.1 ISO and Non-ISO Firms - Test for Differences

In order to assess for any significant differences in the results of the constructs between ISO-certified organisations and non-ISO certified organisations, several independent t-tests were performed. These enabled the comparison of average mean scores for the two groups (certified and non-certified organisations) as shown by their responses to the interval scale questionnaire items. The t-test calculations had their basis in the average scale scorings for all of the interval scales employed in the study; the SPSS 24 Software was used to compute the average item scores for all twelve study constructs (i.e., 85 individual variables were observable). The findings appear in Table 4.7. The average of the mean scores of the difference in levels for implementation within both Non-ISO and ISO firms is shown in Table 4.7, together with the t-test results with mean differences, degrees of the freedom (df), probability values (p), and t-statistics (t).

Comparison of average mean scores for the Non-ISO and ISO certified firms was undertaken in respect of the twelve major variables (i.e., the aforementioned MC, CF, CI, EI, TE, EE, SP, IA, SQ, CC, BM and SR). All of the statistics are presented in Table 4.7 having been calculated through the use of SPSS 24, from which it can be seen that the t-test reveals the Non-ISO and ISO firms within the Jordanian service sector to be significantly different in their attitudes towards all of the variables ($p < 0.05$). In respect of MC, the t-test showed that the difference between the variables for the firms was statistically significant - Non-ISO (M=3.090; SD=0.374) and ISO-certified (M=4.046; SD=0.456), and the mean score average ($p<0.05$; $t(312) =17.712$). Overall these results confirm that ISO-certified firms report a higher implementation level of MC CSFs than do Non-ISO certified firms. With regard to CF, the mean score averages are for Non-ISO (M= 2.8694; SD= 0.410) and ISO certified (M= 4.27, SD = 0.437) with $p<0.05$ and $t(312)$ equal to 21.610. This means that in practice, the CF is implemented more within those Jordanian service sector firms that possess ISO Certification than in firms that are Non-ISO certified.

Table 4.7: Independent-samples t-test: ISO and Non-ISO

Factor	**Group Statistics**				**Independent *t* test**			
	ISO		No-ISO		t	Df	P	Mean Difference
	Mean	SD	Mean	SD				
Management Commitment and Leadership (MC)	4.0462	0.456	3.0901	0.374	17.712	312	.000	.95608
Customer Focus and Satisfaction (CF)	4.0234	0.437	2.8694	0.410	21.610	312	.000	1.15407
Continuous Improvement (CI)	3.8695	0.388	3.0769	0.390	16.406	312	.000	.79253
Employee Involvement (EI)	3.8238	0.443	2.8838	0.365	17.910	312	.000	.94000
Training and Education (TE)	3.8889	0.444	2.7912	0.402	20.420	312	.000	1.09768
Employee Encouragement (EE)	3.9447	0.458	2.8547	0.399	19.841	312	.000	1.08999
Supplier Partnership (SP)	3.7466	0.481	2.8718	0.425	15.922	188.065	.000	.87484
Information/Analysis /Data (IA)	3.9798	0.593	2.8489	0.512	15.919	312	.000	1.13092
Strategic Quality Planning (SQ)	3.7922	0.667	3.1264	0.495	8.605	312	.000	.66585
Culture and Communication (CC)	3.8870	0.506	2.9209	0.462	15.726	312	.000	.96612
Benchmarking (BM)	3.7590	0.692	2.6456	0.250	20.906	308.824	.000	1.11336
Social and Environmental Responsibility	3.0882	0.563	2.1392	0.477	14.139	312	.000	.94900

In relation to CI, the statistics of the t-test reveal ISO-certified firms as (M= 3.8695; SD= 0.388) and non-certified forms as (M=3.64; SD= 0.390) with an average mean t (312) = 16.406 with p<0.05. Hence, there is a significant difference, showing that CI is implemented to high degree within ISO-certified firms but not in non-ISO firms. Furthermore, a comparison of Non-ISO and ISO-certified firms in respect of the EI factor also revealed a significant statistical difference between the average means of the two groups (t (312)= 17.910; p < 0.05). In practice, therefore, a high level of implementation of EI is apparent within the ISO-certified firms (M= 3.824; SD= 0.443) in the service sector but not in the non-ISO firms (M= 2.884; SD= 0.365).

The t-test result analyses, as shown in Table 4.7, also demonstrate that, on average, ISO-certified firms show a high level of implementation in respect of the TE factor (M= 3.889; SD= 0.444), whereas a low implementation level is evident for non-ISO firms (M= 2.791; SD= 0.402). A statistically significant difference was demonstrated (t (452.7) = 7.383; p < 0.05). Additionally, a statistically significant difference is clear between the two types of firm with regard to EE; ISO-certified firms (M= 3.945; SD = 0.458) and non-ISO certified firms (M= 2.855; SD= 0.399) with t (312) = 19.841 and p <0.05. Hence, the results confirm that ISO-certified firms have a high implementation level with regard to EE. Furthermore, comparing the two types of firm with regard to SP confirmed a significant difference between them with regard to average means, with the ISO-certified firms (M= 3.745; SD= 0.481) showing high implementation within the Jordanian service sector, and with Non-ISO certified firms (M= 2.872; SD= 0.425) showing low implementation (t (188.065) = 15.962; p < 0.05).

Table 4.7 does also show a significant score difference for firms that are ISO-certified (M=3.980; SD=0.593) and firms that are Non-ISO certified (M=2.849; SD=0.512) with the conditions of t (312) =15.919 and p < 0.05 in regard to IA; hence, there is an indication from the mean of the certified firms that a high implementation level exists within those firms. In relation to the SQ factor, the results also indicate a significant statistical difference showing values of (M = 3.792 and SD = 0.667) for ISO-certified firms, and values of (M = 3.126 and SD = 0.495) for non-certified firms (t (312) = 8.605; p <.05). The findings showed that SQ was implemented highly within firms that are ISO-certified but not in those that do not have this certification.

Similarly, in relation to the factor of CC, the output results reported in Table 4.7 showed a statistically significant difference (t (312) = 15.726; p <0.05) between the average mean scores in relation to both Non-ISO certified and ISO-certified firms. In ISO- certified firms (M=3.887; SD= 0.506) CC is implemented highly, whereas in Non-ISO certified firms it is not (M= 2.920; SD= 0.462).

In relation to the BM factor, the results of the independent t-testing revealed a significant difference between the average mean scores for Non-ISO certified firms (M= 2.645; SD= 0.250) and ISO certified firms (M= 3.759; SD= 0.692) (t (308.824) = 20.906; p < 0.05).

And finally, in relation to the SR factor, the t-test revealed as shown in Table 4.7, a significant difference between the average means between the Non-ISO certified and ISO certified firms (t (312) = 14.139; p<0.05), thereby demonstrating high implementation levels within the Jordanian service sector displayed for ISO-certified firms (M= 3.088; SD= 0.563) but low levels of implementation for Non-ISO certified firms (M= 2.139; SD= 0.477).

By way of summary, as demonstrated in Table 4.7, there are significant differences for the average mean scores achieved by the Non-ISO certified firms and the ISO certified ones for each of the 12 variables tested (p < 0.05). Overall, therefore, confirmation is provided that firms awarded the ISO certification had high levels of implementation of TQM, whilst those without such certification had low implementation levels of TQM.

4.4.2 One-way ANOVA

A one-way ANOVA testing was undertaken to secure a comparison of the different levels of implementation of the CSFs within the four different types of service enterprise. This comparison was based upon quality awards, size of firm, sector, and years of TQM implementation.

Type of Service Enterprise

The results of the ANOVA test to determine differences amongst the four different types of service enterprise within the Jordanian service sector, in terms of the level of implementation of TQM (and the underlying CSFs) are shown in Table 4.8. From this it can be seen that no statistically significant differences between the hotel, banking, ITC, and hospital sectors are evident (F (3, 310) =0.303; P< 0.823).

Table 4.8: ANOVA Results for the Type of Service Enterprise

Factor	Mean		SD	DF		F	Sig
	Group	Mean		1	2		
TQM Implementation	Hotel	3.4823	0.56646	3	310	0.303	0.823
	Hospital	3.5878	0.44778				
	Communication	3.5334	0.46778				
	Banking	3.5466	0.55779				

Firm Size

The one-way ANOVA results presented in Table 4.9 show statistically significant differences according to firm size (i.e., the number of employees) with regard to the implementation levels of the underlying CSFs for TQM (F (3,310) = 124.874; p = 0.000).

Table 4.9: Firm Size - Means and Results of ANOVA Testing

Factor	Mean		SD	DF		F	P
	Group	Mean		1	2		
TQM Implementation	less than 50	2.9630	0.56646	3	310	124.874	0.000
	50-99	3.2732	0.44778				
	100-249	3.8535	0.46778				
	250-499	3.9633	0.55779				

Post-hoc comparison via Dunken-type procedures was effected to determine which of the means of the four groups actually differed; the results are provided in Table 4.10, which shows that firms with less than 50 employees (M =2.9630; SD = 0.56646) have a lower level of TQM implementation than firms with between 50-99 employees (M = 3.2732, SD = 0.44778), and that those with between 100-249 employees (M = 3.8535, SD = 0.46778) and 250-499 employees (M =3.9633, SD = 0. 0.55779) have a higher level of implementation. Therefore, it was clear that the implementation of TQM was conditioned by the size of the firm.

Table 4.10: Post-Hoc Testing - Firm size

Number of Employees	N	Subset for alpha = 0.05		
		1	2	3
less than 50	62	2.9630		
50-99	89		3.2732	
100-249	97			3.8535
250-499	66			3.9633
Sig.		1.000	1.000	0.061

Quality Awards

The firms were divided into four groups when exploring the relationship between TQM implementation and quality awards, and as revealed by the results presented in Table 4.11, a statistically significant difference was evident between the groups, as shown by one-way ANOVA testing (F (3,310) = 124.874; p = 0.000).

Table 4.11: Quality Awards - Means and Results of ANOVA Testing

Factor	Mean		SD	DF		F	P
	Group	Mean		1	2		
TQM Implementation	Only Local Award	3.6885	0.35571	3	310	306.823	0.000
	Only International Award	3.9030	0.16702				
	Local And International Awards	3.8759	0.27584				
	Nothing	2.8055	0.15650				

In order to determine which pairs of means within the four groups differed, Duncan procedures were followed, thereby enabling post-hoc comparisons, the results of which are shown in Table 4.12. The findings provide evidence that firms without any awards for quality (Nothing) (M =2.806; SD = 0.1565) showed low implementation levels for TQM in comparison to firms with just a local award (M = 3.2732; SD = 3.689), firms with just an international award (M= 3.903; SD = 0.1670) and firms with both international and local awards (M =3.876; SD = 0.2758). It is noteworthy that the highest implementation level for TQM was shown for firms with just an international award. Clearly, the possession of quality awards is linked with TQM implementation, the conclusion being that where TQM implementation is high, the achievement of an award is more likely.

Table 4.12: Post-Hoc Testing - Quality Awards

Quality Award	N	Subset for alpha = 0.05		
		1	2	3
Nothing	87	2.8055		
Only Local Award	74		3.6885	
Local And International Awards	140			3.8759
Only International Award	13			3.9030
Sig.		1.000	1.000	0.665

Years of Implementation

The firms were classified into four different groups depending on the years of TQM implementation/experience, as Table 4.13 shows, a statistically significant difference between the groups in respect of implementation levels for the underlying CSFs for TQM is evident when the one-way ANOVA (F (3,310) = 163.201; p = 0.000) is performed.

Table 4.13: Years of Implementation – Means and Results of ANOVA Testing

Factor	Mean		SD	DF		F	P
	Group	Mean		1	2		
TQM Implementation	Less Than 1 year	2.8794	0.19784	3	310	163.201	0.000
	1-3 Year	3.1690	0.48943				
	4-6 Year	3.8304	0.29153				
	More Than 6 Year	3.9533	0.21426				

Post-hoc comparisons were determined by Duncan procedures that allows for the identification of which pairs of means from the four groups actually differed, and the results are presented in Table 4.14. The indication from the findings is that firms with a lower level of experience (i.e., less than one year), show lower TQM implementation levels (M =2.8794; SD = 0.19784) than firms possessing one to three years of experience in the implementation of TQM (M = 3.1690, SD = 0.48943). Also, firms with from four to six years of experience in TQM implementation (M =3.8304; SD = 0.29153) have higher levels of implementation than those with just one to three years of experience. Firms with over six years of experience in the implementation of TQM (M =3.9533; SD = 0.21426) have the highest levels of such implementation of all groups, thereby indicating that TQM implementation is affected in an ascending manner according to the number of years it has been practised by the firms concerned.

Table 4.14: Post-Hoc Testing - Years of Implementation

Years of Implementation	N	Subset for alpha = 0.05			
		1	2	3	4
Less Than 1 year	48	2.8794			
1-3 Years	84		3.1690		
4-6 Years	110			3.8304	
More Than 6 Years	72				3.9533
Sig.		1.000	1.000	1.000	1.000

4.5 Construct Validity

Construct validity can be classified into two types, these being discriminant validity and convergent validity. Discriminant validity relates to the assurance that a measure used does not correlate with any other measure from which it supposedly differs. Convergent validity, on the other hand, is concerned with establishing the degree to which scale items, developed for measurement of the same concept, are in association (Churchill, 1979). In this study, initial testing of both kinds of construct validity is performed through the use of factor analysis, for which McDaniel and Gates (2018) claim there are two main reasons. Firstly, factor analysis leads to the identification of the underlying data constructs and, secondly, it precipitates a reduction in the original variable numbers such that a smaller variant set (factors) is obtained. Moreover, a wide range of statistical techniques are embodied within factor analysis and these can be employed in the examination of relationships amongst items and the latent factors with which items are associated (Hair et al., 2015; Garson, 2013; Comrey and Lee, 2016; Brown, 2015).

Furthermore, factor analysis addresses issues of analysis of the inter-relationships amongst large item numbers and then helps provide explanations for such items in regard to common factors/dimensions that underlie those inter-relationships. In general, the purpose of factor analysis is to summarise and/or condense information into smaller groups of new composite factors/dimensions in such a way that there is minimal information loss (Gorsuch, 2015 and Hair et al., 2015). Within confirmatory factor analysis (CFA), however, discriminant and convergent validity tests of greater depth are undertaken by way of the technique known as Structural Equation Modelling (SEM).

Brown (2015) noted continual debate over the suitability of factor analysis, which essentially falls into two types, i.e., confirmatory factor analysis, and exploratory factor analysis. Many researchers consider factor analysis only as exploratory and useful as a method of reducing data or discovering structure amongst variable sets. Within this study, however, both of the aforementioned kinds of factor analysis are employed, with CFA being used in the assessment of adequacy, validity and fitness of the measurement model for the sample, and exploratory factor analysis being used, initially, as a method of reducing data. Prior to the successful employment of

factor analysis, however, several requirements must be met. One key requirement is to measure the variables employing interval scales, and in respect of the interview protocol (questionnaire survey) in this study, this important need was satisfied by the use of a 5-point Likert scale. Another key criterion is that the size of sample must exceed 100 as, in general, the researcher is unable to employ factor analysis with less than fifty observations (Garson, 2013; Comrey and Lee, 2016; Hair et al., 2015). This key requirement was also satisfied since 314 observations were made for this study. So, with the aforementioned requirements fulfilled, exploratory factor analysis could be successfully performed; the results of the testing are discussed briefly in the sections that follow.

4.5.1 Exploratory Factor Analysis

The term ‘factor analysis’ is a generic one used as a label to describe a multivariate type of statistics that has the main purpose of defining underlying structure within a matrix of data (Hair et al., 2015). In particular, the approach addresses the challenge of analysis of correlations (inter-relationships) amongst large numbers of variables through the definition of sets of common dimensions or factors. Factor analysis is employed in the checking of whether indicators actually group in the ways proposed through prior specification of the dimensions in question (Bryman and Cramer, 2012). Certain key issues must be taken into consideration when EFA is employed, i.e. inter-correlation, size of sample, factorability of R, outliers, missing data, normality, multicollinearity, homoscedasticity, and linearity. The majority of these issues have been discussed before, with the exception of inter-correlation and factorability of R.

It is possible to measure the strength of relationships and the linear relationship through consideration of the matrix of correlation. In general, there is an expectation that the correlation coefficients would be more than 0.30 (Tabachnick and Fidell, 2018). There do remain several limitations to the use of correlation coefficients, one being that since there is no indication of the meaning of the significance of a factor, in a practical sense, there is a restriction of values from 0 to 1. So, rather than considering only the correlation coefficients, the recommendation is to use the complex measure called ‘factorability of R’ to evaluate the relationship strength, and to suggest variable factorability. Two statistical methods are used for the testing of

factorability of R, namely the Kaiser-Meyer-Olkin (KMO) test, and Bartlett's Sphericity test. As Hair et al. (2015) note, it is meritorious for the index value of KMO to be 0.80 or more, middling if it is 0.70 or more, mediocre if 0.60 or more, and unacceptable if lower than 0.50. Bartlett's Sphericity test is considered to indicate statistical significance where the p-value ≤ 0.05. In this study, the KMO measure for sampling adequacy was at a level of .938, i.e., over the recommended 0.5 value. As shown in Table 4.15, Bartlett's Sphericity test had significance (χ^2 (2415) = 16426.074, p < .05). Based on the eigenvalue rule or Kaiser's criterion, just those factors that had an eigenvalue that was 1.0 or more could be kept in for the later investigation (Pallant, 2016). Moreover, the cumulative percentage level for the total variance at a value of 60 was considered satisfactory for research within the social sciences (Hair et al., 2015). The minimal level acceptable, as noted by Garson (2013), however, is for 50% of the variance to be explained. Since all assumptions were met by the data, it was considered appropriate to use factor analysis.

Table 4.15: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.938
Bartlett's Test of Sphericity	Approx. Chi-Square	16426.074
	df	2415
	Sig.	.000

Brown (2015:20) states that "other procedural aspects of EFA include: 1) selection of a specific method to estimate the factor model; 2) selection of the appropriate number of factors; 3) in the case of models that have more than one factor, selection of technique to rotate the initial factor matrix to foster the interpretability of the solution; 4) if desired, selection of the method to compute factor scores".

4.5.1.1 Factor Extraction

As noted by Robertson et al. (2014), the social sciences do not have an extraction method that is universal. The most appropriate method is that which allows the purposes of factor analysis to be satisfied. For example, Principal Component Analysis could be the most appropriate method when the aim is to reduce a large item set to one that is more easily managed. On the other hand, if the intention is to

achieve scale development, alternative extracting methods such as Principal Factors, Unweighted Least Squares, Generalised Least Squares, Maximum Likelihood Factoring, Image Factoring and/or Alpha Factoring would be more suitable. Consequently, in this study, the particular method for factor extraction was selected that would ensure the consideration of the minimum number of factors, and that would most appropriately represent variable set associations (Pallant, 2013). Given the main reason for using EFA was to reduce the data, Principal Component Analysis (PCA) was employed as the main factor extraction method.

4.5.1.2 Factor Retention

In terms of the criteria for factor retention, there are numerous approaches for the determination of the number of factors that would best describe the underlying relationships amongst the variables of the study. These approaches include Cattell's scree test, Horn's parallel analysis, and Kaiser's criterion, but the one most often used is Kaiser's criterion (the eigenvalue greater than one rule). As eigenvalues refer to the total variance amount that a factor explains, a significant variation in the amount is denoted by an eigenvalue of 1 or over (Pallant, 2013). Cattell's scree test, on the other hand, plots eigenvalues and allows for the checking of where changes in the plot curve become horizontal, it being suggested that all factors that lie over the curve elbow should be retained (ibid).

And finally, in respect of the retention of factors, Horn's parallel analysis has a basis in comparison between original eigenvalue size and that of other eigenvalues acquired from a data set of the same magnitude that has been randomly generated. The eigenvalues that are retained are those exceeding similar values hailing from the random set of data (Field, 2017; Hair et al., 2015; Pallant, 2013). Furthermore, many researchers have recommended the use of multiple criteria for determining the most parsimonious factor set (Field, 2017; Hair et al., 2015; Roberson et al., 2014; Osborne, 2015). So, within this research, Cattell's scree plot and Kaiser's criterion tests were both used to establish the number of factors to be retained for later analysis.

4.5.1.3 Factor Rotation

After considering the appropriate number of factors, those extracted are related. High-item loadings are maximised by rotation whilst low-item loadings are minimised, resulting in a more simplified and explainable outcome (Brown, 2015). Two common techniques of rotation are the oblique technique and the orthogonal technique (Hair et al., 2015). The oblique technique involves direct oblimin, promax and quartimin, whereas the orthogonal method includes quartimax, equamax and varimax. The orthogonal approach leads to the production of factors that are not correlated whilst the oblique approach permits the relation of the factors (Hair et al., 2010). Within the social sciences, researchers expect some degree of correlation amongst factors as it is seldom that behaviour can be partitioned into separately-functioning packaged units (Garson, 2013). In fact, there is no oblique method of rotation that is broadly favoured as all of the methods have a tendency to produce results that are similar (Osborne, 2015). So, whilst numerous alternatives for execution of the EFA steps exist, the method chosen by the researcher is immaterial since their differences are rather insignificant (Fabrigar and Wegener, 2012). This study involves the application of the method that is most often employed in rotation for the maximisation of variance, i.e., a varimax form of orthogonal technique. Tabachnick and Fidell (2018) consider that the objective for varimax rotation is the maximisation of the factor loading variance through making the high loadings higher for each factor as well as making the lower loadings lower. To accord with the advice given by Hair et al. (2015), factor loadings that were above +/- .50 were taken as being practically significant.

4.5.1.4 Factor Interpretation

Factor loading indicates the relationship between variables and their factors. According to Hair et al. (2015), factor loadings within the range from ±0.30-0.40 can, as a minimal requirement, be considered acceptable; those factor loadings ±0.50 or over are considered to be of practical significance; and those in excess of 0.70 display structure that is well-defined, and the goal of factor analysis. However, factor loadings ought to have stricter assessment levels. It was also recommended by Hair et al. (2015) that factor loadings from different sample sizes be considered via an 80% power level, a significance level of 0.05 and the proposed standard error

inflation. In this study, with a sample size of 314, a cut-point value of 0.50 is used as the minimum level to accord with the suggestion by Hair et al. (2015).

4.5.1.5 Exploratory Factor Analysis Result

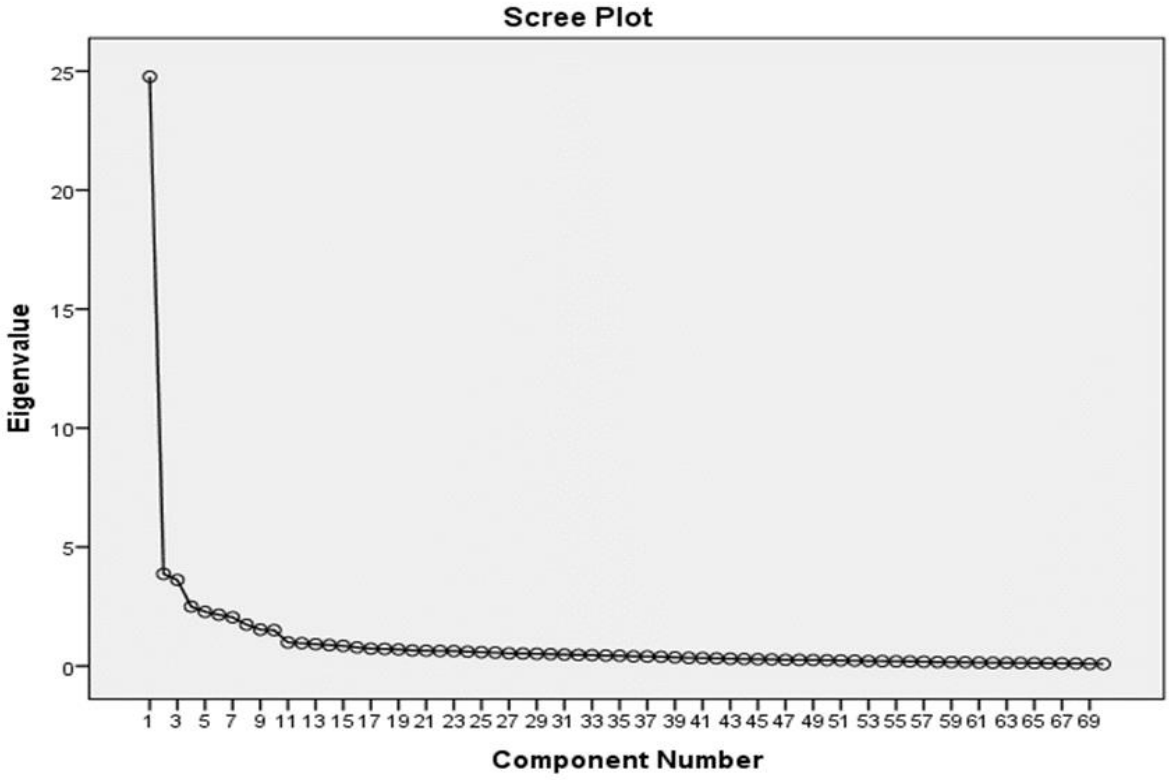
The principal component EFA using varimax rotation was undertaken in order for the validation of the 12 potential CSFs that were highlighted in Phase One of the research. In combination with factor extraction, particular tests in relation to overall significance and sampling adequacy were also undertaken. These tests were Bartlett's Sphericity test, and the KMO measurement for sampling adequacy. In the case of the latter, this highlighted a value of 0.938, classified as being good and over the measurement level of 0.6 that is commonly recommended. Bartlett's Sphericity test showed a value of 0.000 thereby suggesting the presence of strong relationships between variables. It was also discovered that all commonalities were over 0.5, as can be seen in Appendix 3, thereby lending weight to the assumption that all of the items share a degree of common variance with some other items. Through having a focus on those three initial indicators, the decision was taken that it was justifiable to proceed with EFA. As Field (2017) discussed, the initial factor extraction stage was for determination of the dataset linear components. It was accepted by the researcher that all components would have values although not all of them would be equal.

Table 4.16 shows the initial eigenvalues that demonstrate that the 1st component explains 35.377% of the variance. The 2nd and 3rd components provide explanations for 5.529% and 5.166% of the variance, respectively. The 4th, 5th, 6th, 7th, 8th, 9th and 10th components contribute to 3.567%, 3.3.256%, 3.3.079%, 2.922%, 2.486%, 2.186% and 2.153% of variance, respectively. Those first ten actually account for a total of 65% of the combined variance, i.e. well over the 50% level that was recommended by Field (2017). When EFA is utilised for the reduction of items and determination of factors, the recommendation is that the sample be bigger than 250. As noted earlier, many researchers suggest that more than one method of extraction is employed so that results can be supported and a clearer picture produced of the maximum factor number that ought to be retained. So, as shown in Figure 4.11, the plot of Cattell's scree test was done so that the result of the Kaiser's criterion test could be confirmed. It was made clear by the scree plot that 10 factors were over the plot line elbow, and this proved that there was accuracy for a 10-factor solution that resulted from the earlier rule of 'eigenvalue greater than 1'.

Table 4.16: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	24.76	35.38	35.38	24.76	35.38	35.38	7.32	10.45	10.45
2	3.87	5.53	40.91	3.87	5.53	40.91	5.59	7.98	18.43
3	3.62	5.17	46.07	3.62	5.17	46.07	5.50	7.86	26.29
4	2.50	3.57	49.64	2.50	3.57	49.64	4.45	6.35	32.64
5	2.28	3.26	52.90	2.28	3.26	52.90	4.41	6.31	38.95
6	2.15	3.08	55.98	2.15	3.08	55.98	4.40	6.28	45.23
7	2.05	2.92	58.90	2.05	2.92	58.90	3.83	5.48	50.71
8	1.74	2.49	61.38	1.74	2.49	61.38	3.65	5.21	55.92
9	1.53	2.19	63.57	1.53	2.19	63.57	3.61	5.16	61.08
10	1.51	2.15	65.72	1.51	2.15	65.72	3.25	4.64	65.72
11	0.99	1.42	67.14						
12	0.96	1.37	68.51						
13	0.92	1.31	69.82						
14	0.88	1.26	71.08						
15	0.85	1.21	72.29						
16	0.78	1.11	73.40						
17	0.73	1.04	74.44						
18	0.72	1.02	75.47						
19	0.70	1.00	76.47						
20	0.65	0.93	77.40						
.	.	.	.						
.	.	.	.						
.	.	.	.						
70	0.08	0.12	100.00						

Figure 4.11: Scree Plot



The matrix of rotated components used the varimax rotation approach with Kaiser Normalisation. As Table 4.17 shows, this involved loading items onto ten principal themes (components). The rotation was converged and set into ten iterations. The EFA required careful consideration in terms of item reduction. As shown in Appendix 3, all of the 85 items were highlighted in the initial EFA within the rotated component matrix. This initial EFA showed items that had been loaded upon multiple components along with others that had been loaded with a factor loading below 0.5. The initial reduction attempt was made with a focus upon extracting items with values lower than 0.3. The following EFA run involved the reduction of items to 73 (from 85) in the rotated type of component matrix. The concentration was then placed upon items that were heavily loaded upon more than one principal component. Items were considered to be dual-loaded if the score was over 0.5 upon a single component. A process of reducing and re-running the factor analysis then followed until there were no items loaded upon multiple components, and all of them had a factor loading of over 0.5. The final outcome of this activity was 52 items. Table 4.17 shows the final version of the rotated component matrix (also see Appendix 3). A total of 52 items loading upon ten principal components were highlighted, and *Cronbach's Alphas = α* were calculated for all of the individual factors in order to determine the inter-relatedness amongst items. It is suggested by Field (2017) that scores lower than 0.6 should be considered as heterogeneous and as having minimal correlation with any other items. However, different ideas are held concerned what constitutes an ideal score, since Fabrigar and Wegener (2012) believe scores between 0.70 and 0.99 are acceptable, with a result that has more reliability being shown by values that are closer to 1.0. It has been accepted, however, that the majority of results greater than 0.6 can also be seen as valid (Field, 2017). As highlighted in Table 4.17, for all factors $\alpha = .833 >< 0.927$; and hence, reliability was perceived as good. EFA is not employed in measuring the importance of items; however, the descriptive type of statistic may be employed to inform decision-makers. In combination with the descriptive statistics that appear in Appendix 3 and in Table 4.17, the rotated type of component matrix was used to show the findings for individual components.

Table 4.17: Rotation Results

Component		Component									
		1	2	3	4	5	6	7	8	9	10
CF	CF1	.773									
	CF5	.756									
	CF7	.748									
	CF2	.729									
	CF4	.714									
	CF3	.682									
	CF6	.681									
MC	MC5		.757								
	MC1		.702								
	MC4		.656								
	MC3		.618								
	MC2		.601								
	MC6		.600								
	MC7		.566								
IA	IA3			.727							
	IA2			.706							
	IA4			.674							
	IA1			.643							
EE	EE6				.824						
	EE3				.800						
	EE5				.777						
	EE2				.773						
	EE4				.772						
TE	TE5					.803					
	TE4					.791					
	TE2					.759					
	TE3					.734					
	TE6					.730					
EI	EI4						.673				
	EI1						.666				
	EI6						.616				
	EI5						.611				
	EI2						.606				
	EI3						.514				
CI	CI6							.785			
	CI4							.738			
	CI5							.730			
	CI1							.726			
	CI2							.684			
CC	CC1								.855		
	CC2								.828		
	CC3								.813		
	CC5								.792		
SQ	SQ5									.814	
	SQ4									.791	
	SQ3									.784	
	SQ1									.773	
	SQ2									.738	
SP	SP5										.823
	SP3										.757
	SP4										.732
	SP6										.719
Cronbach's Alpha = α Combined α= 0.952		0.927	0.869	0.867	0.916	0.904	0.833	0.852	0.913	0.873	0.854
Eigenvalues		24.76	3.87	3.62	2.50	2.28	2.15	2.05	1.74	1.53	1.51
% of Variance explained		35.38	5.53	5.17	3.57	3.26	3.08	2.92	2.49	2.19	2.15
Cumulative % of variance explained		35.38	40.91	46.07	49.64	52.90	55.98	58.90	61.38	63.57	65.72
KMO		0.856	0.898	0.804	0.892	0.889	0.829	0.858	0.842	0.765	0.808

Customer Focus and Satisfaction (CF) was the first component of the EFA that explained 35.38 % of the variance. Clear inter-relatedness amongst items was highlighted by Cronbach's Alpha score (α) equalling 0.927; this was sufficiently close to 1.0 for a reliable result to be confirmed. The initial ten items were reduced to seven by the EFA, and these are shown in Table 4.17. The spread of factor loadings for those remaining seven items was 0.681 >< 0.773.

Management Commitment and Leadership (MC) was the second component that accounted for 5.53% of the variance and, in combination with component No.1, i.e., CF, MC highlighted 40.91% combined variance. A Cronbach's Alpha score (α) of 0.869 demonstrated clear inter-relatedness amongst the items, with the value being close enough to 1.0 for a reliable result to be confirmed. Items were reduced from eleven to seven by the EFA, and the remaining seven are shown in Table 5.17. The spread of factor loadings of those seven remaining items is 0.566><0.757.

Information/Analysis/Data (IA), the third component, accounted for 5.17% of the variance and in combination with Components 1 and 2, i.e., CF and MC, highlighted a 46.7% combined variance. Clear inter-relatedness amongst the items is highlighted by a Cronbach's Alpha score (α) of 0.867 and this is near enough to 1.0 for the reliability of the result to be confirmed. From the initial number of items, the EFA reduced the number for IA to four, with a spread of factor loading of 0.643><0.727. The results are shown in Table 4.17.

Employee Encouragement (EE), the fourth component accounted for 3.57% of variance and in combination with Components 1, 2 and 3, i.e., CF, MC and IA, highlighted a 49.64% combined variance. Clear inter-relatedness amongst items is highlighted by a Cronbach's Alpha score (α) of 0.916; the value is near enough to 1.0 for a reliable result to be confirmed. The initial nine items were reduced to five by the EFA, and a spread of factor loadings of 0.772><0.824 was seen. The results are shown in Table 4.17.

Training and Education (TE), the fifth component, accounted for 3.26% of the variance and, in combination with Components 1, 2, 3 and 4 highlighted a 55.98% combined variance. Clear inter-relatedness amongst items is highlighted by a Cronbach's Alpha score (α) of 0.904 which is near enough to 1.0 for a reliable result to be confirmed. The initial nine items were reduced to five by the EFA and a spread

of factor loadings of 0.730><0.803 resulted. The remaining five items are shown in Table 4.17.

Employee Involvement (EI), the sixth component, accounted for 3.08% of variance and in combination with Components 1, 2, 3, 4 and 5 highlighted a 55.98% combined variance. Clear inter-relatedness amongst items was highlighted by a Cronbach's Alpha score (α) of 0.833, and this was near enough to 1.0 for the reliability of the result to be confirmed. The variety of component items was reduced from seven to six within the EFA, with a spread of factor loadings of 0.514><0.673. The remaining six items are shown in Table 4.17.

Continuous Improvement (CI), the 7th component, accounted for 2.92% of variance and in combination with Components 1,2,3,4,5 and 6 highlighted a 58.90% combined variance. Inter-relatedness amongst items was still highlighted by a Cronbach's Alpha score (α) of 0.852 which is near enough to 1.0 for the reliability of the result to be confirmed. During the EFA, the initial nine items were reduced to five, with a spread of factor loading of 0.684><0.785, and those remaining items are shown in Table 4.17.

Culture and Communication (CC), the 8th component, accounted for 2.49% of variance and in combination with Components 1,2,3,4,5,6 and 7 highlighted a 61.38% combined variance. Clear inter-relatedness amongst items was highlighted by a Cronbach's Alpha score (α) of 0.913 which is sufficiently near to 1.0 for the reliability of the result to be confirmed. Component variety items were reduced in the EFA from five to four, with factor loading spread between 0.792><0.855; these remaining items are shown in Table 4.17.

Strategic Quality Planning (SQ), the 9th component, accounted for 2.19% of variance and in combination with Components 1,2,3,4,5,6,7 and 8 highlighted a 63.57% combined variance. Clear inter-relatedness amongst items is shown with a Cronbach's Alpha score (α) of 0.873 which is sufficiently close to 1.0 for a reliable result to be confirmed. There was a reduction in component variety items during the EFA from six to five with a spread of factor loading ranging from 0.738><0.814; these remaining items are shown in Table 4.17.

Finally, *Supplier Partnership (SP*), the 10th component, accounted for 2.15% of variance and in combination with Components 1,2,3,4,5,6,7,8 and 9 highlighted a 65.72% combined variance. Clear inter-relatedness amongst items is highlighted by a Cronbach's Alpha score (α) of 0.854 which is sufficiently close to 1.0 for the reliability of the result to be confirmed. There was a reduction of component volume items from seven to four within the EFA with the remaining items showing a spread of factor loading of 0.719><0.823; these remaining items are shown in Table 4.17.

4.5.2 Summary of Exploratory Factor Analysis

In the data reduction process effected by the EFA, the final version of the rotated type of component matrix contained 52 items from the initial 85. Table 4.18 shows the comparison between the original CSFs/variables that were identified within Chapter Three when the design of the questionnaire was considered, and the remaining items after the removal of the 33 items during the EFA.

Table 4.18: The CSFs Before and After EFA

Factors	CSFs- Before EFA	CSF- After EFA
Customer Focus and Satisfaction	10	7
Management Commitment and Leadership	11	7
Information/Analysis/Data	4	4
Employee Encouragement	9	5
Training and Education	9	5
Employee Involvement	7	6
Continuous Improvement	9	5
Culture and Communication	5	4
Strategic Quality Planning	6	5
Supplier Partnership	4	4

4.5.3 Confirmatory Factor Analysis (CFA)

The analysis of the data obtained in the study was undertaken in two primary phases in line with the approach taken in the work of Anderson and Gerbing (1988), and Hair et al. (2015). Firstly, the measurement model was estimated through the use of CFA, and thereafter the hypotheses were tested using the proposed structural model. Byrne (2016) has argued that CFA is appropriate for use when a researcher knows a little about the underlying latent variable structure. The argument is that using empirical research, theoretical knowledge or a combination of the two, a researcher can postulate relationships between the underlying factors and the measures observed 'a priori' and from that, can proceed to statistically test the hypothesised structure. As CFA has a sole focus upon the link connecting factors and the measured variables, it represents what is termed within the SEM framework, a measurement model. So, CFA is employed if a researcher has access to a

theoretical background that is well-developed in relation to the underlying measurement model.

The testing of the measurement model has the primary purpose of identifying the goodness of fit between the hypothesised model and the data in the sample (Byrne, 2016). In this respect, Hair et al. (2015) recommend the use of at least an absolute fit index and an incremental index. They also recommend using a chi-square value (CMIN) and degrees of freedom (DF) (Hair et al., 2015). In order to test the fit of the models in this study, the incremental fit indices of IFI and CFI are used, in addition to the absolute fit indices of RMSEA, CMIN and normed CMIN (CMIN/DF). The evaluation of the measurement model is undertaken in two stages, the first being via CFA in respect of all of the latent variables (constructs) individually, and the secondly being CFA for the measurement models as a whole, with all of the latent constructs in question correlated together.

4.5.3.1 Model Modification Techniques

Where the model fit is inadequate, it is common to improve fitness by modifying the model. This is done by deleting any parameters considered insignificant or that have a standardised regression weights (SRW) that are lower than 0.50 (Hair et al., 2015). Moreover, AMOS software is able to compute modification indices (MI) for all of the fixed parameters. Values for given modification indices are the minimum amounts by which a statistic of chi-square is expected to fall if a parameter that is corresponding is freed. This information is often used by researchers to manage model modification sequences. A parameter is allowed to be freed at each of the steps to produce the biggest fit improvement, and such a process is carried on until there is achievement of a fit that is adequate. For example, if a big modification indices is shown by a loading fixed at zero within a confirmatory type of factor model, then a researcher can free the parameter and have an estimation of its value. The process improves the model fit with just 1 degree of freedom cost (Hox et al., 2017).

Finally, the aim of SEM is to determine the fit amongst the restricted type of covariance matrix, as implied by the sample matrix of covariance and the model hypothesised; the residual type of covariance matrix notices any discrepancy that lies between them. The matrix includes standardised residuals, that is to say, fitted residuals that are divided by associated asymptotically standard errors (Byrne, 2016).

These are representations of the quantity of standard deviations that would exist, for variables observed from zero residuals, if the fit of a model was perfect. In such case, the restricted covariance matrix minus the sample covariance matrix equates to zero (Byrne, 2016). So, in examining the standardised residual value magnitude provided as output by the optional AMOS, the researcher may be alerted to potential model fit areas. Residuals ought to be small and gathered around zero to ensure symmetry in the residual covariance frequency distribution (Tabachnick and Fidell, 2018). Within this study, the models were modified via use of the parameters, modification indices, and standardised residual values.

4.5.3.2 CFA Results for Individual Constructs

This section reports the results of CFA when checking the fit of the model, and the validity and reliability of all of the factors employed within the research, i.e., the output of EFA. The ten factors are: **MC**: Management Commitment and Leadership, **CF**: Customer Focus and Satisfaction, **CI**: Continuous Improvement, **EI**: Employee Involvement, **TE**: Training and Education, **EE**: Employee Encouragement, **SP**: Supplier Partnership, **IA**: Information/Analysis/Data, **SQ**: Strategic Quality Planning, **CC** Culture and Communication. As observed by Hair et al. (2015) and Byrne (2016), in order for the model to run, it is useful to employ the method of maximum likelihood (MLE), and hence, this procedure was followed.

CFA Results for Customer Focus and Satisfaction

CF was measured through the use of seven items. As Table 4.19 shows, it was found that preliminary fit indices were: CMIN= 197.795, DF= 14, p- value = 0.000, CMIN/DF=14.128, CFI=0.89, IFI= 0.891 and RMSEA=0.205. It was noted that the RMSEA value was over the 0.10 point of cut-off (Byrne, 2016); as such, a number of modifications were needed in order to reduce the RMSEA value so that the model fitness was improved (Byrne, 2016). Firstly, the standardised regression weights were checked; it was discovered that all of the construct items ($p< 0.001$) were above the value recommended of 0.50 (Byrne, 2016, Hair et al., 2015). Secondly, the table of standardised residuals for the construct was checked as Byrne (2016) had recommended. From this, it was seen that the first construct item (CF3) had a residual covariance that was high-standardised and it was, therefore, dropped. In terms of the covariance-related modification indices (MIs), clear evidence of associated mis-specification was noted with the error term pairing associated with CF1 (item no.1) and CF5 (item no.5).

The measurement error co-variances represented a system rather than random measurement error in the item responses. Such measurement error co-variance could derive from specific characteristics related to either the respondents or the items (Byrne, 2016). Hence, the decision was taken to undertake an error term of covariation for CF1 with CF5. CFA was run once again and the main measurement model results showed that there was an improvement in the fitness of the model and that all of the fit indices values were within the associated threshold values as noted within Table 4.19.

Table 4.19: Fit Indices for Customer Focus and Satisfaction

Fit indices	Cut-off point	Initial model	Modified model
CMIN/DF	≤ 5.000	14.128	2.710
P-VALUE	>.05	.000	.006
CFI	≥ .90	.890	.990
GFI	≥.90	.827	.978
IFI	≥ .90	.891	.991
PCLOSE	>.05	.000	.127
RMSEA	≤ .10	.205	.074

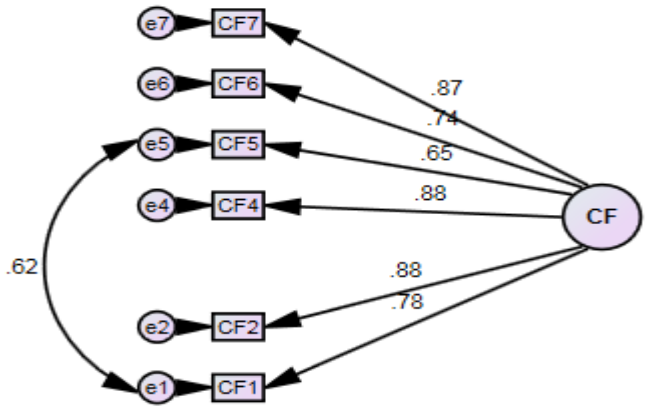
When the model fitness check was done, an examination of the construct reliability and the convergent validity was made. The results of the statistical testing showed that the CF scale had a high level of internal consistency with an adequate CR (0.9172) (Kline, 2015). Additionally, the scale was seen to have an acceptable level of convergent validity since each of the standardised types of regression weights, for the six indicators that remained, ranged from a value of 0.646 to 0.883. Also all of the t- values were significant with p< .001, as noted within Table 4.20. The results from this testing provided evidence of construct reliability, convergent validity, and unidimensionality, and therefore, all five indicators converged with their associated latent variable, thereby displaying reliability in terms of capturing the construct of Customer Focus and Satisfaction. Figure 4.12 shows the results of the model with six indicators.

Table 4.20: CFA Results for Customer Focus and Satisfaction

Construct	Item code	Std. regression weights	t-value(C.R.)
Customer Focus and Satisfaction factor C R=0.9172	CF1	.779	_____*
	CF2	.883	17.090***
	CF4	.883	17.171***
	CF5	.646	18.264***
	CF6	.744	14.116***
	CF7	.869	17.031***

***p< 0.001, * fixed parameter

Figure 4.12: CFA Diagram for Customer Focus and Satisfaction



CFA Results for Management Commitment and Leadership (MC):

MC was measured by seven items, and as shown in Table 4.21, the preliminary fit indices were: CMIN= 89.920, DF= 14, p- value = 0.000, CMIN/DF=6.423, CFI=0.982, IFI= 0.982 and RMSEA=.132. It was noted that the RMSEA value was above the 0.10 cut-off point (Byrne, 2016). Also, the CMIN/DF value was over the 5 cut-off point and so a number of modifications were needed in order for the values of CMIN/DF and RMSEA to be reduced and hence, for the model fitness to be improved (Byrne, 2016). Firstly, the standardised type of regression weights were checked, and it was discovered that each of the construct items ($p< 0.001$) were over the value recommended of 0.50 (Byrne, 2016; Hair et al., 2015). Secondly, the table of standardised residuals for the construct was checked (as Byrne (2016) had recommended), and this showed that each of the items had a low-level of standardised residual covariance. In terms of modification indices (MIs) that were associated with the covariance, clear evidence was noted of mis-specification that was associated with the error term pairing connected with MC1, MC2, MC3, MC4 and MC5, i.e., items 1 to 5. The covariance of measurement error within the item responses represent systematic rather than random errors. Such errors could derive from characteristics that are particular to either the respondents or the items (Byrne, 2016). Consequently, an error term covariation of MC1 with both MC2 and MC5 was undertaken. CFA was run once again, and the primary results of the measurement model revealed that the model fitness had improved and that each of the fit indices values were within the associated threshold values, as reported in Table 4.21.

Table 4.21: Fit Indices for Management Commitment and Leadership

Fit indices	Cut-off point	Initial model	Modified model
CMIN/DF	≤ 5.000	6.159	1.347
P-VALUE	>.05	.000	.184
CFI	≥ .90	.922	.995
GFI	≥.90	.930	.986
IFI	≥ .90	.922	.996
PCLOSE	>.05	.000	.728
RMSEA	≤ .10	.128	.033

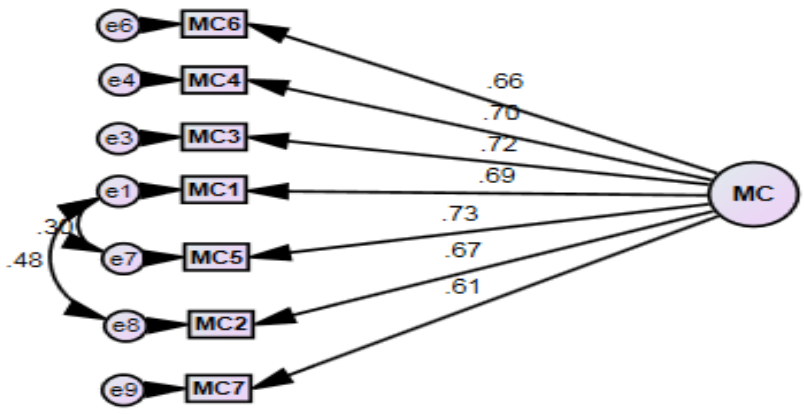
After checking the model fitness, the reliability of the construct and the convergent validity were examined. The results of the statistical testing show that the MC scale was adequate and had a high level of internal consistency with CR (0.861) (Kline, 2015). Also, an acceptable level of convergent validity in the scale was evident as all the standardised regression weights for the six indicators ranged from a value of 0.646 to 0.883. At the same time, the t- values were significant at p< .001 as shown in Table 4.22. Consequently, the results provide evidence of factor unidimensionality as well as convergent validity and reliability. So, all of the remaining six indicators converged with the associated latent variable, thus showing reliability for the MC factor. Figure 4.13 shows the results of the 6-indicator MC factor model.

Table 4.22: CFA Results for Management Commitment and Leadership

Construct	Item code	Std. regression weights	t-value(C.R.)
Management Commitment and Leadership C R=0.861	MC1	.690	____*
	MC2	.724	10.695***
	MC3	.701	10.711***
	MC4	.658	10.134***
	MC5	.728	13.043***
	MC6	.665	14.009***
	MC7	.612	9.448***

***p< 0.001, * fixed parameter

Figure 4.13: CFA Diagram for Management Commitment and Leadership



CFA Results for Information/Analysis /Data (IA):

Information/Analysis/Data (IA) was measured through the use of four items, and as reported in Table 4.23 shows, the preliminary fit indices were: CMIN= 21.421, DF= 2, p- value = 0.000, CMIN/DF=10.711, CFI=0.970,GFI=.968, IFI= 0.970 and RMSEA=.176,PCLSE=.001. It was noted that the RMSEA value was over the 0.10 cut-off point (Byrne, 2016), and that the CMIN/DF value exceeded the 5 cut-off point. It was, therefore, considered necessary to make a number of modifications in order for the values of CMIN/DF and RMSEA to be reduced so that the model fitness could be improved (Byrne, 2016). Firstly, the standardised regression weights were checked and it was discovered that each of the construct items ($p< 0.001$) were over the recommended 0.50 value (Byrne, 2016, Hair et al., 2015). Secondly, the table of standardised residuals for the construct was checked in line with the recommendation of Byrne (2016), and from the table it was seen that each of the items had a low level of standardised residual covariance. In relation to the MIs linked to covariance, clear evidence appeared of associated mis-specification with the error term pairings that were connected with IA3 and IA4, i.e., items 3 and 4. The covariance's of measurement error show systematic rather than random errors of measurement among the item responses; and it was also borne in mind that the measurement error covariances might derive from characteristics specific to either the respondents or the items (Byrne, 2016). Hence, it was decided to undertake an error term of covariation of the IA3 with the IA4. CFA was run once again, and the main measurement model results showed that there was improvement in the fitness of the model and that all fit indices values were within associated threshold values, as noted in Table 4.23.

Table 4.23: Fit Indices for Information/Analysis/Data

Fit indices	Cut-off point	Initial model	Modified model
CMIN/DF	≤ 5.000	21.421	4.800
P-VALUE	>.05	.000	.028
CFI	≥ .90	.970	.994
GFI	≥.90	.968	.992
IFI	≥ .90	.970	.994
PCLOSE	>.05	.001	.097
RMSEA	≤ .10	.176	.100

After checking the model fitness, the reliability of the construct and convergent validity were examined, and the results of the statistical testing showed that the IA scale had a high level of consistency with adequate CR (0.883) (Kline, 2015). There

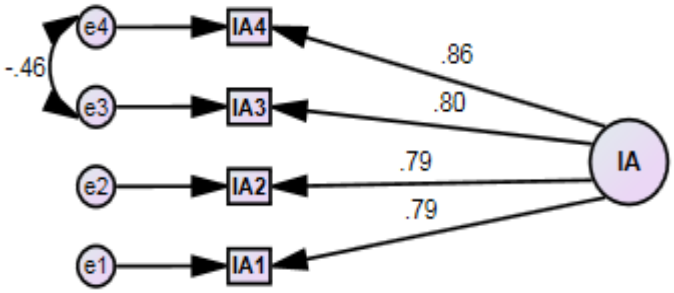
was also an acceptable degree of convergent validity in the scale since all the standardised regression weights of the seven indicators ranged from the value of 0.789 to 0.865. Additionally, all of the t- values were significant at p< .001 as noted in Table 4.24. These results provide evidence of factor unidimensionality, as well as convergent validity, and factor reliability. All the remaining five indicators converged to the associated latent variable showing reliability for the IA factor. The seven-indicator model results for the IA factor are shown in Figure 4.14.

Table 4.24: CFA Results for Information/Analysis /Data

Construct	Item code	Std. regression weights	t-value(C.R.)
Information/Analysis /Data CR=0.883	IA1	.789	____*
	IA2	.793	15.286***
	IA3	.805	13.379***
	IA4	.865	14.907***

***p< 0.001, * fixed parameter

Figure 4.14: CFA Diagram for Information/Analysis /Data



CFA Results for Employee Encouragement:

The CFA results for EE are presented in Table 4.25. EE was measured through the use of five items. The first CFA model showed indices of a good model fit as shown in Table 4.25, even with a p-value (CMIN= 14.608, DF= 5, p- value = 0.012, CMIN/DF=2.922, CFI=.991,GFI=.981, IFI= 0.911 and RMSEA=.078,PCLSE=.131). As such, no need existed for re-specification or improvement of the model (Byrne, 2016; Hair et al., 2015).

Table 4.25: Fit Indices for Employee Encouragement

Fit indices	Cut-off point	Initial model
CMIN/DF	≤ 5.000	14.608
P-VALUE	>.05	.012
CFI	≥ .90	.991
GFI	≥.90	.981
IFI	≥ .90	.911
PCLOSE	>.05	.078
RMSEA	≤ .10	.131

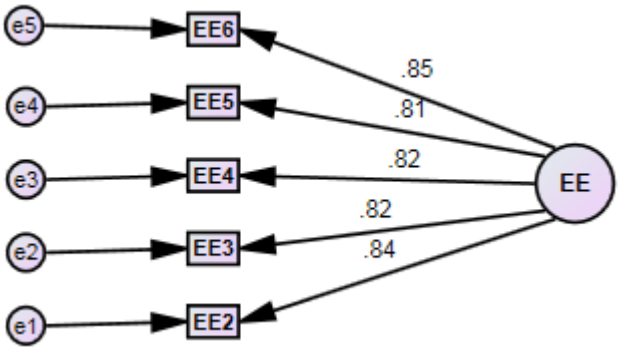
As Table 4.25 shows, all of the EE construct items were tested to ensure adequate levels of convergent validity and reliability; the statistical results with regard to these provide evidence that the construct did indeed have high internal consistency, with CR at 0.916 which is a very good level (Kline, 2015). With regard to convergent validity, the outputs of the AMOS show that the weights of standardised regression for each of the items had a range from a value of 0.811 up to 0.953 with t-values having significance with p <0.001. There is, therefore, confirmation that the scale is acceptable in terms of its convergent validity. Construct unidimensionality is confirmed by the results and evidence is forthcoming of the convergence of the indicators towards their latent variable, and of the indicators' reliability in capturing EE. Figure 4.15 provides an illustration of the five-indicator model results for Employee Encouragement.

Table 4.26: CFA Results for Employee Encouragement

Construct	Item code	Std. regression weights	t-value(C.R.)
Employee Encouragement CR=0.916	EE2	.840	____*
	EE3	.820	17.163***
	EE4	.821	17.615***
	EE5	.811	16.957***
	EE6	.845	18.166***

***p< 0.001, * fixed parameter

Figure 4.15: CFA Diagram for Employee Encouragement



CFA Results for Training and Education (TE):

The CFA results for TE are presented in Table 4.27. Training and Education was measured through the use of five items. The first CFA model run showed good indices for the model fit as reported in Table 4.27; (CMIN= 8.714, DF= 5, p- value = 0.121, CMIN/DF=1.743, CFI=.996,GFI=.989, IFI= 0.996 and RMSEA=.049,PCLSE=.446). As such, it was not necessary to re-specify or improve the model (Byrne, 2016; Hair et al., 2015).

Table 4.27: Fit Indices for Training and Education

Fit indices	Cut-off point	Initial model
CMIN/DF	≤ 5.000	1.743
P-VALUE	>.05	.121
CFI	≥ .90	.996
GFI	≥.90	.989
IFI	≥ .90	.996
PCLOSE	>.05	.446
RMSEA	≤ .10	.049

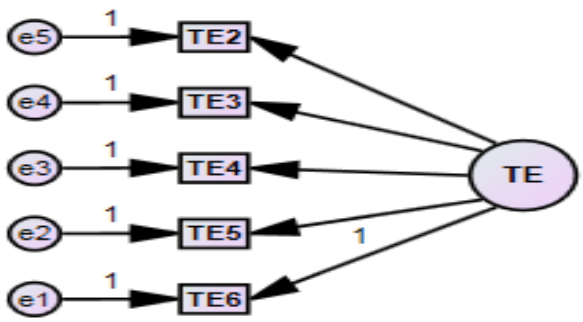
As Table 4.28 shows, all of the Training and Education (TE) construct items were tested to ensure adequate levels of convergent validity and reliability. The statistical findings indicated that the construct had a high level of internal consistency, with very good CR (0.904) (Kline, 2015). In relation to convergent validity, the outputs of the AMOS indicated that the standardised type of regression weights of each of the items ranged from a value of 0.762 to 0.826. Additionally, the CRs had significance at p <0.001, thus providing confirmation of an acceptable degree of convergent validity in the scale. The findings also confirmed the construct unidimensionality, that the indicators converged with the associated latent variable, and that there was reliability in the capture of Training and Education. Figure 4.16 shows the results of the 5-indicator model for Training and Education.

Table 4.28: CFA Results for Training and Education

Construct	Item code	Std. regression weights	t-value(C.R.)
Training and Education CR=0.904	TE2	.826	16.461***
	TE3	.762	14.647***
	TE4	.819	16.016***
	TE5	.826	16.018***
	TE6	.807	*

***p< 0.001, * fixed parameter

Figure 4.16: CFA Diagram for Training and Education



CFA Results for Employee Involvement:

CFA results for Employee Involvement are presented in Table 4.29. Employee Involvement was measured via six items. The first run of the CFA model showed good indices of model fit as revealed in Table 4.29, despite the p-value significance; (CMIN= 24.304, DF= 9, p- value = 0.004, CMIN/DF=2.701, CFI=0.976, GFI=.974 IFI= 0.976 and RMSEA=.074 PCLSE=.118). As such, there was no need for the model to be re-specified or improved (Byrne, 2016; Hair et al., 2015).

Table 4.29: Fit Indices for Employee Involvement

Fit indices	Cut-off point	Initial model
CMIN/DF	≤ 5.000	2.701
P-VALUE	>.05	.004
CFI	≥ .90	.976
GFI	≥.90	.974
IFI	≥ .90	.976
PCLOSE	>.05	.118
RMSEA	≤ .10	.074

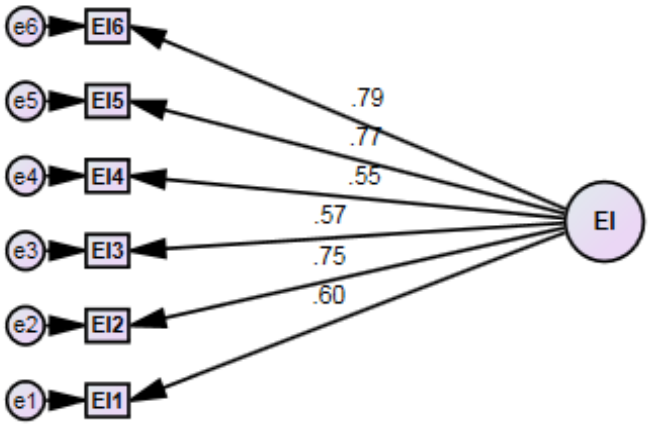
As shown in Table 4.30 which follows, each of the Employee Involvement construct items were tested to ensure adequate levels of convergent validity and reliability. The statistical findings indicated the construct to have a high level of internal consistency with CR at a very good level of 0.834 (Kline, 2015). In relation to convergent validity, the outputs of the AMOS revealed that the weights of standardised regression for each of the items ranged from a value of 0.553 to 0.792. Also, the CRs were significant at a level of p <0.001. There is confirmation, therefore, that the scale possesses an acceptable level of convergent validity. The findings also confirmed the construct unidimensionality and evidence was provided of convergence of the indicators with the associated latent variable, and that the scale is reliable in capturing Employee Involvement. Figure 4.17 illustrates the results for the 6-indicator Employee Involvement model.

Table 4.30: CFA Results for Employee Involvement

Construct	Item code	Std. regression weights	t-value(C.R.)
Employee Involvement CR=0.834	EI1	.559	___*
	EI2	.754	9.825***
	EI3	.575	8.293***
	EI4	.553	8.075***
	EI5	.772	10.215***
	EI6	.791	9.972***

***p< 0.001, * fixed parameter

Figure 4.17: CFA Diagram for Employee Involvement



CFA Results for Continuous Improvement:

The CFA results for Continuous Improvement are presented in Table 4.31. Five items were used to measure CI. On the first CFA model run, good indices for model fit were obtained as shown in Table 4.31; (CMIN= 8.269, DF= 5, p- value = 0.142, CMIN/DF=1.654, CFI=0.995, GFI=.990 IFI= 0.995 and RMSEA=.046 PCLSE=.481). Consequently, the model does not require re-specification or improvement (Byrne, 2016; Hair et al., 2015).

Table 4.31: Fit Indices of Continuous Improvement

Fit indices	Cut-off point	Initial model
CMIN/DF	≤ 5.000	8.269
P-VALUE	>.05	.142
CFI	≥ .90	.995
GFI	≥.90	.990
IFI	≥ .90	.995
PCLOSE	>.05	.481
RMSEA	≤ .10	.046

As Table 4.32 shows, each of the Continuous Improvement construct items were tested to ensure adequate levels of convergent validity and reliability. The statistical results indicated that the construct had a high level of internal consistency with a very good CR of 0.852 (Kline, 2015). In relation to convergent validity, the outputs of the AMOS revealed that the standardised regression weights for each of the items ranged from a value of 0.636 to one of 0.806. Furthermore, CRs were significant at a value of p <0.001. Hence, confirmation was provided that the scale had an acceptable degree of convergent validity. The findings also offer confirmation of construct unidimensionality, and provide evidence of convergence of the indicators with the associated latent variable, and of the scale's reliability in capturing

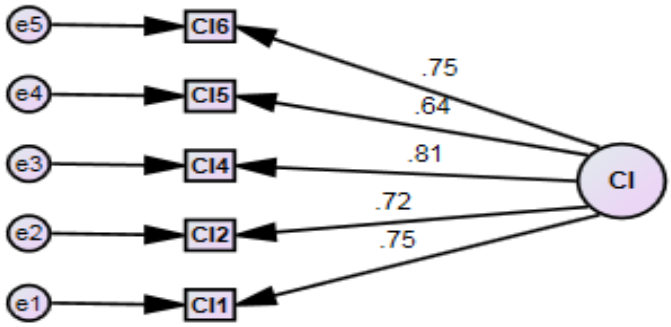
Continuous Improvement. Figure 4.18 illustrates the results from the 5-indicator Continuous Improvement model.

Table 4.32: CFA Results for Continuous Improvement

Construct	Item code	Std. regression weights	t-value(C.R.)
Continuous Improvement C R=0.852	CI1	.749	___*
	CI2	.722	11.844***
	CI4	.806	13.534***
	CI5	.636	10.691***
	CI6	.746	12.324***

***p< 0.001, * fixed parameter

Figure 4.18: CFA Diagram for Continuous improvement



CFA Results for Culture and Communication:

Four items were used to measure Culture and Communication. As Table 4.33 shows, the preliminary indices of fit were discovered to be: CMIN= 11.062, DF= 2, p- value = 0.004, CMIN/DF=5.531, CFI=0.989, GFI=.982, IFI= 0.990 and RMSEA=.120 PCLSE=.034. It was noted that the CMIN/DF value is over the 5 cut-off point, thereby requiring several modifications to reduce that value and hence, improve the model fitness (Byrne, 2016). Firstly, standardised regression weights ere checked and it was discovered that all of the construct items (p< 0.001) were above the 0.50 recommended value (Byrne, 2016, Hair et al., 2015). Secondly, the table of standardised residuals for the construct was checked as Byrne (2016) had recommended, and from this it was found that each of the items had a low level of standardised residual covariance. In terms of the MIs related to the aforementioned covariance's, clear evidence was noted of mis-specification that was associated with the error term pairing connected with items 2 and 5, i.e. CC2 and CC5. The covariances of measurement error were representative of systematic rather than random measurement error within the item responses, and it may have been that they derived from particular characteristics of either the respondents or the items (Byrne, 2016). Consequently, it was decided to undertake a covariation with an error

term for CC2 with CC5. CFA was run again and the primary measurement model results showed that the fitness of the model had improved. All of the fit indices values were within the associated values for the threshold, as noted in Table 4.33.

Table 4.33: Fit Indices for Culture and Communication

Fit indices	Cut-off point	Initial model	Modified model
CMIN/DF	≤ 5.000	11.062	.040
P-VALUE	>.05	.004	.842
CFI	≥ .90	.989	1.000
GFI	≥.90	.982	1.000
IFI	≥ .90	.990	1.001
PCLOSE	>.05	.034	.892
RMSEA	≤ .10	.120	.000

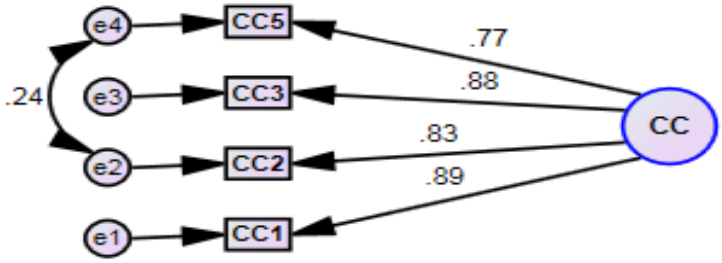
Once the model fitness had been checked, the reliability of the construct, and the convergent validity were examined. The results of the statistical testing showed that the scale for Culture and Communication had a high level of internal consistency since CR (0.908) was adequate (Kline, 2015). Furthermore, the scale was considered to have an acceptable degree of convergent validity as all of the weights of standardised regression for the seven indicators were in the range from the value of 0.771 to 0.893. Additionally, all of the t-values had significance at a level of p< .001 as noted in Table 4.34. Consequently, evidence was provided of the construct unidimensionality, construct reliability, and convergent validity. So, all the four indicators that remained converged with the associated latent variable, and hence the Culture and Communication factor was considered reliable. Figure 4.19 shows the results from the 7-indicator Culture and Communication model.

Table 4.34: CFA Results for Culture and Communication

Construct	Item code	Std. regression weights	t-value(C.R.)
Culture and Communication C R=0.908	CC1	.893	____*
	CC2	.830	18.650***
	CC3	.876	20.499***
	CC5	.771	16.391***

***p< 0.001, * fixed parameter

Figure 4.19: CFA Diagram for Culture and Communication



CFA Results for Strategic Quality Planning:

Five items were used for the measurement of Strategic Quality Planning. As Table 4.35 shows, the preliminary indices of fit were as follows: CMIN= 123.150, DF= 5, p- value = 0.000, CMIN/DF=24.630, CFI=0.860, GFI=.882, IFI= 0.861 and RMSEA=0.275, PCLOSE=.000. It was noted that the CMIN/DF value was over the 5 cut-off point and, therefore, several modifications were needed to reduce that value and thus improve the model fitness (Byrne, 2016). Firstly, the weights of standardised regression were checked and it was discovered that each of the construct items (p< 0.001) was over the 0.50 recommended value (Byrne, 2016; Hair et al., 2015). Secondly, the table for the standardised residuals of the construct was checked as Byrne (2016) recommended. This table showed that SQ2, the second construct item, had a high level of standardised residual covariance, and consequently that item was dropped. In relation to MIs linked to the covariance, clear evidence was noted of mis-specification associated with the terms of pairing of error with items 4 and 5, i.e., SQ4 and SQ5. The covariances of measurement error represented systematic rather than random measurement errors within item responses, which may have derived from particular characteristics of either the respondents or the items (Byrne, 2016). Hence, it was decided to undertake an error term covariation for SQ4 with SQ5, and CFA was re-run. The primary results of that re-run showed an improvement in the model fitness, and that all of the fit indices values were within associated threshold values as noted in Table 4.35.

Table 4.35: Fit Indices for Strategic Quality Planning

Fit indices	Cut-off point	Initial model	Modified model
CMIN/DF	≤ 5.000	24.630	3.443
P-VALUE	>.05	.000	.064
CFI	≥ .90	.860	.996
GFI	≥.90	.882	.995
IFI	≥ .90	.861	.996
PCLOSE	>.05	.000	.169
RMSEA	≤ .10	.275	.088

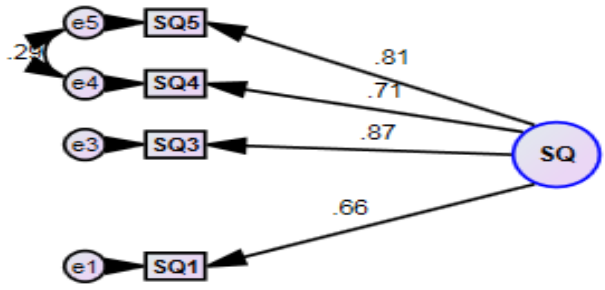
After checking the model fitness, an examination of the convergent validity and construct reliability was made, and the results of the statistical testing show that the Strategic Quality Planning scale had a high level of internal consistency (CR = 0.854) (Kline, 2015). The convergent validity of the scale was also considered acceptable since all the weights of standardised regression for the four indicators that remained were in the range from a value of 0.596 to 0.891. Also, all of the t-values were significant at a level of p< .001, as noted in Table 4.36. These findings confirm the construct's unidimensionality, reliability, and convergent validity. So, all the four indicators that remained converged with the associated latent variable, and were reliable in capturing the Strategic Quality Planning construct as shown in Figure 4.20.

Table 4.36: CFA Results for Strategic Quality Planning

Construct	Items code	Std. regression weights	t-value(C.R.)
Strategic Quality Planning CR=0.854	SQ1	.596	_____*
	SQ3	.794	11.516***
	SQ4	.782	10.309***
	SQ5	.891	10.301***

***p< 0.001, * fixed parameter

Figure 4.20: CFA Diagram for Strategic Quality Planning



CFA Results for Supplier Partnership:

The CFA results for Supplier Partnership are presented in Table 4.37 Four items were used to measure Supplier Partnership, and the first CFA model run revealed indices of model fit that are good as shown in Table 4.37, despite the p-value having significance; (CMIN= 8.956, DF= 2, p- value = 0.011, CMIN/DF=4.478, CFI=.987, GFI=.987, IFI= 0.977 and RMSEA=.105, PCLOSE=.070). Hence, the model did not need to be re-specified or improved (Byrne, 2016; Hair et al., 2015).

Table 4.37: Fit Indices for Supplier Partnership

Fit indices	Cut-off point	Initial model
CMIN/DF	≤ 5.000	4.478
P-VALUE	>.05	.011
CFI	≥ .90	.987
GFI	≥.90	.987
IFI	≥ .90	.977
PCLOSE	>.05	.070
RMSEA	≤ .10	.105

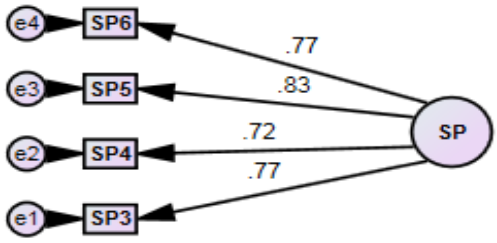
As reported in Table 4.38 shows, all of the items within the Supplier Partnership construct were tested to ensure convergent validity and an adequate reliability level. The indication from the statistical findings was that the construct had a high degree of internal consistency (CR + 0.855) (Kline, 2015). In terms of convergent validity, the AMOS outputs revealed that the weights of standardised regression for each of the items ranged from a value of 0.719 to 0.828. Furthermore, the t-values had significance at a level of p <0.001. So, confirmation was forthcoming that the scale was acceptable in terms of convergent validity. The findings also confirmed the construct's unidimensionality, and provided evidence of the convergence of the indicators with the associated latent variable, and that they were reliable in capturing Supplier Partnership. Figure 4.21 illustrates the 4-indicator model results for Supplier Partnership.

Table 4.38: CFA Results for Supplier Partnership

Construct	Item code	Std. regression weights	t-value(C.R.)
Supplier Partnership CR=0.855	SP3	.771	____*
	SP4	.719	12.002***
	SP5	.828	14.266***
	SP6	.765	13.076***

***p< 0.001, * fixed parameter

Figure 4.21: CFA Diagram for Supplier Partnership



CFA Results for Non-Financial Performance:

CFA results for non-financial performance are presented in Table 4.39. The measurement of non-financial performance was done through the use of 11 items.

The first CFA model run showed good indices of model fit (see Table 4.39), even with the p-value significant; (CMIN= 81.668, DF= 2, p- value = 0.000, CMIN/DF=1.856, CFI=.982,GFI=.955, IFI= 0.982 and RMSEA=.052,PCLOSE=.393). As such, the model did not need to be re-specified or improved (Byrne, 2016; Hair et al., 2015).

Table 4.39: Fit Indices for Non-Financial Performance

Fit indices	Cut-off point	Initial model
CMIN/DF	≤ 5.000	1.856
P-VALUE	>.05	.000
CFI	≥ .90	.982
GFI	≥.90	.955
IFI	≥ .90	.982
PCLOSE	>.05	.393
RMSEA	≤ .10	.052

As indicated in Table 4.40, all of the Non-Financial Performance construct items were tested to ensure convergent validity, and the adequacy their reliability. The findings from statistical tests indicated that the construct had a high level of internal consistency (CR level of 0.935) (Kline, 2005). In relation to convergent validity, the outputs of the AMOS showed that the weights of standardised regression of each of the items ranged from the value of 0.644 to 0.811.

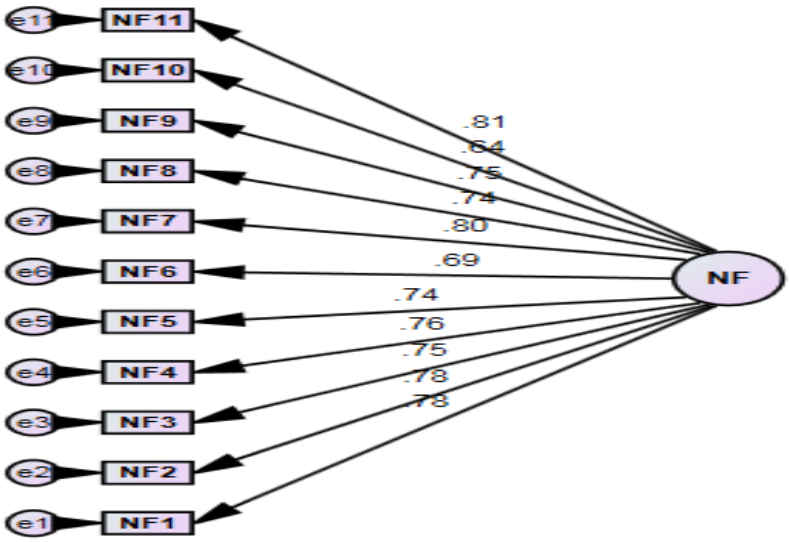
Also, the t-values were significant at the level of p <0.001, and hence, the scale was confirmed as being acceptable in terms of convergent validity. The results also gave confirmation of construct unidimensionality, and provided evidence that indicators converged with the associated latent variable and were reliable in terms of their capture of non-financial performance. Figure 4.22 provides an illustration of the 4-indicator model results for Non-Financial Performance.

Table 4.40: CFA for Non-Financial Performance

Construct	Item code	Std. regression weights	t-value(C.R.)
Non-Financial Performance CR=0.935	NF1	.779	____*
	NF2	.779	14.897***
	NF3	.754	14.269***
	NF4	.760	14.457***
	NF5	.742	14.147***
	NF6	.962	12.907***
	NF7	.798	15.458***
	NF8	.736	13.902***
	NF9	.751	14.197***
	NF10	.644	11.805***
	NF11	.811	15.652***

***p< 0.001, * fixed parameter

Figure 4.22: CFA Diagram for Non-Financial Performance



CFA Results for Financial Performance:

Five items were used to measure Financial Performance. Table 4.41 shows the preliminary fit indices which were found to be as follows: CMIN= 57.819, DF= 5, p-value = 0.000, CMIN/DF=11.564, CFI=0.948, IFI= 0.948, PLCOSE=.000 and RMSEA=.184. It was noted that the RMSEA value was over the 0.10 cut-off point (Byrne, 2016), and that the CMIN/DF value was over the 5 cut-off point. Consequently, several modifications were required to reduce the RMSEA value and the CMIN/DF in order to improve the model fitness (Byrne, 2016). Firstly, the weights of standardised regression were checked, and it was discovered that all construct items ($p< 0.001$) were over the 0.50 recommended (Byrne, 2016; Hair et al., 2015). Secondly, the construct table for standardised residuals was checked in line with the recommendation of Byrne (2016), and it was revealed by the table that all of the items had a low level of standardised residual covariance. In relation to MIs linked to the covariances, it was evidently clear that mis-specification was associated with the error term pairing associated with items 2, 3, 4 and 5, i.e. F2, F3, F4 and F5. The covariances of measurement error represent systematic rather than random item response measurement errors, which may have resulted from particular characteristics related to either the respondents or the items (Byrne, 2016). So, the decision was made to undertake an error term covariation of F3 with F5, and F2 with F4. CFA was run again, and the primary results of the model of measurement showed that the model fitness had improved and all of the fit indices values were then within the associated threshold values as shown in Table 4.41.

Table 4.41: Fit Indices for Financial Performance

Fit indices	Cut-off point	Initial model	Modified model
CMIN/DF	≤ 5.000	11.564	2.606
P-VALUE	>.05	.000	.050
CFI	≥ .90	.948	.995
GFI	≥.90	.924	.990
IFI	≥ .90	.948	.995
PCLOSE	>.05	.000	.220
RMSEA	≤ .10	.184	.072

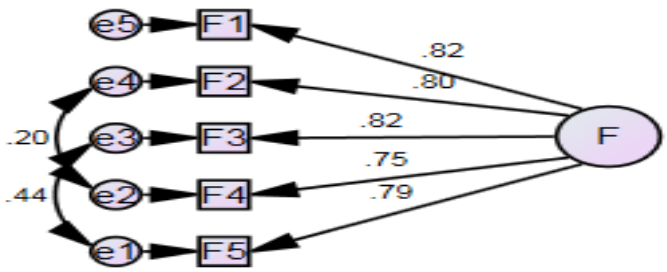
Following the model fitness check, the construct reliability and convergent validity were examined. The results of the statistical testing showed that the Financial Performance scale had a high level of internal consistency (CR = 0.907) (Kline, 2015). Additionally, the scale had acceptable convergent validity since all of the weights of standardised regression for the five indicators ranged from the value of 0.751 to 0.824. Also the t- values were significant at the level of p< .001 as Table 4.42 shows. The results provided evidence of the factor's convergent validity, unidimensionality, and reliability. So, all the five remaining indicators converged with the associated latent variable and were reliable in respect of capturing Financial Performance. Figure 4.23 illustrates the results for the 5-indicator model for Financial Performance factor.

Table 4.42: CFA Results for Financial Performance

Construct	**Item code**	**Std. regression weights**	**t-value(C.R.)**
Financial Performance CR=0.907	F1	.824	14.570***
	F2	.803	14.296***
	F3	.824	20.755***
	F4	.751	12.735***
	F5	.792	____*

***p< 0.001, * fixed parameter

Figure 4.23: CFA Diagram for Financial Performance



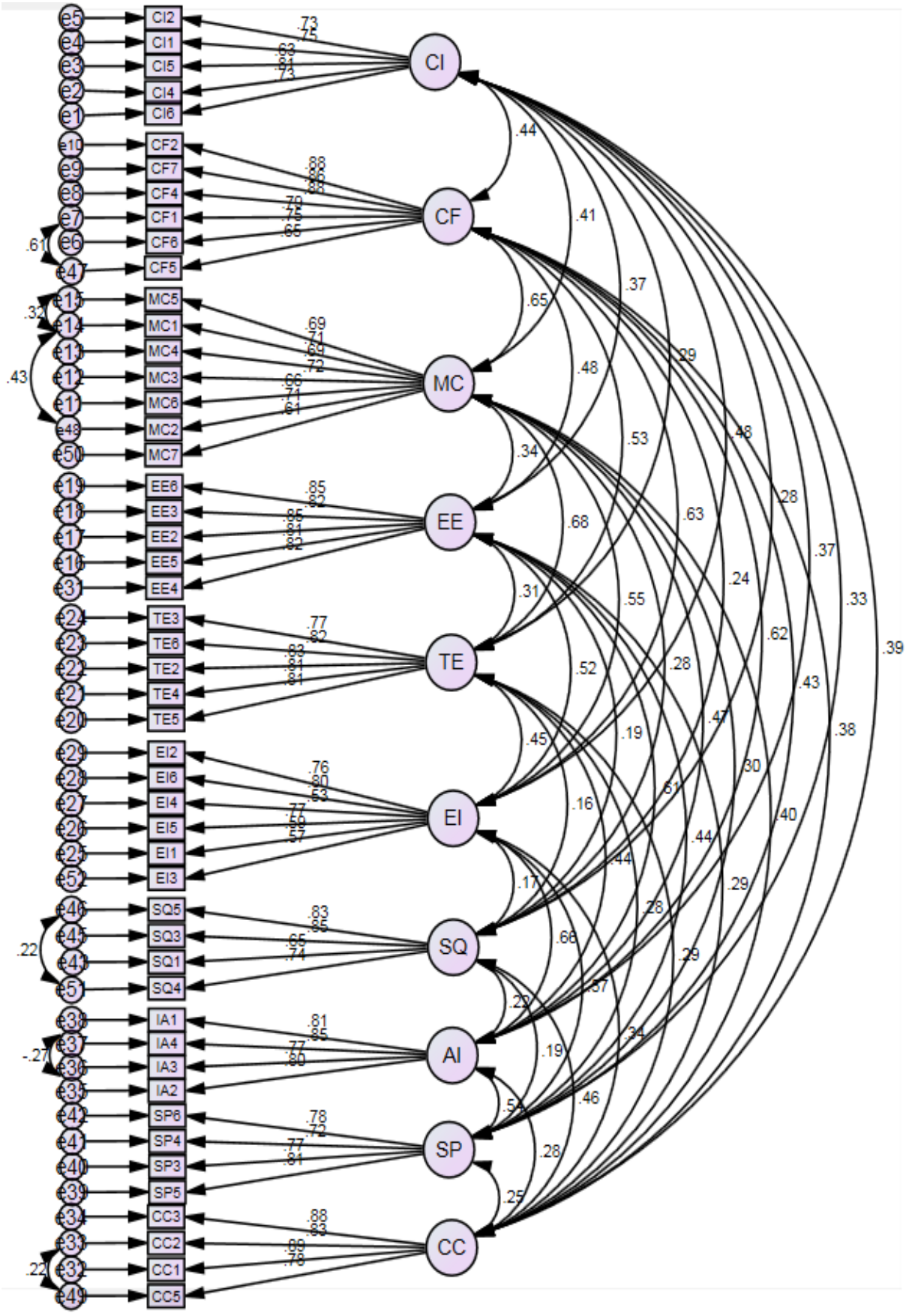
CFA Results for the Overall Measurement Models:

All of the CFA results discussed so far for the individual constructs were employed as a basis for the construction of the overall measurement model. To be specific, the retained items of the CFAs, used in the development of the overall models of measurement, were individual constructs for: MC, CF, CI, EI, TE, EE, SP, IA, SQ and CC. The measurement model fit was assessed in accordance with the same indices of fit employed earlier in the assessment of the fitness of the models for individual constructs. The discriminant validity examination explained above and in Chapter Three considers that discriminant validity involves evaluation of the measures with respect to one another (Kline, 2015). Numerous variables presumed to measure the same research construct show convergent validity if the associated intercorrelations have, at the very least, a moderate magnitude. By way of contrast, a variable set that is presumed to be for the measurement of different constructs shows the discriminant type of validity if the associated intercorrelations are not at too high a level (Kline, 2015). Also, common method bias, as explained in Chapter Three is tested for in all the overall models of measurement through the use of SPSS.

4.5.3.3 CFA Results of the Overall Measurement Model

Figure 4.24 shows that the ten latent constructs forming the measurement model (Management Commitment and Leadership, Customer Focus and Satisfaction, Continuous Improvement, Employee Involvement, Training and Education, Employee Encouragement, Supplier Partnership, Information/Analysis/Data, Strategic Quality Planning, and Culture and Communication), were subjected to CFA. Moreover, 50 items (indicators) were employed in the measurement of the latent variables. As reported in Table 4.43, the preliminary indices of fit were found to be: CMIN=1871.038, DF=1124, p value= 0.000, CMIN/DF= 1.665, CFI=.924, IFI=.925, RMSEA=.046 PCLOSE. A closer investigation of some of these fit indices, such as IFI and CFI, showed an inadequate fit to the research data and hence several modifications were made to achieve improvements to the model fitness. During the modification process, several steps were followed, including the inspection of weights of standardised regression (the factor loadings), the MIs, and the matrix of standardised covariance (Byrne, 2016; Hair et al., 2015).

Figure 4.24: Overall Measurement Initial Model



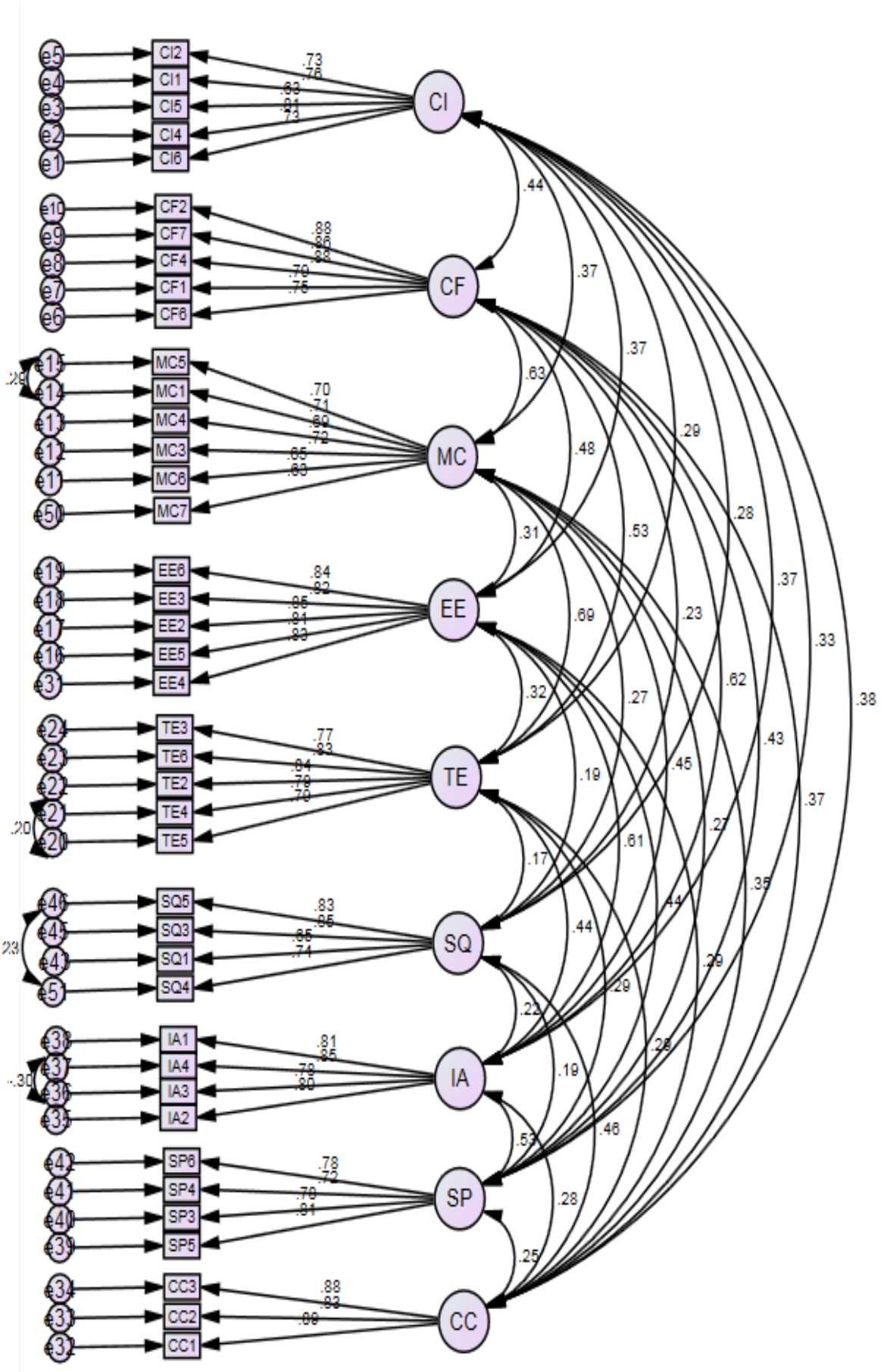
Through inspection of the standardised regression weights for each model item, it was discovered that all of the items had regression weights (factor loadings) that were significant and acceptable with a value over the minimum 0.50 required. In relation to the covariances associated with the MIs, it was clearly evident that there was mis-specification that was associated with the terms of error. In undertaking a review of the MIs, the decision was made to covary the terms of error of the items existing within the same construct, since as Gaskin recommended, error terms ought not to be covaried with latent or observed variables or with any other terms of error that do not form part of the factor (Byrne, 2016). So, the most suitable available modification is that of covarying the error terms that form part of the same factor. It was clearly evident that there was mis-specification associated with the error term pairing that was connected to MC5 and MC3, as well as TE5 and TE4.

Consequently, error term covariations of MC3 along with MC5, and TE4 along with TE5 were performed. Moreover, the table of standardised residuals in the AMOS output was checked to determine whether scope existed for model modification. Seven items, i.e. CC5, MC2, CF5, E1, E2, E3 and E6, were noted as having high standardised residual covariance values that were greater than the 2.58 value that was recommended as a minimum (Byrne, 2016). As such, those seven items were excluded and the model was run again. Additionally, the remaining EI construct items were further reduced to two items, i.e. EI5 and EI4; therefore, to accord with the work of Hair et al. (2015), the EI constructs were taken from that model. As was expected, the fit indices then improved to an adequate degree as all the indices of fit were found to be within the level recommended. Table 4.43 presents the results. Despite the chi-square significance within the model, once modified (CMIN=1130.657, DF=739, p value=0.000, CMNI/DF=1.530, CFI= .950, GFI=.856, IFI=.951, RMSEA=.041, PCLOSE=.999), that significance decreased in comparison to the prior original model value.

Table 4.43: Fit Indices for the Overall Measurement Model

Fit indices	Cut-off point	Initial model	Modified model
CMIN/DF	≤ 5.000	1.665	1.530
P-VALUE	>.05	.000	.000
CFI	≥ .95	.924	.950
GFI	≥.85	.856	.856
IFI	≥ .90	.925	.951
PCLOSE	>.05	.962	.999
RMSEA	≤ .10	.046	.041

Figure 4.25: Modified Overall Measurement Model



Moreover, inspection of the correlations amongst the nine constructs was checked to ensure the existence of discriminant validity. The results of the correlation, presented in Figure 4.25, showed that all the estimates of the inter-correlations fell below the 0.85 threshold value (Kline, 2015). It is also important to note, as Table 4.44 shows, that all of the CRs were at a higher level than 0.8, and the lowest value of AVE for CI was 0.538. Moreover, the AVE square root that was exhibited for each of the latent constructs was higher than the estimates of inter-correlation with other constructs that were corresponding (Fornell and Larcker, 1981). In view of the results, the overall measurement model can be claimed to have attained a discriminant validity level that was adequate.

Table 4.44: Discriminant Validity: Overall Measurement Model

	CR	AVE	NF	CI	CF	MC	EE	TE	CC	IA	SP	SQ	F
NF	0.934	0.562	**0.750**										
CI	0.852	0.538	0.552	**0.733**									
CF	0.920	0.697	0.783	0.439	**0.835**								
MC	0.843	0.575	0.740	0.368	0.635	**.758**							
EE	0.917	0.687	0.599	0.366	0.480	0.311	**0.829**						
TE	0.901	0.645	0.647	0.292	0.532	0.686	0.318	**0.803**					
CC	0.900	0.751	0.454	0.379	0.368	0.352	0.287	0.288	**0.866**				
IA	0.883	0.655	0.775	0.373	0.626	0.450	0.609	0.445	0.279	**0.809**			
SP	0.855	0.596	0.467	0.325	0.433	0.275	0.442	0.285	0.254	0.536	**0.772**		
SQ	0.854	0.596	0.307	0.276	0.234	0.271	0.192	0.167	0.459	0.224	0.190	**0.772**	
F	0.907	0.663	0.966	0.598	0.823	0.751	0.581	0.625	0.485	0.713	0.456	0.320	**0.814**

*Diagonal bold values are squared roots of AVE; off-diagonal values are the estimates of inter-correlation between the latent constructs.

Finally, in order to assure the measurement model as being free from common method bias, Harman's Single Factor test was performed on the forty scale items and nine constructs (Harman, 1976; Podsakoff et al., 2003; Malhotra et al., 2006). All items were loaded in SPSS for EFA and examined through the use of an un-rotated factor solution. The results of the statistical tests, as shown in Appendix 3, indicated that no one factor could emerge to add to the initial factor in accounting for 26.652% of the variance, i.e., a value that was lower than the 0.50 cut-off point (Podsakoff et al., 2003; Spector and Brannick, 2010). So, the model sample data are free from common method bias.

4.6 The Structural Model: Structural Equation Modelling (SEM)

Having evaluated the measurement models for the constructs used in the study, and been satisfied that these models satisfied the requirements for reliability, validity, and unidimensionality, it is appropriate to use the scales validated in the testing of the hypothesised relationships amongst the study constructs. This section conducts such an examination.

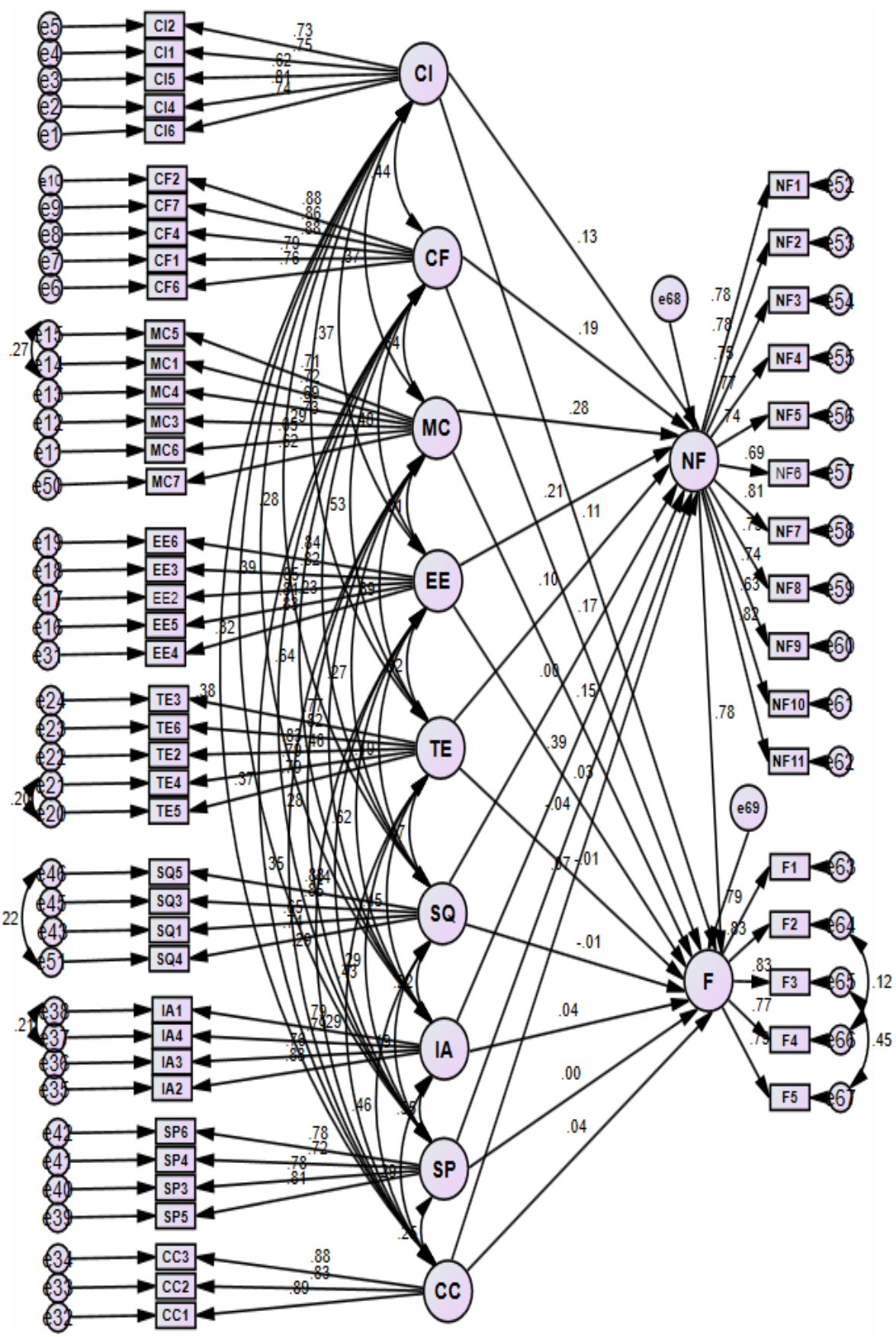
4.6.1 The Structural Model Evaluation: Goodness-of-Fit

Based upon the observed and latent variables of the revised measurement model, and upon the associated hypothesised theoretical relationships, a structural model for more SEM analysis was constructed, as depicted in Figure 4.26. It should be noted that two endogenous variables (F and NF) comprised the structural model together with nine exogenous variables (MC, CF, TE, EE, SQ, SP, IA, CC and CI). Later, through the use of AMOS 24, SEM was performed to evaluate the goodness of fit between the empirical data and the output of the structural model. The findings indicated that a good overall fit between the structural model and the research data was indeed achieved, as shown in Table 4.45. Appendix 4 presents a summary of the full model fit for the first SEM run.

Table 4.45: Structural Model Goodness-of-Fit Indices (SEM Initial Model)

Fit indices	Cut-off point	Initial model
CMIN/DF	≤ 5.000	1.536
CFI	≥ .90	.952
IFI	≥ .90	.952
RMR	>.05	.035
SRMR	≤.05	.0461
PCLOSE	≥.05	.999
RMSEA	≤ .10	.041

Figure 4.26: The Structural Model



4.6.2 Testing Research Hypotheses

Once the goodness of fit of the structural model to the research data was successfully validated, the research hypotheses were examined through the use of coefficients of path measurement (critical ratios and estimates of regression weight) from the analysis of the SEM undertaken using AMOS 24. Table 4.46 and Figure 4.26 provide summaries of the results from which it can be seen that eleven of the nineteen hypothesised causal structural model paths had significance at the level of 0.05. There was significance in seven of the paths at a level of $p < 0.001$; whilst three paths reflected direct influence from NF, CF and CI, and another four significant paths represented the influence of CF, CI, MC and IA upon NF. The four hypotheses that remained had significance at a level of $p < 0.05$; this reflects the direct impact of the MC upon CC and F, and of EE and TE upon NF. Also, the results in Table 4.46 reveal that eight insignificant paths with a level of $p > 0.05$, showed an influence of SP, CC, SQ, IA, EE and TE upon F, and SQ and SP upon NF. The paragraphs that follow show the hypothesis testing results in detail.

Hypothesis H_1 tested the impact upon NF coming from CI. A positive and significant influence (with a level of p less than 0.001) was shown by the causal path that lay between the two constructs. Hence, the null hypothesis cannot be considered acceptable. Instead, the alternate hypothesis, i.e. NF is positively influenced by CI is accepted. Hence, any CI increase would have a positive influence upon non-financial performance within the Jordanian service sector.

Hypothesis H_2 tested the influence upon NF coming from CF. Again a positive and significant influence (p level of less than 0.001) was disclosed by the causal path that lay between the two variables; and again the null hypothesis was not accepted. Rather the alternate hypothesis was considered acceptable, confirming that CF has a positive influence upon non-financial performance within the service sector in Jordan. Consequently, any CF increases would have a favourable effect upon non-financial performance within the Jordanian service sector.

Hypothesis H_3 tested the influence upon NF coming from MC. A positive and significant effect was also seen in this respect (p level of less than 0.001) by the causal path that lay between the two variables. And again, the null hypothesis was deemed unacceptable. The alternate hypothesis was confirmed, that being that MC

has a positive influence upon non-financial performance within the service sector in Jordan. Hence, any increases in MC would be favourably influential upon non-financial performance within the Jordanian service sector.

Hypothesis H_4 tested the influence upon NF coming from EE, and here also, a significant positive influence was demonstrated by the causal path between the variables (p=0.008). Consequently, the null hypothesis was rejected, and the alternate hypothesis was supported. Clearly, there is a positive influence of EE upon non-financial performance within the service sector in Jordan, and any increase in EE would have a positive effect upon non-financial performance within the Jordanian service sector.

The influence upon NF coming from TE was tested by **Hypothesis H_5**. As with the previous hypotheses, a positive and significant impact was identified (p=0.0929) by the causal path between the two variables. The null hypothesis was therefore, rejected, and the alternate hypothesis accepted, thereby indicating the positive influence of TE upon non-financial performance within the service sector in Jordan, and confirming that any increase in TE would result in a more favourable impact upon non-financial performance within the Jordanian service sector.

Hypothesis H_6 tested the effect upon NF coming from SQ. As Table 4.46 shows, the impact in this respect was insignificant (p>0.05 at 0.920), and consequently the null hypothesis was accepted in this case, and the alternate hypothesis rejected. The implication is that there is no relationship between SQ and non-financial performance in the Jordanian service sector.

Hypothesis H_7 tested the influence upon NF coming from IA. A significantly positive influence (p<0.001) was disclosed by the causal path that lay between the two variables, and hence the null hypothesis was rejected, and the alternate hypothesis accepted. The implication of this is that IA has a positive influence upon non-financial performance in the service sector in Jordan so any increase in IA would have a favourable impact upon non-financial performance in the Jordanian service sector.

Hypothesis H_8 tested the effect upon NF coming from SP, and as Table 4.46 reveals, there was an insignificant impact (p>0.05 at a level of 0.402) shown by the causal relationship between the two constructs. These results therefore supported the null hypothesis which is accepted, and rejected the alternate hypothesis,

meaning that SP has no effect upon non-financial performance in the service sector in Jordan.

Hypothesis H_9 tested the influence upon NF coming from CC. A significantly positive influence ($p<0.05$ at 0.049) was disclosed by the causal path that lay between the two variables, and consequently, the null hypothesis was rejected. The alternate hypothesis was accepted, denoting that CC is indeed influential in increasing non-financial performance in the service sector in Jordan. Hence, any increase in CC would have a positive impact upon non-financial performance in the Jordanian service sector.

Hypothesis H_{10} tested the influence upon F coming from CI. A significantly positive influence ($p<0.001$) was disclosed by the causal path that lay between the two variables, and therefore, the null hypothesis was rejected. The alternate hypothesis was accepted and it was confirmed that CI had a positive influence upon financial performance in the Jordanian service sector.

Hypothesis H_{11} tested the influence upon F coming from CF. The result showed a positive influence with a P level of less than 0.001, thereby indicating the failure of the null hypothesis which was rejected in favour of the alternate hypothesis that CF has a positive influence upon financial performance in the service sector in Jordan. Hence, any CF increase would be beneficial for financial performance generally in the Jordanian service sector.

Hypothesis H12 tested the influence upon F coming from MC. A positive influence that was significant ($p<0.05$ at 0.04) was disclosed by the causal path that lay between the two variables. As such, the null hypothesis was rejected, and the alternate hypothesis accepted, thus indicating the positive influence of MC upon financial performance in the service sector in Jordan. Hence, any MC increase would be beneficial for financial performance within the Jordanian service sector.

Hypothesis H_{13} tested the effect upon F coming from EE. As revealed by Table 4.46, the causal relationship between the two constructs produced $p>0.05$ (a level of 0.140) thereby demonstrating there to be no significant influence in this case. The results supported the null hypothesis and, therefore, the alternate hypothesis was rejected. The implication is that there is no positive influence coming from EE upon the financial performance in the service sector in Jordan.

Hypothesis H_{14} tested the effect upon F coming from TE. As Table 4.46 demonstrates, an insignificant impact ($p>0.05$ at a level of 0.780) was evident in the causal relationship lying between the two constructs. Hence, support was provided

for the null hypothesis and the alternate hypothesis was rejected, thereby confirming that TE has no benefit for financial performance in the service sector in Jordan.

Hypothesis H_{15} tested the effect upon F coming from SQ. As revealed in Table 4.46, there is no causal relationship ($p>0.05$ at a level of 0.899) between the two constructs, and hence, support was provided for the null hypothesis, whilst the alternate hypothesis was rejected. The implication is that SQ has no impact upon financial performance in the Jordanian service sector.

Hypothesis H_{18} tested the effect upon F coming from IA. Table 4.46 reveals an insignificant ($p>0.05$ at a level of 0.338) result thus denoting no causal relationship between these two constructs, and thereby providing support for the null hypothesis. With the rejection of the alternate hypothesis, it is confirmed that IA has no bearing on financial performance in the service sector in Jordan.

Hypothesis H_{17} tested the effect upon F coming from SP. As Table 4.46 shows, the result was insignificant (p equal to 0.948, i.e. greater than 0.05) in this respect, confirming no causal link between the two constructs, and thus offering support for the null hypothesis. The rejection of the alternate hypothesis thus demonstrates that SP has no beneficial impact upon financial performance within the service sector in Jordan.

Hypothesis H18 tested the effect upon F coming from CC. It is seen in Table 4.46, that the impact was insignificant (with p at 0.078, i.e. greater than 0.05), thereby providing support for the null hypothesis and rejecting the alternate. The implication of this outcome is that CC has no positive influence upon financial performance in the Jordanian service sector.

Hypothesis H_{19} tested the influence upon F coming from NF. In this case, a significantly positive influence at a p level of less than 0.001 was disclosed by the causal path between the two variables, and consequently the null hypothesis was rejected, and alternate hypothesis accepted. Hence, the evidence is that NF has a positive impact upon financial performance within the Jordanian service sector so any increase in NF would be beneficial for financial performance in the service sector in Jordan.

Table 4.46: Path Coefficient Weights for the Structural Model

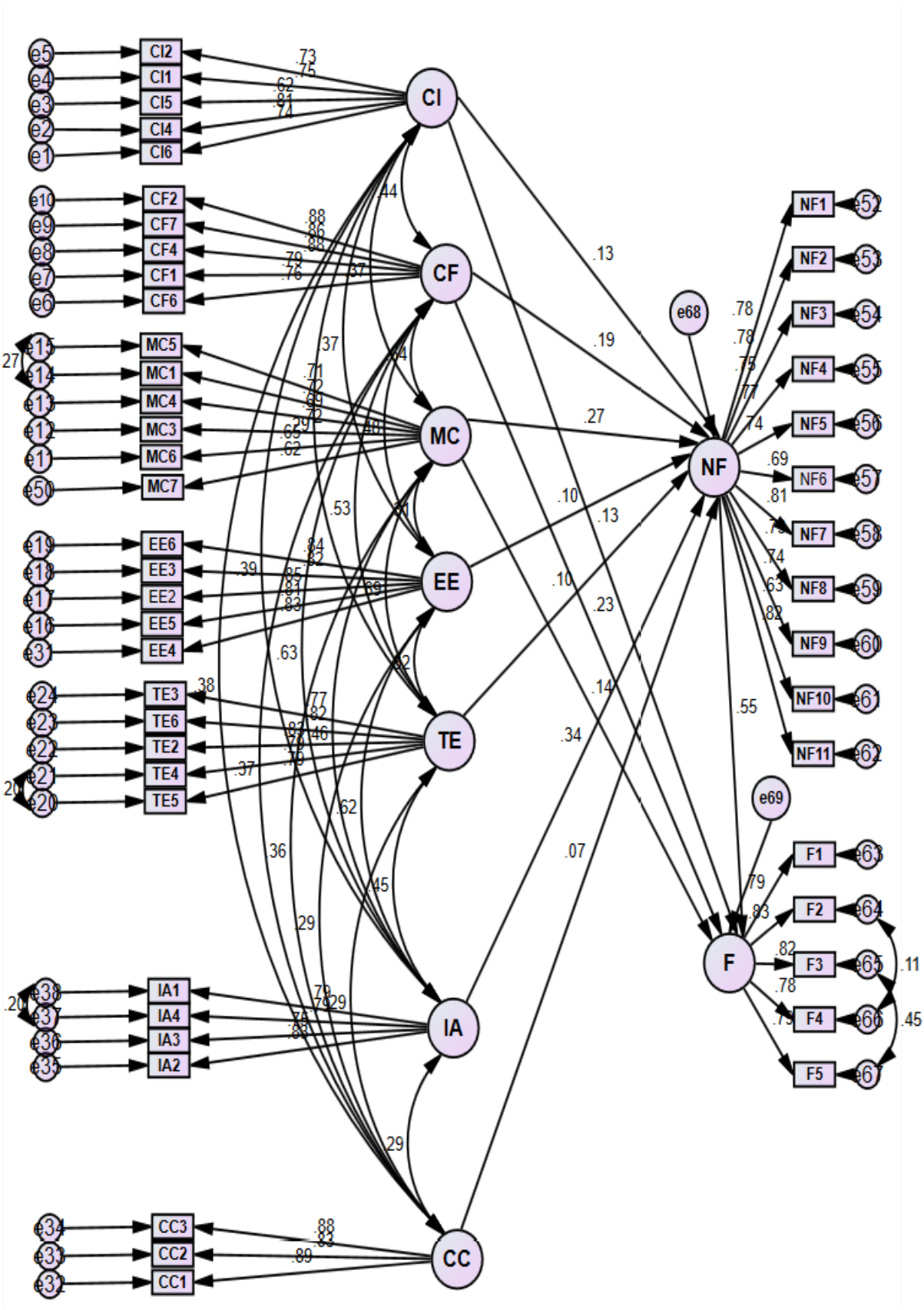
Hypothesis Code	Path			Estimate	C.R.	P-value	Comment
H1	CI	→	NF	.167	3.688	***	Accepted
H2	CF	→	NF	.219	3.973	***	Accepted
H3	MC	→	NF	.344	4.767	***	Accepted
H4	EE	→	NF	.096	2.642	.008	Accepted
H5	TE	→	NF	.105	2.190	.029	Accepted
H6	SQ	→	NF	-.005	-.101	.920	Rejected
H7	IA	→	NF	.339	6.988	***	Accepted
H8	SP	→	NF	-.033	-.839	.402	Rejected
H9	CC	→	NF	.065	1.968	.049	Accepted
H10	CI	→	F	.157	3.637	***	Accepted
H11	CF	→	F	.251	4.793	***	Accepted
H12	MC	→	F	.204	2.863	.004	Accepted
H13	EE	→	F	.050	1.478	.140	Rejected
H14	TE	→	F	.012	.279	.780	Rejected
H15	SQ	→	F	-.006	-.127	.899	Rejected
H16	IA	→	F	.043	.872	.383	Rejected
H17	SP	→	F	-.002	-.065	.948	Rejected
H18	CC	→	F	.054	1.760	.078	Rejected
H19	NF	→	F	.520	8.303	***	Accepted

*** P< 0.001, *Cut off (C.R >±1.96) (Hair et al., 2015)

4.6.3 The Final Research Model

In order to secure a parsimonious model with a better fit to the empirical data gathered, all of the regression paths that proved insignificant were excluded, including the SQ and SP constructs, because of the aforementioned ineffectual impact. Figure 4.27 shows the final version of structural model employed.

Figure 4.4.27: The Revised Structural Model



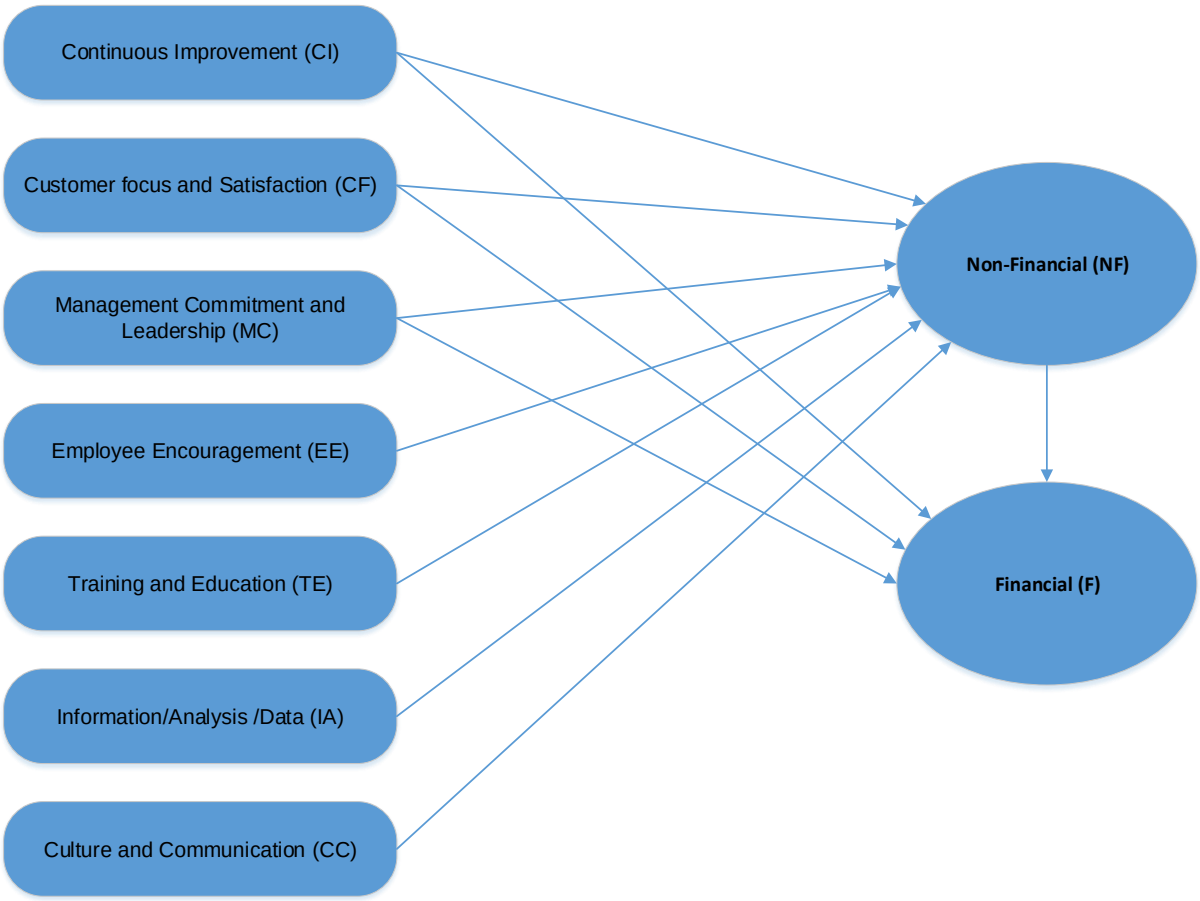
Also, as shown in Table 4.47, there was slight improvement to the overall goodness of fit for the revised form of the structural model since the non-significant regression paths were excluded. The summary for the full model-fit for the final SEM run can be seen in Appendix 4.

Table 4.47: Structural Model Goodness-of-Fit Indices (SEM Final Model)

Fit indices	Cut-off point	Initial model	Final model
CMIN/DF	≤ 5.000	1.536	1.548
CFI	≥ .90	.952	.961
IFI	≥ .90	.952	.962
RMR	>.05	.035	.034
SRMR	≤.05	.0461	.0450
PCLOSE	≥.05	.999	.993
RMSEA	≤ .10	.041	.042

Following the removal of the insignificant paths, a revised and more parsimonious model than the original was obtained, and thus a better fit was indicated for use with the empirical data collected. The final research model appears in Figure 4.28.

Figure 4.28: The Final Research Model



4.6.4 Further Assessment of the Revised Structural Model

In order to assess the explanatory power of the final research model (see Figure 4.27), and thus shine more light upon the relationship amongst the constructs within it, an analysis of the estimates of the Squared Multiple Correlations and the total effects of the final variables of the model (both indirect and direct) was made (See Tables 4.48 and 4.49 below).

Table 4.48: Squared Multiple Correlations for Endogenous Factors

Factor	SMC
Non-Financial	.805
Financial	.839

Table 4.49: Standardised Effects (Direct, Indirect, and Total Effects)

	Effect	CI	CF	MC	EE	TE	IA	CC	NF
Non-Financial	Direct	.132	.191	.266	.097	.101	.338	.065	.000
	Indirect	.000	.000	.000	.000	.000	.000	.000	.000
	Total	.132	.191	.266	.097	.101	.338	.065	.000
Financial	Direct	.126	.228	.137	.000	.000	.000	.000	.547
	Indirect	.096	.128	.202	.053	.063	.035	.194	.000
	Total	.222	.356	.339	.053	.063	0.035	.194	.547

From a review of Figure 4.28, and Tables 4.48 and 4.49, it is apparent that prediction of NF performance is significant with seven constructs, i.e. CF, CI, EE, MC, CC, IA and TE; and taken together these constructs provide an explanation for 80.5% of the total variance of NF. Furthermore, significant prediction of F performance is provided by four constructs, i.e., MC, CF, NF and CI, and together these provide explanatory power of 83.9% total of the variance within F.

Additionally, Table 4.49 shows the total standardised effects of one construct upon another, i.e., the sum of both indirect and direct effects. The indirect effect is a representation of the effect of a construct upon another by way of one or more of the intervening variables. Here, the effect is a representation of the path coefficient product between endogenous and intervening variables. In the case of the direct effect, on the other hand, no intervening variables are called into play and so the effect is a representation of just the path coefficient in between two particular constructs.

4.7 Summary

This chapter has presented the results from the inferential analysis, placing a focus upon CFA, EFA, and the outcomes of the hypothesis testing. It has included a discussion of how, before undertaking EFA, the sampling adequacy measure of Kaiser-Meyer-Olkin (KMO) and the Sphericity test developed by Bartlett were implemented to ensure the appropriateness of the data set for EFA. The findings of the two kinds of test revealed that the collected quantitative data from the research sample did support the use of EFA use. From the EFA results, a number of items were seen to be below the recommended value of communalities cut-off of 0.5, and so there was the suggestion that those items ought to be dropped from the later analysis. So, it was recommended as well as being given confirmation by EFA that a 10-factor solution be used as a basis for further analysis by SEM.

Following this, SEM analysis was undertaken through an approach involving two steps. Firstly, a model for CFA measurement was created and tested for its composite reliability and the validity of the construct. After a number of rectifications of the model, the results of the CFA showed that the indices of goodness of fit of the measurement model were acceptable. Finally, based upon the CFA results, there was creation of a structural model which was tested in order for the hypothesised causal relationships amongst the latent constructs within the proposed research model to be examined. The indices of goodness-of-fit showed that an acceptable overall fitness level was provided by the structural model. Furthermore, in order for the testing of research hypotheses, an examination was made of the path coefficients. From the total of 19 hypotheses, only 11 were found to have statistical significance. Finally, the research model was refined through the removal of insignificant paths, and a more parsimonious model was achieved.

5 Chapter Five: Discussion

5.1 Introduction

This chapter presents a discussion of the findings gained from the empirical research as reported in Chapter Four It discusses the key outcomes identified by the study against the objectives set and related to the literature reviewed in chapter 2. The chapter begins by considering the nature of the research population, highlighting the level of TQM expertise present in the four areas of the Jordanian service sector. It then discusses the type, size and current level of certification of the participating organisations, again to provide a comprehensive view and to support the claim of wider applicability of the findings to other parts of the service sector. Additionally, it discusses TQM adoption and implementation, before proceeding to focus on the objectives.

5.2 The Sample

From the demographic profiles of the study respondents presented in Chapter Four, it is worth commenting that Jordanian culture seems to be influential in the participating organisations in as much as the traditional gender roles in Jordanian society are played out in the nature and level of the job. As noted in Chapter Four, the majority of respondents (84.4%) were male, reflecting the character of work in the service sector, and the positioning of the respondents as managers, both of which society considers to be inappropriate for women.

It is also of note that in terms of educational achievement, just under half (45.2%) of respondents were graduates. Moreover, almost one quarter (23.6%) possessed a Master's degree, and a further 5.1% held a PhD. The remaining 26% held college degrees. The overall level of educational achievement among the respondents in the four sectorial groups, is reflective of the fact that the Jordan educational index is reported as 70% (UNDP, 2016).

In terms of job position, the greatest concentration among the respondents (44.6%) was that of general manager, with financial managers comprising 35% of the sample, and operations managers representing 20.4%. It would be expected that in a genuine TQM initiative all such managers would be involved and indeed knowledgeable. Consequently, it can be argued that the responses provided by

these individuals were informed answers. Certainly, in previous associated research, personnel occupying such roles have been chosen precisely for their assumed practical and theoretical understanding of TQM implementation (see, for example, Brah et al., 2000; Yusuf et al., 2007; Al-Marri et al., 2007; Salaheldin, 2009; Fotopoulos and Psomas, 2009; Talib et al., 2013 ; Hietschold et al., 2014; Jaca and Psomas, 2015).

Moreover, the analysis of the years of service possessed by the respondents revealed that over 75% of the sample had more than four years of experience with their companies, thereby testifying to their knowledge of their organisations, and again adding validity to the comments made by them. In fact, the length of service statistics are illuminative in that they demonstrate the Jordanian service sector, or at least that part containing communication, hospitals, hotels and banking, to be stable in its workforce, and arguably such stability assists the implementation of TQM as people have proved themselves to be loyal and committed to their organisations by virtue of their willingness to remain in their jobs. Indeed, the point is made frequently in the literature that TQM promotes both internal as well as external satisfaction, bringing “benefits to all members of the organisation and to society” (Gauttam, 2010:59). And where organisational members are themselves satisfied their loyalty to the organisation is evident in their years of service.

In respect of the organisational sample, it should be noted that more than half (52.5%) were in banking, a further 20.4% were in communication, 17.8% represented the hotel sector, and the remaining 9.2% were hospitals. The size of those organisations was determined by the number of employees in each, categorised as less than 50 (19.7%), between 50 and 99 (28.3%), between 100 and 249 (30.9%), and 250 and over (21%).

From this information relating to the type and size of organisation, it can be assumed that the Jordanian service industry per se was well represented, and this adds support to the contention that the findings obtained may be generalised more widely across the service sector. In total, representing the Jordanian private service sector, these organisations are responsible for delivering intangible services that are usually consumed at the time (World Bank, 2012).

It is also interesting to see that 71% of the sample organisations had received ISO 9001 certification. This is not surprising since as Al-Zomany (2002) reports, the entire Arab region places strong emphasis on ISO certification, possibly a reflection

of the suspicion within the Middle East generally about business models generated in the West. Nonetheless, this high proportion of the sample clearly indicates that much knowledge and understanding exists among the respondents of quality drives. As noted in the literature, the ISO 9001 (2015) certification emerged from a revision of the previous ISO 9001, 9002, and 9003, and subsequently in 2015 an implementation plan was introduced to ensure the easy progression to a new set of certificates. This evolution of the ISO certification is evidence that as a method of fostering and acknowledging the standards reached in industry, it is well understood, and this is obviously the case in the Jordanian service sector, irrespective of the particular branch of industry involved.

A particular benefit of ISO 9001 is the fact that it offers a blueprint that can be followed by those organisations without the resources to design their own quality initiatives, and this means that the smaller organisations as might be found in certain service areas, are provided with a vehicle to guarantee their standards. As shown in Table 4.6, within the sample used in this study, 19.7% of all organisations reported having less than 50 employees, and a further 28.3% indicated having between 51 and 99. This is a sizeable proportion (48%) and may well be indicative of organisations that rely on a ready-made formula for guaranteeing quality since they may find it difficult to devote the resources to design their own quality systems.

Furthermore, Chapman and Al-Khawaldeh (2002) have observed the value of ISO 9001 in serving as a strong basis upon which more sophisticated quality systems can be built, as might well be the case in the larger organisations where the resources to do this are not in short supply. In the research sample, 30.9% of all organisations employed between 100 and 249 employees (the biggest single category), and the remaining 21% employed over 500 people. So just under 52% might be thought sufficiently capable of doing exactly as Chapman and Al-Khawaldeh (2002) have noted, and taking ISO 9001 as a foundation for a more complex quality system.

From these observations it does, therefore, appear as though there is an acute sense within Jordanian service companies of the need to enhance their competitiveness through the mechanism of quality initiatives, and to do so via the implementation of an internationally-accepted set of standards.

In fact, the importance to Jordanian companies of competing either locally, nationally or indeed in the international arena is demonstrated by the data

concerning the number of organisations with quality awards, since as revealed in Chapter Four (Figure 4.9), almost half (45%) of all companies in the sample had received both local or international awards for quality, including the American Quality Award and the EQA. In addition a further 23.6% of the sample had received local awards only, and a small percentage (4.1%) had received international awards only. This leaves a relatively small percentage (28%) who at this stage had not received any type of quality award, but as mentioned in the previous paragraph, 19.7% of all participating companies were small in size (below 50 employees) and their quality journey may have been in its infancy.

Undoubtedly, the ability to implement more sophisticated quality systems is conditional upon size and experience of the organisation as shown by the data reported in Chapter Four, Figure 4.10, which reveals that among those companies where TQM had been implemented, the greatest concentration (35%) was in organisations with from four to six years of experience. However, a further 26.8% was in companies with only one to three 3 years of experience, whereas a slightly higher proportion (22.9%) was in organisations where there had been over six years of experience in implementation this system. The remaining companies (15.3%) were relatively new in introducing TQM, having been doing this for less than a year. These findings are important because they show a recent upsurge in the last four to six years in the appreciation of TQM as a valuable tool to ensure quality, as is evident from the continuing interest being shown by organisations and the fact that more of them are embarking upon the TQM journey. This also testifies to the fact that there is a certain level of awareness of the value of TQM in the Jordanian service sector, since without such appreciation, companies would not be embracing the philosophy, and clearly in the last year 15.3% of companies did so.

5.3 Levels of TQM implementation in the Jordanian Service Sector

The effort to establish the level of TQM implementation in the research sample (and hence, by generalisation to the Jordanian service sector as a whole) was undertaken through the use of the questionnaire survey addressing the twelve TQM CSFs that were identified within Chapter Two. Specifically, agreement or disagreement with statements regarding these factors - Management Commitment and Leadership, Customer Focus and Satisfaction, Continuous Improvement, Employee Involvement, Training and Education, Employee Encouragement,

Supplier Partnership, Information/Analysis/Data, Strategic Quality Planning, Culture and communication, Benchmarking, and Social and Environmental Responsibility - was used to assess the extent of the implementation. Please note scores towards 5 indicate stronger agreement.

5.3.1 Management Commitment and Leadership

As revealed in Chapter Four, Management Commitment and Leadership obtained a mean score of 3.77, thereby indicating that respondents were in overall agreement that top management does show its commitment and support for the TQM initiative by its inclination to allocate adequate time and other resources for quality improvement activities. Such a demonstration of support by management, is confirmed in the literature as being essential if the new organisational values and the policies and practices that the organisation wishes to foster are to be accepted by the workforce (Jaca and Psomas, 2015). Indeed, it did appear that participants in the research had internalised the ideals of the TQM movements in their organisations, an outcome that is seen to emerge from successful organisational culture change (Hietschold et al., 2014).

The findings in respect of this particular factor are certainly encouraging in the case of Jordan as they suggest that the TQM philosophy is already well appreciated within the four types of service industry explored, and accepted on the grounds of its benefit. Indeed it is argued in the literature that effective managerial leadership fosters improvements in all performance indicators (Ebrahami and Sadeghi, 2013). Hence, it can be argued that with top management's commitment and effective leadership in these areas, any move to disseminate TQM in other sections of the service industry is likely to meet with success.

However, it can also be noted that with a mean of 3.77 there is still some room for improvement and this may be achieved by greater awareness of the benefits of TQM, and enhanced efforts by management to support initiatives aimed at spreading that awareness among all those at managerial level and below within the Jordanian service sector.

5.3.2 Customer Focus and Satisfaction

On this dimension also, it is seen that the Jordanian service sector as represented by the sample, scores high since the mean is calculated at 3.69 revealing the companies involved to believe that they do in fact place emphasis on their efforts to satisfy customer needs and expectations, with the aim of creating and sustaining

some degree of competitive edge over their rivals. Such behaviour is also an indication that they accept the need to do this and do indeed recognise the competitive business climate in which they operate. Appreciating this need, managers referred to the regular communication their companies had with customers to keep them updated, argued in the literature as being essential (Flynn et al., 1995; Zhang et al., 2000), and to their attempts to systematically add value to the services they provided, which implies always seeking to find a solution should a specific problem exist (Brah et al., 2000). There was also evidence of this drive to add value in the customer-focused and quality driven strategies adopted by the participating organisations as a means of enhancing staff performance.

5.3.3 Continuous Improvement

As a third CSF, Continuous Improvement, obtained an overall mean at 3.64, once again showing the agreement among the sample that their TQM initiatives were indeed underpinned by the need to aim for Continuous Improvement in all aspects of their service provision. This implies that managers within the Jordanian service sector appreciated the all-round advantages to be gained by the constant enhancement of their services (Irfan and Kee, 2013). Indeed, they indicated encouraging creativity and innovation among their employees, such that ongoing improvements might result in all aspects of their service. The point is made in the literature (see Yusuf et al., 2007) that in the bid for continuous improvement, all organisational activities and all employees must be aligned with the aim, and in this respect, the respondents noted that long-term relationships with employees had been established, and that from this strategy had followed a climate of trust that facilitated innovation. Consequently, it is seen that the need for Continuous Improvement is firmly acknowledged by the sample, and this bodes well for any TQM initiative.

5.3.4 Employee Involvement

Achieving an average score of 3.55, Employee Involvement is another CSF that appears to be recognised for its importance in the sample. In this respect, respondents reported high levels of implementation, referring to the facts that employees were involved in the various decision-making processes, and that their empowerment was supported. This recognition of the need to involve employees echoes the various findings in the literature from several researchers (see for example, Yusuf et al., 2007; Al-Marri et al., 2007; Fotopoulos and Psomas, 2009;

Talib and Rahman, 2010; Jaca and Psomas, 2015). In addition, respondents documented that managements encouraged employees to innovate, and to bring forward new ideas and suggestions for job enhancement. Consequently, the employees themselves were demonstrating greater confidence to accept responsibility for satisfying the customers at the point of the service encounter, without having need to refer back to superiors.

5.3.5 Training and Education

Clearly, employees cannot be expected to operate on their own initiative, to innovate, and to take action for which they are personally responsible without some amount of development, and for this to transpire, there must be an effective scheme to provide training and education to all employees. Scoring a mean of 3.57, this particular CSF was another that showed solid agreement from the respondents that training is essential as the basis of improving employee skills such that their performance within the overall quality programme is acceptable; and indeed that such training is provided. The respondents were confirming the literature in this respect, and acknowledging that training costs were indeed an investment for their organisations (Salaheldin, 2009). Interestingly, the respondents preferred to use the terms training and coaching rather than supervision, and confirmed that all employees are given ongoing training to ensure they are capable of making their contributions towards effective TQM implementation (Talib et al., 2013; Ahire et al., 1996). In regard to this CSF it is worth recalling that Jordan rates highly on the UNDP Educational Index (2016) showing as 70%. This in itself indicates a national appreciation of the role of learning in the lives of individuals, and points to a work culture which embraces training and continuous development of people. Again, this suggests a supportive environment for TQM implementation.

5.3.6 Employee Encouragement

The mean recorded in respect of Employee Encouragement (3.63) was also suggestive of acceptance within the sample that this particular dimension of managerial activity was important for TQM implementation, and was indeed considered by the organisations. This action reflects the information contained within the literature (see Yusuf et al., 2007; Fotopoulos, 2009: Talib et al., 2013; Brah et al., 2000) to the effect that however the reward and encouragement package is configured, there is a definite relationship between that package, and employee performance and satisfaction. And in terms of the detail of the reward package, it

was revealed by the respondents that transparent and effective appraisal systems were in use to allow for employee effort to be recognised and rewarded. Furthermore as a form of encouragement, the organisations paid attention to the work environment to maintain it as safe and healthy, and one in which employees had the support of others through teamwork and the existence of a good team spirit. Within the work environment also, the organisations paid attention to the promotion process, ensuring that those employees demonstrating quality enhancement efforts were properly acknowledged and rewarded.

5.3.7 Supplier Partnership

Scoring an overall mean of 3.49, the CSF for Supplier Partnership also revealed agreement from the sample that attention was paid within the organisations' various TQM initiatives, to the development of their suppliers. As noted in the literature (Zhang et al., 2000), suppliers are often the source of problems since they overshoot their delivery deadlines or fail to provide the correct quantity and/or type of products required. The organisations in the sample seemed to have appreciated that without making efforts to prevent such problems, their reputations could be damaged as their own ability to deliver the end product/service to customers is hampered (Salaheldin, 2009; Psomas and Jaca, 2014). Consequently, the firms in the study were keen to foster good relationships with their partner suppliers, and to work with them collaboratively such that ongoing quality improvements were seen. In particular, they forged lasting relationships with their suppliers after evaluating them in terms of the quality they were known to provide in terms of product quality, delivery performance, and price. They also involved their suppliers in their own organisational quality training, and retained ongoing quality-related links through the provision of technical assistance.

5.3.8 Information/Analysis/Data

In terms of the Information/Analysis/Data CSF, the overall mean achieved was 3.652, showing an appreciation by respondents of the need for effective communication, and providing confirmation that their organisations accepted this and embodied effective strategies in this respect within their communication policies and practices. TQM is said to require an information system that provides an uninterrupted stream of accurate data to guarantee quality improvement (Rao, 1999). Respondents indicated that their organisations did indeed have strong communication strategies and that these were continually appraised and updated

where necessary. The aims were to ensure that all organisational goals were explicitly made known to all employees, and that employees were provided with regular and constructive feedback to guarantee they were able to improve their performance where required. Again, this state of affairs resonates with the literature which reports the usefulness of information about employee performance from a before and after viewpoint. Comparisons of such kind allow for proper evaluation and for action to be taken to bring about improvements (Arshad and Su, 2015; Hietschold et al., 2014; Ebrahimi and Sadeghi, 2013).

5.3.9 Strategic Quality Planning

The mean value obtained for Strategic Quality Planning was 3.599 which represented the highest mean of any of the CSFs so far. Hence, it can be argued that the Jordanian service sector does indeed formulate strategic policies and strategic goals, which embed the constant review of the implementation processes in these respects. These efforts resonate with the literature, where it is noted by Zhang et al. (2000) that organisations wanting to implement TQM must begin with the development of a formal quality plan that establishes the future desired for the organisation, and enables all employees to remain focused on achieving that future. The respondents in particular commented upon how their companies developed and implemented their strategies indicating that customer requirements and the companies' actual capabilities were very much part of the strategic considerations. They also confirmed the use of objective-setting, and indeed the involvement of employees in that activity, and the subsequent measurement of achievements in this regard such that comparisons can be made of expectations and the reality, an activity discussed in the literature by Tari et al. (2007). Importantly, respondents noted the fact that their companies' strategic plans were properly communicated throughout the organisations to ensure all employees were aware of the vision and how this was to be materialised. Jaca and Pasomas (2015) make this point in the literature, saying that the various objectives constructed should be articulated in a formal document.

5.3.10 Culture and Communication

The CSF of Culture and Communication also scored highly with a value of 3.6, thereby revealing a high level of effort within the respondents' companies to adapt the organisational culture in order to ensure its alignment with the business environment. Moreover, the volume of communication flowing throughout the

organisations indicated a continual awareness-raising in respect of the need for quality, an approach which Maletic et al. (2014) noted as being essential to ensure the easy dissemination of a new culture. Within this culture, the companies in the sample included the responsibility for continuous quality improvement in all employees' obligations, rather than this being the duty purely of the quality department alone. This approach seems to be in response to the observation made by Talib et al. (2013) that fundamental ideas in respect of the TQM philosophy such as continuous improvement, must be ingrained in the thinking of all workers as individuals if there is to be any chance of a TQM initiative being successful. What emerged from the data in this matter was the fact that the companies appeared to instil the idea of quality before any idea of policy within employees. Continual training on quality concepts and management is also a feature of the companies' relationship with employees, and the long-term quality goals serve to shift the company culture towards a quality one.

5.3.11 Benchmarking

The CSF Benchmarking also scored a mean which indicated a high level of implementation among the companies in the sample. Specifically, the companies appeared to be involved in extensive benchmarking not only of the services provided by competitors offering the same services as them (as recommended by Ahire et al., 1996; Psomas and Jaca, 2014), but also of the business processes undertaken in other industries. Their comments on this strategy were to the effect that it had helped to improve their services, not surprisingly since without knowing how their rivals are performing, it is impossible to contribute effectively to the strategic plans of their organisations (Zehir et al., 2012). Clearly, their engagement in benchmarking is undertaken as a learning exercise (Talib et al., 2013) which involves their self-assessment and subsequent performance improvement where necessary.

5.3.12 Social and Environmental Responsibility

In terms of the last CSF, Social and Environmental Responsibility, it is interesting to see an average mean score of 2.81, which is the only CSF achieving below the mid-point on the scale, and thus being evaluated as present at only a low level. When asked to respond to statement concerning whether their companies considered public health issues, safety issues, and environmental issues as their responsibilities, and whether their quality commitment was extended to the external community, the companies in the sample showed low implementation levels. That

said, respondents made the point that whilst their organisations had no specific policies they followed for the protection of the environment and society, they did comment that the materials selected to produce their services do not have any impact on the environment and society. Moreover, it is to be noted that there is an absence generally of legislation concerning the responsibilities of organisations to the environment and local communities, and the lack of compulsion in this matter may well be seen as underlying factor in the Jordanian service sector's unwillingness to be any more proactive than at present in caring for the environment and locale

5.3.13 The Overall Level of TQM Implementation

It can be understood from the discussion above, that among the companies in the sample, there was a high level of TQM implementation, and that as four different industries within the Jordanian service sector were participants in the survey, it is likely that the findings from this sample can be generalised to other industries within the overall service sector. The general high level of education and awareness among the respondents is believed to be favourable to the implementation of TQM since the benefits of an effective TQM initiative are readily appreciated by the managers responsible for its implementation. Furthermore, the widespread uptake of ISO certification over a number of years can be understood as having provided a strong foundation in organisational thought and commitment to the values of quality management.

This is an important point to appreciate since the whole ethos of moving to a quality management environment is dependent upon the buy-in of managements and the ability of those managements to inspire belief and commitment among their different workforces, and it can be difficult to reach that stage if there is any doubt about the motives or efficacy of a particular philosophy. The belief and trust placed in ISO certification among the Arab World, as noted by Al-Zomany (2002), has helped to create a favourable culture free of the suspicion that is often attached to Western business models.

Consequently, in the findings of this study, it is possible to see the outcomes of the comfort with ISO certification, as the results relating to each of the variables, with the exception of Social and Environmental Responsibility demonstrate a state well beyond readiness for TQM, but rather one of effective implementation. Specifically, Strategic Quality Planning receives the highest mean, signifying that the foundation

for TQM – planning strategically and not simply having a focus on operational issues – is well understood. Arguably, all the other dimensions of TQM flow from that initial ability and willingness to plan in a strategic way, and this is clearly evident in the Jordanian service sector from these results.

5.4 Type and size of a company, and whether it has ISO certification, and the level of TQM implementation.

5.4.1 The Effect of ISO 9001 Certification on the Implementation of TQM Practices

As reported in Chapter Four, t-test analyses were performed to establish the effect of ISO 9001 certification on the implementation of TQM, and Table 4.7 reveals significant differences between the average mean scores obtained for that group of companies that are ISO certified, and the group without such certification. Such significant differences ($p < 0.05$) were established in respect of each of the 12 CSFs discussed in Section 5.3, thus showing that in every area that is important for TQM success, those organisations with ISO certification scored higher. This is not a surprising outcome, since as mentioned earlier in Section 5.2, ISO 9001 carries the substantial benefit that it can instil processes and practices that can act as a good foundation upon which more sophisticated TQM designs can be built, according to individual company resources (Chapman and Al-Khawaldeh, 2002). Hence, companies that have satisfied the criteria to be awarded ISO 9001 are well on their journey to implementing more complex quality systems, not only because they have processes in place, but also because the quality culture is already developed within them.

The benefit of ISO 9001 as a foundation for TQM is showcased by many studies, such as for instance, that of Srivastav (2010), who, in exploring manufacturing companies in India, observes how ISO 9001 promotes the development of a collaborative culture and team working that enhances problem-solving through such team work, and ultimately reduces stress levels among employees. Hence, a solid framework is built upon which the introduction of additional quality measures such as those seen in TQM can be superimposed. Likewise, Jang and Lin (2008) observe that the possession of ISO 9001 certification supports the implementation of process management, and improved operational performance. And Terziovski and Power (2007) also provide empirical evidence, as found in this study, to the effect that

certification to ISO 9001 facilitates the development of a quality culture within organisations. Han et al. (2007) also found efforts to obtain ISO 9001 registration enhance TQM practices, and Oliveira et al. (2017) note that quality systems can greatly benefit when they apply the discipline and proper procedures as prescribed in ISO 9001 requirements. Similarly, Prajogo and Brown (2006) comment on the ISO 9001 certification process as the first step in the TQM journey, as being one that contributes to ensuring employees are properly trained, that their commitment is secured, and that they internalise their responsibility in respect of quality issues (Prajogo & Brown, 2006). Clearly, it is perceived as providing the building blocks for a successful TQM implementation (Quazi and Padibjo, 1998; Rahman, 2001).

Consequently, it can be argued that in demonstrating a widespread commitment to ISO 9001, the companies in this study's sample are well placed to launch or continue with their TQM initiatives. And in fact, in the examination by Martines et al. (2009) of the differences in TQM dimensions between ISO-certified companies, and Non-certified companies, it was found that ISO-certified companies scored higher in at least one of the TQM dimensions than non-certified companies. Likewise, Oliveira et al. (2017) also offer empirical evidence of the relationship between companies that are ISO-certified and the subsequent higher levels of quality leadership, human resource development, strategic quality planning, supplier relationship, quality assurance, and customer orientation. Undoubtedly, this study's findings echo what has been reported by these researchers.

That said, such relationships cannot be taken for granted, since there is evidence from elsewhere that contradicts the outcome of this study and the others already referred to. Specifically, Sila (2007) found no difference in his study of the performance and systems of the ISO 9001-certified and non-certified companies, and Martinez-Lorente and Martinez-Costa (2004) actually observed ISO 9001 certification to get in the way of the implementation of the TQM philosophy. These contradictions are of importance to the Jordanian scenario since as indicated by Masakure et al. (2009), other factors may impinge upon the capacity of ISO 9001 to underpin an effective QM initiative, such as for example, firm characteristics, the market, sector, product characteristics and regulatory pressures. Consequently, it is important to consider those variables.

5.4.2 The Effect of Quality Awards on the Implementation of TQM Practices

Whilst not specifically mentioned within this objective, the issue of Quality Awards and their influence upon TQM practices represents another aspect of company characteristics that needs consideration, and to establish what relationships might exist in this respect, the participating companies were divided into four different groups. The results of the one-way ANOVA testing, as shown in Table 4.11, reveal a statistically significant difference between these groups ($F(3,310) = 124.874$; $p = 0.000$) in terms of their implementation levels of the CSFs for TQM. Duncan procedures were undertaken to make comparisons, showing ultimately that firms that had no quality awards (Nothing) ($M = 2.806$; $SD = 0.1565$) revealed low implementation rates of TQM in comparison to firms with just a local award ($M = 3.2732$; $SD = 3.689$), firms with just an international award ($M = 3.903$; $SD = 0.1670$) and those with both international and local awards ($M = 3.876$; $SD = 0.2758$). It is noteworthy that the highest implementation level for TQM was shown for firms with just an international award, signalling perhaps that such companies had a clear focus on the international field assuming that if they placed their efforts in securing an award in the global domain, and were successful, this would also raise their reputation both nationally and locally. Undoubtedly, it is seen from the results of this study that the possibility to achieve a quality award serves as a motivation to a company to concentrate on properly implementing TQM.

In fact, the findings obtained in this study support those reported in previous research, as for example in the study by Hasan and Hannifah (2013), who observed the receipt of a quality award to enhance the quality of top management level which subsequently trickled down the organisation in a well-formulated framework embodying training, empowerment, and rewards as part of the culture necessary to prepare employees to rise to the challenges presented in the drive for business excellence. Given the common purpose of all quality awards as being to promote excellence in quality and the implementation of TQM in enterprises, the creation of the culture required for the receipt of such awards does in fact function as a self-fulfilling prophecy, that is to say, is the company subscribes to these fundamentals it will obtain an award and that will generate even more pride and attention to quality.

It was clear from the results in this study that many of the companies involved used the award frameworks to evaluate and benchmark their level of TQM

implementation, and this finding concurs with that by Fotopoulos and Psomas (2009), and Rawabdeh (2008) who found that national quality awards help to create awareness of quality improvement and TQM implementation. In the latter study, both manufacturing and service industries were included. Moreover, Carmona-Márquez et al (2016) observed large positive effect of in-company quality awards to be seen in increased customer orientation, increased focus on improvements, processes, quality and results, and an increased comprehensive view of the business. These are all favourable outcomes that can be expected in the Jordanian service industry, given the interest in the achievement of quality awards as shown in this study.

Finally, it should not be forgotten that in the process of preparing and applying for both national and international quality awards, organisations undergo a great amount of learning, and this filters through to all employees (Sila and Ebrahimpour, 2003). In this exercise, many employees become more knowledgeable about TQM, see the logic and benefits to be gained, and increase their commitment to the philosophy. Hence it can be appreciated that the award preparation process can actually be seen as part of the overall training and awareness raising effort expended by the organisation, and in the case of the Jordanian companies participating in this study, it could be argued that from the levels of engagement with ISO 9001 and the more advanced TQM systems, it is not surprising that such a great awareness of quality issues is present.

5.4.3 The Effect of Company Size on the Implementation of TQM Practices

As seen in Chapter Four, Table 4.9, statistically significant differences were found in relation to firm size (i.e. the number of employees) and the degree of implementation of TQM (using the 12 CSFs as the indication). One-way ANOVA revealed ($F(3,310) = 124.874$; $p = 0.000$). Post-hoc comparison employing the Dunken procedures determined which of the means of the four groups actually differed, and the results are provided in Chapter Four, Table 4.10. These indicate that firms with less than 50 employees ($M = 2.96$) report a low level of TQM implementation when compared with those that have 50-99 employees ($M = 3.27$). Similarly, firms with 10-249 employees report greater implementation ($M = 3.85$, and those with 250-499 employees record slightly higher implementation ($M = 3.96$). It can thus be clearly argued that as size definitely affected the level of IQM

implementation across all four types of company in this sample, the same can be said for the rest of the service sector in Jordan, and possibly elsewhere. Indeed, it has been suggested already in this thesis that company size associates with resources, and that a smaller capacity to deploy resources on quality initiatives is an inevitable feature of smaller enterprises.

Further support for this argument is brought forward by other researchers (see for example, Hoang et al., 2010; Jayaram et al., 2010; Yusof, 2003; Brah et al., 2002), with Brah et al. (2002) reporting significant statistical differences in the implementation of seven quality constructs between small and large companies. They concluded that large companies have a more positive attitude towards QM than do their smaller counterparts, and in a similar study by Hoang et al. (2010) which included manufacturing and service organisations, the same outcome emerged, showing that in the many companies in their sample that had less than 50 employees, the attitude towards QM was less favourable. Yusof (2003) also focused on company size, showing that relative to small and medium enterprises, large ones accord top priority to management leadership, training and education, and continuous improvement systems all of which make for successful implementation; and Jayaram et al. (2010) and Ahire and Dreyfus (2010) both show that company size moderates the influence of top management commitment, customer focus, and trust on the organisational outcomes of customer satisfaction, product quality and process quality. In addition, Ahire and Golhar (1996) argued that large companies that subscribe to any form of TQM implement the component parts of their schemes more strictly and have better product quality than those that do not. This more professional implementation of the TQM and ISO 9001 results from the differences in focus between SMEs and large companies as seen in the SMEs' focus on informal, people-oriented approaches to TQM, while their large counterparts are relatively more structured, organised and process-oriented. SMEs and larger companies also differ in their reasons behind the implementation of TQM and ISO 9000. This kind of understanding is important in the Jordanian context since as shown earlier, a large proportion of companies within the service sector are of the SME variety.

However, Sila (2007) found no connection between TQM practices and company size, when using a large sample of 2,000 manufacturing and service organisations in the USA. He used three different categories for the size of firms, based on the number of employees, and found no difference in the level of implementation among

any of these categories. Similarly, Sharma (2006) offers empirical evidence from studied 109 firms over a period of over five years. They also found from their empirical investigation that perceived TQM success was not associated with organisational size. Similarly, Ghobadian and Gallear (1997) argue that the basic concepts of TQM are equally applicable in SMEs and large companies. This rather suggests that there is a good chance that Jordan's SMEs may achieve sound TQM approaches despite their relative size.

That said, as Hendricks and Singha, (2000) argue, higher capital-intensive companies might have a higher degree of automation and thus have more inherent control of the processes. Hence, the implementation of TQM practices might be easier in such companies than in those that are lower capital-intensive. Jordanian service companies must, therefore, be aware of the potential for their size to negatively affect success in TQM implementation, and to take steps to prevent such outcomes.

5.4.4 The Effect of Company Type on the Implementation of TQM Practices

Having considered the various characteristics of firms that are known to influence the implementation of TQM practices, it is necessary to examine the effect of company type to determine whether any difference exists between the attitudes and efforts towards TQM in the four different types of company (by industry). Consequently, the four types of organisation - Bank, Hotel, Hospital, and Communication – in Jordan's private service sector were investigated via the one-way ANOVA test, which produced results as shown in Table 4.8. From these it is apparent that there are no significant differences ($p < 0.05$) between any of the four types of firm within the study in respect of any of the CSFs related to TQM [F (3, 310) =0.303; P< 0.823)].

These results are consistent with those obtained by previous researchers such as Cheah et al. (2009) and Prajogo (2005), who also found no significant differences in the TQM practices between manufacturing and service firms.

5.4.5 Length of establishment of TQM approaches

One final company characteristic seems to be important in delving into the degree of TQM implementation, and this relates to the years of experience in implementing their TQM models. Consequently, the organisations were divided into four groups depending on the timespans involved. As shown in Chapter Four, Table 4.13, the

one-way ANOVA results (F (3,310) = 163.201; p = 0.000) and the Duncan procedures enabling the post-hoc comparisons to determine which pairs from the mean of the four groups actually differed, are presented. The indication from this presentation is that that firms with a lower level of experience, i.e. less than one year, show lower TQM implementation levels (M =2.8794; SD = 0.19784), than firms with from one to three years of experience in the implementation of TQM (M = 3.1690, SD = 0.48943). Also, firms between four and six years of TQM implementation experience (M =3.8304; SD = 0.29153) have higher levels of implementation than those with just one to three years of experience. Firms with over six years of TQM implementation experience (M =3.9533; SD = 0.21426) have the highest TQM implementation levels of the entire group. This observation shows that TQM implementation of TQM is affected in an ascending way by the number of years of experience an organisation has in doing this.

These overall findings confirm those reported by other researchers, for example Brah et al. (2000) and Ahire (1999) who found firms with over three years of TQM experience to pay more rigorous attention to their implementation of the CSFs than firms who were newer to the business of TQM. Likewise, (Jayaram, Ahire and Dreyfus, 2010) found that long-term TQM implementation had the effect of increasing employee involvement, delivering new skills to employees, and improving employee problem-solving abilities. Consequently, it is to be expected that with maturity, TQM schemes can produce exponential benefits through the ongoing development of talent among the workforce. In the Jordanian context, the message is clearly that those companies within the service sector that are well into their TQM journey can be expected to sustain their success, and that those that are in their infancy may require some assistance to consolidate their programmes.

5.5 Identifying the success factors that enhance the level of TQM, and their effect on firm performance.

It has been shown already in Section 5.3, Sub-sections 5.3.1-5.3.12, that twelve particular success factors are identified in the literature as being associated with the effective implementation of TQM and that if any of these are absent, then the TQM system itself will not provide the anticipated benefits. These CSFs - Management Commitment and Leadership, Customer Focus and Satisfaction, Continuous Improvement, Employee Involvement, Training and Education, Employee Encouragement, Supplier Partnership, Information/Analysis/Data, Strategic Quality

Planning, Culture and Communication, Benchmarking, Social and Environmental Responsibility – were shown to be present in all the organisations involved in the study. However, it is important to mention that the scales themselves, whilst having been used successfully in many previous studies in both Western and Non-western contexts, and showing good validity and reliability had not previously been validated in the Jordanian context.

Objective 3 seeks to determine what is actually appropriate and important for the Jordanian service sector, and hence, a reconsideration of the CSFs discussed in Section 5.2 (Objective 1) is necessary but from a different angle. Consequently, the quantitative data were analysed via SPSS and SEM using AMOS 24, and subjected to EFA as a means of establishing the potential underlying factor structure. As shown in Table 4.17, ten factors loaded, donating that two of the original factors identified in the literature - **BM**: Benchmarking, **SR:** Social and Environmental Responsibility – had not achieved the recommended factor loading cut-off value of 0.6. Consequently, these two factors were not subjected to any subsequent analysis. Hence, a ten-factor solution was obtained, which explained 65.72% of the variance in the dataset. Internal reliability of the set is evidenced by Cronbach's alphas, construct reliability, and the corrected item-total correlation. CFA which provides evidence of convergent validity and discriminant validity was used to verify and confirm the factor structure derived from the EFA. In this respect, all factor loadings in each of the constructs are higher than 0.50, the average variance extracted (AVE) is greater than 0.50, and the construct reliability (CR) exceeds 0.60, all thereby indicating convergent validity. Furthermore, average AVE exceeds the squared correlation estimate, thus offering proof of discriminant validity. A detailed discussion of these procedures and outcomes appears in Chapter Four, Section 4.5.2. A nine-factor model focusing on what each of these factors imply for the Jordanian service sector will be discussed:

5.5.1 Customer Focus and Satisfaction

As indicated in Chapter Two, *Customer Focus and Satisfaction* are hailed as the most important reasons for implementing a TQM philosophy (Deming, 1986). And to get all the organisation's members on board with this aim, it is essential that management commit by formulating policy and engaging in proper strategic planning (Juran, 1989). That implies the establishment of a dedicated quality policy

that establishes the priorities for the organisation, and sets particular standards to be reached in all practice (Crosby, 1979).

Considering the evidence concerning *Customer Focus and Satisfaction (CF)* obtained in this study, it can be seen that this was in fact the first component within the EFA and that it explained 35.38% of the variance. The Cronbach Alpha of 0.927 showed definite inter-relationship, being sufficiently close to 1 to indicate a reliable outcome. Within this component, the original ten items were reduced to seven after the loading was performed (as shown in Chapter Four, Table 4.17). And the spread of the factor loading for the remaining seven items is shown as 0.681 >< 0.773. These results demonstrate high composite reliability and a high level of construct validity (convergent, discriminant, and homological). Hence, it is established that Customer focus and Satisfaction is a very important factor in the Jordanian service context.

Moreover, testing hypothesis **H 2, H 11** considered the impact of Customer Focus upon non-financial and financial performance, with the SEM results showing this was also positive, demonstrating therefore that any increased Customer Focus would indeed have a positive impact upon the service organisation's non-financial performance and financial performance. It can be seen from this finding that it is the external customers who are the focus of TQM firms, and that these firms are in tune with the requirements of customers and produce the services to meet the expectations embodied in those requirements. Having an effective customer focus means that companies can organise their services to meet the market, and this involves firms in striving to provide products and services which are of a high quality and reliable. Additionally, they deliver on time and in an efficient manner, with the outcome that customers are satisfied their expectations have been met, and are likely to repeat order, remaining loyal to the producer.

Similar outcomes have been found by Tsang and Antony (2001), who found that customer focus was considered to be the most significant factor for TQM implementation in UK service organisations. Likewise, Arshida and Agil (2014) also found that customer focus together with top management commitment were the factors that most contributed to successful TQM implementation, and improvements in the performance and provision of customer services; moreover, these two factors

also produced customer satisfaction through continuous improvement in the Indian service sector. In addition, Valmohammadi (2011) in his study of Iranian manufacturing, found a positive and significant contribution to organisation performance coming from efforts to create a strong customer focus and satisfaction philosophy. That contribution was not only seen in performance per se, but also in cost reductions. Moreover, Carmona-Márquez et al (2016) using industrial and service firms as their unit of analysis, obtained a positive influence on their service quality and customer satisfaction resulting from TQM implementation, an outcome that echoed that confirmed by Fotopoulos and Psomas (2010) in their study of Greek companies. These researchers found customer focus and satisfaction to be one of the two most important factors to significantly affect company performance with respect to internal procedures, customers, and market share. Jaca and Psomas (2015) also stressed the need to prioritise the goal of customer satisfaction in companies subscribing to a TQM philosophy, believing this goal to be a key element in fixing and resolving customers' problems and complaints. Indeed, these findings mirrored those by Zhang et al. (2000), who highlighted the need for customer complaints to be accorded high priority in order to guarantee customer satisfaction.

5.5.2 Management Commitment and Leadership

The TQM literature acknowledges the presence of complete support from top management as one of the major prerequisites for successful TQM implementation, it being noted by Deming (1986) that once top management has provided a high degree of commitment, organisational members tend to become involved in the TQM effort. The point is also made by Saraph et al. (1989), that top management must assume responsibility for creating and sustaining a favourable work climate through the motivation of each and every employee, and by providing good leadership role models.

In this study, *Management Commitment and Leadership (MC)* emerged as the second component in the factorial model, and accounted for 5.53% of variance. Moreover, in combination with the previous component (Customer focus), this component scored a combined variance of 40.91%. Clear relatedness amongst the items was revealed by a Cronbach's Alpha score (α) of 0.869; again this value is sufficiently near to 1 to assume a reliable result. In the EFA the original 11 items were reduced to seven which loaded highly on factor one, thus showing a high

correlation. The seven items are shown in Chapter Four, Table 4.17, and have a spread of factor loadings of .566><.757 . Moreover, high composite reliability is indicated by the CFA results as also is high construct validity (convergent, discriminant, and homological). These results can all be seen in Section 4.5.2, Tables 4.21 and 4.22.

Moreover, **Hypothesis H 3 H 12** explored the influence of Management Commitment upon non-financial performance and financial performance, finding this too to be positive, and therefore indicating that any improvements to Management Commitment in Jordanian service companies would result in improvements to the organisation's non-financial performance and financial performance.

It is demonstrated by the findings regarding this hypothesis that the participating service organisations are successful in implementing TQM because they recognise the important management role in supporting employee development so that employees can contribute as empowered organisational members. This is built upon the decisions made by the managements of these companies to create multipoint communication across their enterprises, to embrace the workforce, managers, suppliers, and of course, customers. With effective communication, and the efficient diffusion of information, it is easy to keep employees involved and to encourage their engagement with company decision-making. Simultaneously, to support their decision-making capacity, top management are proving education and training aimed at empowering employees to serve all customers, internal and external to the best of their ability. This level of commitment from top managers signals a type of leadership which differs from that traditionally found in companies where the style is to command and control. It is a leadership that seeks to enhance the awareness of all employees, of how to deliver service quality at all levels.

There is abundant support in the literature of TQM implementation in the developing countries for this particular factor. Specifically, Salaheldin (2009) stressed that top management commitment to quality was found to be the most important driving force for TQM implementation and performance financial and non-financial in Qatar, and a previous study by Samat et al. (2006) focusing on the importance of leadership competencies in implementing TQM in the service industry, it was found that top management were instrumental in ensuring the successful implementation of such initiatives, particularly since they were in a position to create an appropriate

environment for that implementation. Subsequently, with a focus on Iranian SMEs, Valmohammadi (2011) found top management to play a significant role in TQM implementation, which subsequently enhanced organisational performance, and in a similar study in Singapore, Koh and Low (2010) observed top management to implement TQM at higher levels than in other countries. Likewise, Salaheldin (2009) confirmed top management as the principal driver of successful TQM in Qatar. In addition, Talib et al. (2011), researching in India, found that top management commitment was considered as the first requirement in TQM implementation, and that the upper echelons of management led the way in improving the quality of health care institutions in that country. And Fotopoulos and Psomas (2010) found in their investigation of Greek companies that top management commitment was one of the two most important factors (together with customer focus and satisfaction) that significantly improved company performance.

Other researchers who identify the absence of top management commitment as an obstacle to effective TQM implementation are Brah et al. (2002), Hietschold et al. (2014), and Antony et al. (2002). Clearly for the Jordanian service sector, it is important to absorb this knowledge.

5.5.3 Information/Analysis/Data

Within the TQM literature, the importance of Information Systems Technology is cited for its role as a key enabler of TQM implementation (Saraph et al., 1989; Zhang et al., 2000; Ebrahimi and Sadeghi, 2013; Hietschold et al., 2014; Arshad and Su, 2015). Specifically, Rao et al. (1999) note its essential feature as being capable of use management and employees to ensure a steady stream of accurate and appropriate information that underpins quality improvements. Indeed, even when the basic processes and management/worker relationships remain traditional, the need for effective information systems is paramount.

In this study, it was shown by the EFA exercise that *Information/Analysis/Data (IA)* accounted for 5.17% of the variance and in combination with Components 1 and 2, i.e. CF and MC, it accounted for a 46.7% variance. There is definite evidence of interrelatedness amongst the items in the achievement of a Cronbach's Alpha score (α) of 0.867 which is sufficiently close to 1 to indicate reliability of the result. After the loading of the items, four were found to be loaded highly on factor one and were

highly correlated with each other, with a spread of factor loading of .643><.727, as displayed in Chapter Four, Table 4.17. Furthermore, high composite reliability, and high construct validity (convergent, discriminant, and homological) are confirmed as shown in Chapter Four, Section 4.5.2, Tables 4.23 and 4.24.

Moreover **Hypothesis H 7** This hypothesis tested the impact of Information and Analysis on non-financial performance, finding a significant influence, and therefore showing that in Jordanian service companies, any increase in the attention paid to Information and Analysis would bring a corresponding enhancement of the organisation's non-financial performance. While hypothesis **H 16** tested the influence of Information and Analysis on the service organisation's financial performance, and again, an insignificant effect was identified by the regression, thereby signalling no relationship between these two constructs in the Jordanian context.

These results are consistent with findings from earlier research efforts. Al-Marri et al. (2007) for instance, found quality Information Systems to support managers and employees in the quality-related activities and to enhance performance in this respect. Similarly, Yusuf et al. (2007) and Ebrahimi and Sadeghi (2013) pinpointed the lack of timely and appropriate information for decision-making in developing countries as one of the primary barriers to the implementation of continuous quality improvement programmes. Considering the service sector specifically, it has been shown by Talib and Rahman (2010) that TQM implementation relies on an effective system to collect and manipulate information, since such a system provides the various techniques that allow the effective measurement of whether or not the required standards are being met. These researchers particularly focused on supplier quality in the service sector, thereby providing intelligence of importance for this study. They noted the usefulness of Information and Analysis systems in embodying statistical process control (SPC), thereby reducing variability in processes. Furthermore, such systems enable management to collect and analyse a wide variety of feedback that subsequently underpins continuous improvement. And it is also noted that Information and Analysis capability makes it possible to predict the costs associated with quality initiatives. In another study by Lakhal et al (2006), a significant link was reported between the Information and Analysis factor and the financial and non-financial performance of an organisation. Without doubt, the data obtained from customer surveys has great potential and must be properly

evaluated if organisations are to supply what the market wants. Without information about the market expectations, there can be no guarantee of customers being satisfied. The lesson to be taken from this is that Jordanian service companies must invest in their Information and Analysis systems, and that entails education and training for all employees to ensure that they can use them to their best advantage.

5.5.4 Employee Encouragement

Employees can be encouraged to participate in various workplace initiatives in many ways, and monetary reward is only one motivator from a bundle of rewards which can be used as attractions. However, irrespective of an intrinsically-derived job satisfaction, employees do need money to live, and a more competitive salary is frequently the reason why individuals leave one job for another (Cherrington, 1995). Employee compensation is therefore, an important issue, and such compensation should recognise the link between effort expended to ensure customer satisfaction (through quality employee performance) and pay (Brown et al., 1994). Indeed, it has been found that employee morale is improved when such a situation prevails (Mann and Kehoe, 1995).

In respect of *Employee Encouragement (EE)*, it was revealed by the EFA results that this fourth component accounted for 3.57% of the variance, and that clear interrelatedness amongst the items is indicated by the Cronbach's Alpha score (α) of 0.916, which as with other constructs, shows a value that is sufficient close to 1 to argue for reliability of the results. In this factor, there was substantial reduction of the initial nine items, such that five remained. These loaded highly on factor one, and were highly correlated with each other, showing a loading spread of .772><.824, as reported in Chapter Four, Table 4.17. Furthermore, high composite reliability and high construct validity (convergent, discriminant, and homological) were obtained as shown in Chapter Four, Section 4.5.3, Tables 4.25 and 4.26.

Moreover, **Hypothesis H4** tested the impact of Employee Encouragement upon non-financial performance, and again a positive result emerged, meaning that increased attempts to encourage employees through various means would lead to enhancements in the organisation's non-financial performance. While **H13** hypothesis tested the relationship between Employee Encouragement and the organisation's financial performance, finding an insignificant impact, and thereby indicating that in the Jordanian service company context, there is no positive

relationship between these two constructs, and any increase in Employee Encouragement would not be expected to lead to increased financial outcomes for the organisation.

The implications of these findings for the Jordanian service sector are that employees should be encouraged to participate in TQM initiatives by providing them with suitable rewards for the effort and innovation. These are outcomes that mirror those reported in the literature by many authors, as for example, Fotopoulos and Psomas (2009) who identified the importance of rewards and recognition for employees in establishing effective TQM processes in the Greek service sector. Earlier, Brah et al. (2000) came to similar conclusions in respect of the Singaporean service sector, and recommended that reward and recognition-related activities be used to effectively stimulate employee commitment to quality improvement. And more recently, in the Spanish service sector, Psomas and Jaca (2016) reported TQM implementation to be greatly influenced by the suitability of the rewards and recognition systems in place. In particular, they found such systems to be effective in reinforcing and encouraging desired behaviours, and in motivating staff to become genuinely involved in TQM. Of course, the findings published by Psomas and Jaca (2016) are not new, as Juran (1989) noted the reward system to be an important mechanism to be effectively managed when encouraging organisational development. So too does Crosby (1989) emphasise the need for recognition of employees; indeed, he considers this to be one of the most important features of the quality improvement process. Again, more recently, Singh and Sushil (2013) and Ho Voon et al. (2014) have confirmed the need for employee commitment in any effort to launch and sustain TQM initiatives, and that for such commitment to be secured, there must be sufficient encouragement. The message for the Jordanian service sector is therefore, that suitable reward packages must be devised to appeal to employees and result in their commitment but in designing these packages, the full range of attractive rewards must be considered and included as appropriate. In this connection, attention should be paid towards employees' hopes and aspirations for the future as much as to their financial needs for the present, and consequently, career development must feature since this is known to be a job satisfier. With opportunities for personal and professional development, employees can estimate their promotion prospects within their organisations, and when they are aware of the

opportunities available to them, they are incentivised to commit to their jobs, and the overall organisational aim, in this case, the implementation of TQM

5.5.5 Training and Education

The levels of training and education reached by employees have been shown to be influential in promoting effective TQM initiatives, but particularly in the context of developing countries, the following researchers have indicated its importance: Saraph et al. (1989), Zhang et al. (2000), Sila and Ebramipour (2002), Samat et al. (2006), Khamalah and Lingarag (2007), Fotopoulos and Psomas (2010), Hazilah (2009), Jamali et al. (2010),Talib and Rahman (2010), Kumar et al. (2011), Singh and Sushil (2013), Montasser and Manhway (2013), and Psomas and Jaca (2016). Whilst a long list, this is by no means exhaustive, but it does serve to confirm the relevance of training and education to successful TQM implementation, not least because especially in the service industry, high levels of employee training and education are directly related to productivity levels. Consequently, the above-mentioned researchers, along with many other scholars have given attention to the need to improve service sector workers' skills as a means of enhancing both productivity, and eventual client satisfaction.

As shown in Chapter Four, the factor *Training and Education (TE)* accounted for 3.26% of the variance. A definite interrelatedness amongst the items within the factor is highlighted by a Cronbach's Alpha score (α) of 0.904 which is near enough to 1 for a reliable result to be confirmed. As a result of the EFA, the various items within the component were reduced from the original nine to five, which loaded highly on factor one and which were highly correlated with each other with a spread of factor loadings of .730><.803. The five remaining items are shown in Chapter Four, Table 4.17. Additionally, the CFA results showed a high composite reliability and a high level of construct validity (convergent, discriminant, and homological) as indicated in Section 4.5.2, Tables, 4.27 and 4.28.

These results are consistent with findings reported by other scholars, for example Jamali et al. (2010) found that for a TQM environment to be successful, it must have a committed, well-trained, and educated workforce that is fully involved in quality improvement activities. Such involvement is not possible if employees do not possess the knowledge and skills to enhance quality, and this has implications for organisations in as much as they need to ensure they provide the appropriate

training, and at the same time they must be careful when appointing employees to choose those who will be open to training. Parast et al. (2011) found that inadequate training in the area of problem identification and problem-solving techniques can lead to failure in a TQM initiative, and Psomas and Jaca (2016) report that the success of quality programmes is dependent upon improving employees' knowledge about quality. Indeed, several studies have concluded that education and training is one of the most important factors for successful TQM implementation.

Moreover, Hypothesis H 5 considered the impact of Training and Education upon non-financial performance, finding a highly positive relationship, and therefore making it possible to state with great confidence that attention to Training and Education is a vehicle to improve the service organisation's non-financial performance.

As mentioned in the Section 5.5.4 on the issue of Employee Encouragement, the provision of education and training is viewed by employees as an investment in them, as contributing towards their personal and professional growth, and consequently, it is viewed positively by employees as something which improves their promotion prospects with the organisation, but they do at the same time become more skilled and in the TQM scenario this is a huge benefit for the organisation. Specifically, workers can become knowledgeable in the field of quality concepts, they can become skilled in using advanced statistical techniques, and they can increase their understanding of the industry and the particular company in which they work. This development in human capital enhances workers' loyalty to their companies, becoming part of the cycle of job satisfaction, motivation, and improved performance. Part and parcel of this overall work atmosphere is good timekeeping, reduced absenteeism, and low staff turnover, all of which contribute towards improved employee output, and the timely delivery of quality products and services, which in turn reduces customer complaints.

Evidence of these assertions comes from Kaynak (2003), observing greater employee loyalty, motivation and productivity, and Phan et al. (2011) who note a reduction in customer complaints resulting from better training of employees who are subsequently able to deliver the service more expertly It is, however, notable that in some circumstances a negative correlation has been found between Training

and Education, and financial and non-financial performance (Brah et al, 2000; Rungtusanatham et al., 1998).

5.5.6 Continuous Improvement

This ongoing cycle of improvement and innovation in service quality is the major aim of any TQM programme since the constant attention to quality helps in eliminating lead times in delivery, in reducing rework, errors, and unnecessary slack and variability in the processes (Hietschold et al., 2014). Simultaneously, there is an accompanying improvement in the total business performance as all non-value-added activities are reduced to the minimum possible (Hietschold et al. 2014), and the company is able to survive in the long term through appropriate development and response to the environment/market. Such continuous development and performance of employees and systems is the best way to improve organisational output (Yusuf et al., 2007), so this carries the implication for Jordanian service sector companies that continuous improvement must be a stated aim.

In respect of the *Continuous Improvement (CI)* construct, the EFA results revealed it to account for 2.92% of variance. The Cronbach's Alpha score of 0.852 depicts interrelatedness amongst the items, and guarantees reliability of the result. In the EFA, the component items were reduced from the initial nine to a final five, with a spread of factor loading of .684><.785. The remaining five items are shown in Chapter Four, Table 4.17. Additionally, the CFA results showed a high composite reliability and a high level of construct validity (convergent, discriminant, and homological) as confirmed within Section 4.5.2, Tables 4.32 and 4.32.

Moreover **Hypothesis H 1 H 10** considered the influence of Continuous Improvement upon non-financial performance, and the results of the SEM revealed this was positive, indicating that in the Jordanian service context, any enhancement in a company's achievement in respect of its Continuous Improvement dimension would indeed have a favourable impact upon the organisation's non-financial performance and financial performance.

These findings concur with those obtained by other scholars, as for example, Mjema et al. (2005) who reported Continuous Improvement to be a fundamental requirement of any TQM initiative since the end goal is to provide a flaw-fee product, and only with continuous improvement can defects, waste, and poor completion/delivery rates be eliminated Likewise, Fotopoulos and Psomas (2009) found the continuous improvement of quality to be effected on a step-by-step basis

according to a systematic procedure. In his recommendation, Fotopoulos and Psomas (2009) asserted the need to look for the underlying causes of problems and to work out lasting solutions instead of implementing a quick fix that would not stand the test of time.

Tsang and Antony (2001) report similar opinions, suggesting continuous improvement to be the most important factor in successful TQM. They also identify the benefits of eliminating defective products, reducing errors, and improving the standard of processes, services, and the other activities undertaken by organisations. And Samat et al. (2006) also found continuous improvement to have a significant effect on service quality. In addition, Talib et al. (2011a) and Irfan and Kee (2013) focusing on healthcare organisations, identified the construct of continuous improvement as being critical for the successful implementation of TQM, noting that it leads to improved quality of care, reduced operating costs, patient satisfaction, and reportedly, the improved performance of healthcare institutions. Likewise, Salaheldin and Mukhalalati (2009) also investigated the healthcare sector (both public and private), finding that the achievement of continuous improvement was one of the critical elements of TQM practice, alongside top management support, and employee training and involvement. Clearly, the achievement of continuous improvement is not a random outcome of employee efforts, and as noted by Zakuan et al. (2010), it is necessary to develop a strategy for continuous improvement such that the needs and expectations of customers can be identified and met, service processes and operations are systematic and known to all employees, benchmarking is used to evaluate performance, functions and project objectives are properly identified and communicated, and an effective feedback system and evaluation mechanisms are created.

5.5.7 Culture and Communication

For TQM to be successfully introduced and adopted as a philosophy within an organisation, the culture of that organisation must adapt so that it comprises those particular values conducive to an ongoing quality focus. However, organisational cultures depend on communication if they are to change, since the new values must permeate through to all employees in a way that they are accepted. The point is made by Maletič et al. (2014) that a new culture can be instilled quite easily once the employees have internalised the new values. Consequently, the need for effective communication throughout the organisation is paramount in order to make

the objective of continuous improvement become ingrained in workers' thinking (Talib et al., 2013). Hence, this particular construct refers to the information sharing process between all individuals within the organisation (Ooi et al., 2011). Such process is a critical feature that is necessary to connect employees with other employees, and with management, and to allow organisations to function effectively; hence, it is an essential ingredient in TQM implementation (Maletič et al., 2014). Managers and practitioners use effective communication to enlist the support of other employees towards achieving organisation's objectives.

In respect of the *Culture and Communication (CC)* factor, this the 8th component of the framework, accounted for 2.49% of variance. The Cronbach's Alpha score of 0.913 is sufficiently close to 1 to give assurance that a clear interrelatedness exists amongst the items comprising the construct. During the EFA, these items were reduced from the original five, to four with a spread of factor loading of .792><.855. The items retained are presented in Chapter Four, Table 4.17. High composite reliability and high construct validity (convergent, discriminant, and homological) are indicated by the CFA results as shown in Section 4.5.2, Tables, 4.33 and 4.34.

Moreover **Hypothesis H 9** considered the impact of Culture and Communication on non-financial performance, and the regression showed a significantly positive influence, thereby signalling that in the Jordanian service sector, any improvements to the organisational Culture and Communication would result in enhancements of the organisation's non-financial performance. **H 18** concerned with the influence of Culture and Communication upon the service organisation's financial performance, and the regression revealed an insignificant impact in this respect, thereby signifying that any improvement to the Culture and Communication dimension would not be an antecedent of improved financial performance in the Jordanian setting.

However, the positive influence of effective communication in the whole matter of involving employees, of pushing for customer satisfaction, and enhancing overall performance has been observed by several groups of scholars (see, for example, Ahire et al., 1996; Yusuf et al., 2007; Brah et al., 2000).

Indeed, other researchers have also obtained similar results, as for instance, Talib et al (2011), who found the main enabler of TQM implementation to be effective communication between managers, supervisors, and staff. Likewise, Sadeghi (2013) found poor communication to represent a major obstacle to TQM efforts in

his study, pointing out that the lack of communication across the organisation often results in unsatisfied customers, unfulfilled customer requirements, and a climate of distrust, which arises when management is seen to withhold important information from employees. The implications for the Jordanian service sector are, therefore, that much attention be paid to the development of a robust communication system within such organisations, and to ensuring that all channels are properly used and kept free-flowing.

5.5.8 Strategic Quality Planning

It has already been mentioned that TQM cannot happen randomly, and that it depends upon a carefully crafted plan for its introduction and ongoing implementation. Consequently, it is necessary for management to engage in Strategic Quality Planning which should set the blueprint for action over the planning period envisaged. From this activity should emerge a formalised plan of what is supposed to occur at some time in the future, although as noted by Juran and Godfrey (1999) and Evans (2002) such plan is no guarantee that the planned event or activities will actually take place. Many kinds of managerial plan are found with organisations, including strategic business performance plans, quality goal plans, and quality improvement plans. Moreover, a strategic business performance plan can be divided into long- and short-term business performance plans that include, for example, market share, profits, annual sales, and sales growth.

In the case of the results from this study, the *Strategic Quality Planning (SQ)* was shown via the EFA, to account for 2.19% of variance. The Cronbach's Alpha score of 0.873 (being close to 1) indicated clear interrelatedness between items within the construct, and thereby confirming its reliability. Resulting from the EFA, a reduction in the construct's items occurred in which they dropped from the initial six items to five, with a spread of factor loading from .738><.814. Table 4.17 shows the items that remain. Furthermore, high composite reliability and high construct validity (convergent, discriminant, and homological) are shown by the CFA, as indicated in Section 4.5.2, Tables 4.35 and 4.36.

Previous research has also arrived at findings such as these. Indeed, it is argued in the TQM literature that one fundamental drawback in TQM implementation and business process initiatives is the lack of strategic business planning (Claver et al.,

2003; Jaca and Psomas, 2015). Rather, it is necessary for effective strategic planning that includes active participation by top management and lower-level employees, supplier involvement and strong customer focus to identify their requirements and needs to be a prime responsibility of senior management, so that short, medium, and long-term goals are formulated throughout the quality journey (Brah et al., 2002; Salaheldin, 2009; Talib and Rahman, 2010).

Hietschold et al. (2014) point out the importance of this factor for TQM implementation since it concentrates on managing and planning production processes and services, as well as creating long-range quality goals. Such a focus leads to improved performance, and hence, customer satisfaction. With these desired benefits to be enjoyed, the entire quality process should be strategically planned and managed to ensure long term sustainability and competitiveness. Furthermore, Pheng and Hong (2005) stress the need for the long term quality journey to be supported by effective strategic planning that involves top management, lower level employees, suppliers and sub-contractors, as well as customers, This extended participation allows for the proper identification of all parties' requirements, and gives a focus to all the points at which standards are to be set and met. However, it is important to mention that strategic planning often fails to deliver because, as observed by Zairi (1999), organisational strategic planning is often considered to be an overall plan that has no relevance to routine operational issues, and that is kept locked away by top executives.

Hypothesis **H 8, H 17** considered the effect of Strategic Planning upon the service company's non-financial and financial performance, once again revealing an insignificant impact. Hence, it is correct to say that in the Jordanian service sector, any improvement to Strategic Planning would not lead to an enhancement of the organisation's financial and non-financial performance.

5.5.9 Supplier Partnership

Service quality can be improved simply by changing one supplier for another, since a supplier with a keen eye on quality can help improve the overall service quality for its clients. Zineldin and Jonsson (2000) and Sinha, Garg et al. (2016) note that many organisations are indeed aware of the benefit to be gained by developing long-term relationships with their suppliers since such liaisons can increase their

competitiveness. Actually, supplier relationships and management has not always been recognised as a vital ingredient in respect of service industries, but the increased numbers of service companies, service globalisation, changing customer needs, supplier partnerships, and the need for effective supplier management have all become essential elements of successful TQM initiatives. This is not surprising, since as noted by Tsang and Antony (2001), there are benefits to be derived from partnerships with quality suppliers, such as the ability to accelerate the flow of information-sharing, to bring stability to the relationship, and to maintain stability in delivery and prices.

In this study's results, the factor *Supplier Partnership (SP*), representing the tenth component in the theoretical framework, accounted for 2.15% of variance. The Cronbach's Alpha of 0.854 is close enough to 1 for reliability of the result showing a clear interrelatedness, to be confirmed. In the process of EFA, the items making up the construct were reduced from seven to four, which together had a spread of factor loading of .719><.823. These four items appear in Table 4.17. Additionally, high composite reliability and construct validity (convergent, discriminant, and homological) were demonstrated by the CFA as shown in Section 4.5.2, Tables 4.37 and 4.38.

These findings coincide with those reported by Al-Qudah (2006) who undertook a study in the Jordanian pharmaceutical industry, and who also found relationships with suppliers to be critical in as far as supporting TQM initiatives is concerned. His study found that such relationships were accorded priority in those companies subscribing to a TQM philosophy. Moreover, other researchers (Forza and Filippini, 1998; Zhang et al., 2000) have also observed the well-recognised key role that suppliers play in quality management, and the influence that they bring to bear on several quality dimensions. A study in Palestine by Baidoun (2004), recommended that internal customer-supplier relationships must be created if the aim of meeting customer requirements, and thereby achieving customer satisfaction, was to be realised.

This study's results are also consistent with the original TQM literature, since Crosby (1989) emphasised the relationship between supplier and buyer as one of the most important ingredients of the quality improvement process. Such relationships must of course be carefully monitored, in which respect, Gopal and Thakkar (2012) asserted that suppliers must be evaluated and chosen on their capacity to supply

the product or service in accordance with the organisation's requirements. Earlier, Deming (1986) focused on the importance of selecting suppliers on the quality they could deliver rather than purely on the price, and on working directly with the chosen suppliers to secure the highest possible quality supplies.

Hypothesis H 2, H 11 considered the impact of Supplier Partnership non-financial and financial performance, but in this case with the SEM results showing, no significant impact emerged, and it is therefore possible to say that in the particular case of the Jordanian service sector companies participating in the study, the issue of Supplier Quality is not of importance to an organisation's performance.

Brah et al. (2000) researching in the Singapore service sector, also obtained similar findings. They reported no significant link between performance and the Supplier Performance. However, in a study in the Spanish service, Jaca and Psomas (2015) found the opposite, as did Lakhal et al (2006) and Kaynak (2003) whose results indicated a significant link between the Supplier Partnership and financial and operational performance.

5.6 A framework that illustrates the relationship between all recognised elements of TQM and Performance.

It is difficult to provide a short definition of the phenomenon of Total Quality Management, since the literature comes from many sources, not least from the quality gurus, and various quality award models. This vast body of knowledge is best summarised in a model of TQM that is comprised of twelve dimensions On the basis of which a TQM model has been formulated that depicts the main QM methods used to evaluate the current strengths and weaknesses of an organisation in terms of its deployment of QM methods. Having made such assessment, an organisation can then use the model to determine what QM techniques should be adopted to achieve better performance across the organisation, and subsequently to establish the level of QM maturity attained by it Additionally, the research presented in this thesis, will be of practical assistance to service sector organisations in Jordan, and to future academics who wish to use it as a springboard for further scholarly investigation.

The QM methods identified as present in the Jordanian service sector companies can be categorised according to the nine components of the model, with indications

of where improvements are desirable And when completing this aspect of the study, it was found that support emerged not only for the structure of the research model as presented in Figure 4.28 on page 192, but also for the causal links hypothesised among the model variables. It is apparent from the SEM fit statistics shown in Table 4.27 on 191 that an acceptable set of fit indices is obtained from this finalised model, thereby confirming its fit with the empirical data. Thirty-three (33) types of TQM elements are shown within the final model as having the potential to improve organisational performance. *These CSFs - Management Commitment and Leadership, Customer Focus and Satisfaction, Continuous Improvement, Training and Education, Employee Encouragement, Information/Analysis/Data, Culture and* Communication**.**

The model can be used by management to ensure that all the various organisational activities are harmonised to promote a final service (or product) that not only delivers the expectations of the customer, but also goes beyond them, and guarantees satisfaction Hence, it can function as a blueprint for good business performance, serving as an evaluation tool in respect of current strengths and weaknesses in respect of QM methods, and as an indicator of QM maturity. Effectively used, the model can then underpin improved performance, and thus also offer some predictive power in terms of the satisfaction of all customers, both internal and external.

There is a great volume of published material that focuses on the subject of TQM performance, with researchers identifying various ways in which this is measured. In Spanish firms, for instance, it is seen that TQM outputs are evaluated via quality, operational, and economic-financial benchmarks and that around 47% of performance is accounted for by TQM. Other researchers observe four principal criteria being used to assess how TQM impacts upon performance, these being: financial and market performance, organisational effectiveness, customer satisfaction and employee satisfaction, which are seen to receive a 40-55% contribution from TQM (Mensah et al., 2012); and in a study of 151 Spanish service organisations, Psomas and Jaca (2016) also noted four quality performance features being influenced, these being: financial performance, operational performance, customer satisfaction, and product/service quality, for which the model explained around 20-58%. Similarly, Kumar et al. (2009) noted the favourable influence (61%) on four quality performance dimensions: employee relations, operating procedures, customer satisfaction and financial results.

Using subjective measures, Sharma and Gadenne (2010) found 66% of variance to be explained by reference to management perceptions of the QM programme, on the basis of overall company performance, improvements to the company's competitive position, and how positive the programme has been for the firm.

In a model devised by Karimi et al. (2014) for use in the service sector, and focusing on product and service outcomes, customer focused outcomes, financial and market outcomes, human resource outcomes, organisational effectiveness outcomes, and social responsibility outcomes, it was possible to find over 52% of variance explained by the implementation of TQM; and another model developed by Talib et al. (2013), in which items dealing with product, processes and service quality, employee service quality, employee satisfaction, customer satisfaction, and supplier performance were highlighted, 64.6 % of the performance was attributable to TQM. Researching in Pakistan's service sector, Irfan and Kee (2013) were able to explain a significant amount of variance - 76 % - by reference to financial outcomes, operating performance, customers, employees, suppliers/partners, and society. Furthermore, other researchers have found 30.9% and 43.2% of variance respectively explained by TQM implementation (Claver-Cortés et al., 2008, and Fotopoulos and Psomas,2009)..

Turning now to the present study, it is clear that non-financial performance is predicted by the involvement of seven constructs, these being: CF, CI, EE, MC, CC, IA and TE. In combination, these TQM dimensions explain 80.5% of the total variance in NF.

In respect of financial performance (F), four of these constructs are significant - MC, CF, NF and CI – and in combination they account for 83.9% of the total variance in F.

It can be deduced, therefore, that relative to the TQM models reported on in the performance studies mentioned, the present model appears to possess better power to explain the influence of TQM measures, and hence to predict organisational performance in Jordanian service organisations. From this we can argue that the proposed model is accurate in identifying the factors that are influential in the Jordanian scenario both in terms of financial and non-financial outcomes. It can also be concluded that the model can help in identifying which QM

methods are required more than others in any organisation, and can thus enable the right balance of initiatives to be devised to reach quality goals.

As can be seen from the foregoing discussion, TQM has attracted the attention of many researchers who have seen the benefits of the philosophy as created in Western business practice, and wondered how the overall model might adapt, or be adapted to their particular environment. Consequently, slight nuances are seen in the focus of these scholars, but one thing is common, and that is the ability of the TQM dimensions, whichever way they conceive them, to explain the variance in performance to some degree. The contribution made by the model in the present study is twofold in respect of this particular strand of the literature.

Firstly, it is used in a new context in the shape of Jordan, a Middle Eastern country with strong Arab traditions, but simultaneously a modern approach to business that is underpinned by a fairly wide subscription to ISO. This shows the robustness of the TQM philosophy in its core principles, and adds to the developing literature on nuanced models of TQM to fit particular cultures.

Secondly, the model is concentrated in its use, on the service sector, specifically on four types of industry within that sector. In leaving out other types of industry within services, the way is clear for future scholars to apply the model in other service scenarios (.e.g. transport, education, civil administration) to obtain a complete picture of the model's robustness throughout the service sector.

And thirdly, it is helpful for all managements in Jordan, irrespective of whether they be involved in the public or private sector, to learn of the applicability of this model since it takes into account the national context, and for instance, the lack of legislation in certain areas that has an impact on all business.

6 Chapter Six: Summary and Conclusions

6.1 Introduction

In this final chapter of the thesis, an overall summary of the study undertaken, a discussion of its value in theoretical and practical terms, an indication of its limitations, and the potential for future research are presented. In Section 6.2, the focus is on the summary and the main findings, which are related to the research questions and objectives set out in Chapter One. Section 6.3 then considers the contribution to knowledge made by this research study, specifically discussing the theoretical and practical benefits it brings to the literature and practitioners. In Section 6.4, some recommendations are made relating to how TQM implementation within firms in Jordan's service sector can be enhanced, and consequently, how performance in those organisations can be improved. And in Section 6.5, the limitations of the study are highlighted. These limitations give rise to a discussion of what still remains to be done in this area of study, and hence Section 6.6 presents some suggestions for further research. The thesis closes with a final word (Section 6.7) about the research process, the researcher's personal growth, and his vision for the Jordanian service sector in the case where the recommendations of the study are implemented.

6.2 Brief Summary and Key Findings

The study has responded to the overall situation regarding the confusion which seems to be a global issue, concerning the concept of TQM and what it means to implement this particular quality initiative, especially in the context of services. Such confusion was seen to be the result of researchers adopting different definitions of TQM such that in one context the principle is perceived as one thing, and in a different context it has yet other connotations. Not surprisingly, despite the abundance of TQM research, information about the effects of TQM implementation is conflicting, as the concepts being investigated are not always clear from one study to another. For example, one set of researchers finds TQM implementation to be beneficial for the business performance of companies, whereas another group of researchers believe that no improvements in business performance are forthcoming from the implementation of a TQM initiative. So, there are variations in findings, with different results being reported in connection with the effects of TQM implementation on the business enterprise. At the same time, there have been conflicting outcomes

in respect of TQM implementation specifically in the service sector in Jordan. That said, no systematic, large-scale investigation has ever been conducted relating to TQM implementation in the Jordanian service sector and particularly on its influence upon the financial and non-financial performance reported by firms. And consequently, in the absence of such attention, the issue of how TQM can be best implemented in Jordan's service sector has been neglected, with no model of best practice in existence. The outcome of this has been several unsuccessful attempts at TQM implementation in these firms, and, therefore, this study has tried to address this whole problem through the pursuit of the major objectives highlighted in Chapter One.

As a first step in finding answers to these questions, a comprehensive review was undertaken of the TQM literature covering the ideas of the recognised quality gurus (Deming, Juran, Crosby, Feigenbaum, and Ishikawa), the three quality award models (the Deming Prize, the European Quality Award, and the American Malcolm Baldrige National Quality Award), and the published works of other researchers in the TQM arena. A clear vision of the TQM construct was grasped via this investigation of the literature, and subsequently, this was taken to indicate a management philosophy centred on the continuous improvement of systems and processes such as to foster increased financial and non-financial performance. Breaking down the overall TQM construct into its component parts, it was identified that Management Commitment and Leadership, Customer Focus and Satisfaction, Continuous Improvement, Employee Involvement, Training and Education, Employee Encouragement, Supplier Partnership, Information/Analysis/Data, Strategic Quality Planning, Culture and Communication, Benchmarking, and Social and Environmental Responsibility were all dimensions of the philosophy. Consequently, the model of TQM accepted in this study includes these twelve individual constructs, which must apparently be implemented where the aim is to embed a TQM philosophy within (and throughout) an organisation.

In addition to the focus within the literature on the critical success factors just identified, a separate investigation was conducted on overall business performance within organisations which integrate a TQM approach into their routines. This review indicated certain constructs relating to non-financial, and financial performance to be of importance. Employee Satisfaction, Customer Satisfaction, and Operations

Management were seen as important for non-financial performance, while Return on Assets, Revenue Growth, Return on Sales, and Market Share were considered to be important for financial performance. Moreover, non-financial performance was seen as influencing financial performance.

As a result of the extensive literature review a TQM implementation model was constructed in which TQM implementation (comprised of the twelve constructs aforementioned) became the independent variable, and non-financial, and financial performance were the two dependent variables. Thereafter, 19 hypotheses were formulated, which were tested using a variety of measurement techniques, and recognising the particular nature of service sector organisations in Jordan.

The theoretical model developed was tested empirically through the use of SEM, which involved two steps, the first being the development of a model for CFA measurement, and the second being the formulation of a structural model once the CFA results demonstrated goodness of fit to the data. In respect of the first step, the CFA model was subject to test to ensure both composite reliability and validity, and acceptability was eventually achieved in each of these areas after several modifications were made to the model. In respect of the second step, the structural model was design to determine whether the causal links proposed in the hypothesis were supported or rejected. An acceptable goodness-of-fit level confirmed the structural model to be suitable for this purpose. Additionally, however, the path coefficients of the hypotheses were assessed, and from this, statistical significance was found in eleven of the 19 hypotheses.

6.2.1 The Achievement of the Objectives

The first objective of the study was to investigate the status of TQM implementation in the Jordanian service sector, and in this respect four areas within that sector were taken as the sample, and accepted as being generally representative of the service sector in total. Specifically, banks, hotels, hospitals, and communications organisations formed the respondents. As already mentioned, the status of TQM was assessed within the literature by examining organisations' use of relevant CSFs in their overall TQM effort, and establishing how these influence those organisations' inputs, processes, and outputs. Hence, the same

approach was adopted in this study as a means of appreciating the prevailing position in terms of Jordan's service sector's implementation of TQM. Consequently, the actual level of TQM adoption and implementation in Jordan's service sector was established by exploring the degree of CSFs present in the sample organisations, and the extent to which they were capitalised upon and efficiently and effectively practised. From this exploration and the subsequent statistical analysis of the data obtained, it was seen that Management Commitment and Leadership, Customer Focus and Satisfaction, Continuous Improvement, Employee Involvement, Training and Education, Employee Encouragement, Supplier Partnership, Information/Analysis/Data, Strategic Quality Planning, Culture and Communication, and Benchmarking were all present to a high degree in the four types of service sector organisation featuring in the sample. In contrast, Social and Environmental Responsibility was poorly implemented. Moreover, it is concluded that as these four different industries within the Jordanian service sector displayed similar findings, it is more than likely that the outcomes revealed by the statistical analysis would be replicated in other service sector industries in the same national context, and hence, it can be said that the findings can be confidently generalised across the entire Jordanian service sector. Indeed, the pervading high degree of educational attainment (through paper qualifications) and awareness among the study sample also offers confidence that TQM is being implemented well since the managerial staff with responsibility for such implementation are properly educated and appreciative of the advantages to be gained by adopting an effective TQM approach. Hence, the first objective of the study has been achieved.

The second objective was to determine whether any link existed between the type and size of a company, whether it is ISO-certified, and the actual level of TQM implementation claimed. This objective was achieved via the responses to the questionnaire protocol, from which it emerged that ISO certification is an important ingredient in the battle for successful implementation of TQM. Specifically, in ISO-certified firms, the scores were significantly higher in respect of the implementation of the TQM CSFs than they were in non-ISO-certified organisations. This is not surprising, since in order to achieve ISO certification, organisations must embed basic procedures that serve to underpin the more complex TQM processes that require a strong foundation. Consequently, in organisations where the ISO certification criteria are satisfied, there is already a basic quality infrastructure,

including the presence of a quality culture among the workforce, on which the more sophisticated TQM designs can be built. And it is through these enhanced designs that ISO-certified organisations are able to increase their competitive advantage in the local and international markets where the benefits of international standardisation, and TQM best practice make them strong.

The achievement of a quality award, whether local or international was also shown to precipitate higher levels of TQM implementation than seen in firms without such awards. Interestingly, the findings from the statistics concerning the possession of quality awards is that TQM is implemented most highly in those companies that had focused purely on gaining an international award; and the conclusion to be drawn from this fact is that where companies concentrate their attention and efforts on securing a global award, they find their reputation both internationally and domestically to be elevated. Clearly, the potential to receive a quality award acts as a motivator for firms to focus on the effective implementation of their TQM initiatives.

With regard to that part of the objective relating to the size of the organisation and its relationship with TQM implementation, significant differences emerged among companies with larger and smaller numbers of employees, thereby enabling the conclusion that size is an important variable in this respect. Indeed, it was evident that such implementation increased exponentially with greater numbers of employees, so it can be concluded with confidence that larger enterprises seem better able to implement TQM initiatives. Clearly, there is the potential for larger companies to access more resources than smaller ones, and it is almost inevitable that smaller enterprises will struggle to deploy sufficient numbers of personnel to the management of TQM programmes.

It is also found that the years of experience possessed by a firm in operating TQM is influential in the effectiveness of that implementation. Specific examples of how the time factor intervenes are seen in the increased levels of employee involvement, employee up-skilling, and enhanced abilities among employees in their problem-solving the longer the company has been implementing TQM. More effective implementation comes with maturity, and hence exponential benefits are derived from the continuing attention to the development of talent among the workforce. What can also be concluded from the statistics is that this factor is stable across the

different types of business, and therefore, it is possible to generalise to the wider service sector in Jordan.

The third objective was to identify the success factors that enhance the level of TQM implementation within the service sector, and as already mentioned in the comments about the first objective, twelve such factors were highlighted in the literature as influencing the degree of effectiveness of implementation. Consequently, it can be concluded that where such factors are absent, the TQM system will not deliver the expected benefits. In this study, it was found that only nine factors remained after the initial statistical analysis, these being: Management Commitment and Leadership, Customer Focus and Satisfaction, Continuous Improvement, Training and Education, Employee Encouragement, Supplier Partnership, Information/Analysis/Data, Strategic Quality Planning, and Culture and Communication. Hence, the third objective has been achieved.

The fourth objective was to investigate the effect of the TQM CSFs on firm performance from both financial and non-financial perspectives. From the SEM analysis it emerged that of the final model factors (Figure 4.28 on 192), Management Commitment and Leadership was the most direct influential predictor of both non-financial and financial performance. It is, therefore, concluded that the stronger the management focus on providing commitment to the TQM scheme and demonstrating sound leadership, the greater the chance of employees buying-in to the scheme. In particular, it seems that within this factor, others are subsumed since the Management Commitment results in more support for employees, more interest in ensuring good communication throughout the organisation, and the sound leadership provides encouragement to employees to engage in decision-making and in using their initiative to solve problems. In such a work climate, employees become more aware and supportive of quality activities, an outcome which translates into improved organisational performance in both the non-financial, and financial sense.

The second most important CSF for TQM implementation was demonstrated by the statistics as being Customer Focus and Satisfaction, since this construct has a direct influence upon both financial and non-financial performance. It is clear that in any service situation the focus of the firm must be on satisfying the customer's

expectations, since if these are not met, the firm's reputation will deteriorate as negative feedback in the wider social circles of disappointed customers will destroy the potential for repeat custom and loyalty, and ultimately result in reduced market share.

The third most important factor in determining financial and non-financial performance was seen to be Continuous Improvement, again a strategy designed to ensure customer satisfaction in the long run. The attention to continuous improvement can be seen as recognition of the fact that in a climate of ongoing development, which continuous improvement promotes, it is possible to anticipate the customer's needs and to be ahead of competitors in the same market. Such anticipation has a clear effect upon the firm's performance, both on a non-financial level as workers become motivated to achieve more and more and experience a rise in self-esteem, and on a financial level, as customers show their appreciation of the service which appears to be exactly tailored to their needs, by remaining loyal and passing on positive word of mouth.

The study revealed the fourth most important factor to be Information/Analysis/Data, which is crucial in providing the infrastructure through which TQM implementation can take place. This infrastructure produces measurement techniques such that quality levels both within and outside the organisation, can be properly monitored. With the correct monitoring, variability in the service offered can be reduced, and areas of professional development for frontline staff in the service encounter can be identified. At the same time, the information from customer feedback mechanisms which are used throughout the service sector, can be quickly and effectively analysed with the statistical techniques available through this CSF. Hence, the market can be satisfied as it becomes known what particular needs and wants a firm's customers have. The conclusion to be drawn is that service companies should invest in this aspect of their infrastructure to keep informed about all dimensions of their performance since ultimately, their financial performance is affected by performance in the non-financial realm of their enterprise.

The fifth most important factor in securing good non-financial performance is Training and Education since in order to present a quality service, employees must know what they should be doing, in what contexts and timescales, and be capable

of doing it. In other words they must possess the skills to deliver the service. Where there is an ongoing focus on ensuring that the training and education provided for employees is appropriate for them to do this, and hence to satisfy the market, employees themselves experience job satisfaction, and that brings corresponding benefits to the company via enhanced commitment, motivation, and loyalty. Simultaneously, customers themselves are satisfied, the potential for complaints is reduced, and the operational performance of the firm is increased.

The sixth most important factor in promoting non-financial performance is found to be Employee Encouragement, which in itself consists of effective recognition and reward strategies. The effects of such encouragement are seen in increases in employee satisfaction, enhanced motivation and commitment. Hence, greater commitment to the job and the organisation, have a knock-on effect on employee performance and the quality of the service encounter. Ultimately, both non-financial and financial performance are enhanced.

The final CSF within the TQM framework that has a direct impact on non-financial and financial performance is Culture and Communication. From this we can conclude the importance of effective communication throughout the organisation, and the need for a common organisational culture that is quality-oriented. From such a culture, a climate of trust among the workforce is developed and in such an environment, employees become more committed, motivated, and willing to pursue the company goals of customer service, and ultimately, profit.

As a final conclusion it can be seen that non-financial and financial performance are strong correlated with each other. This is not surprising as success in all the areas indicated by the CSFs makes for an organisation that is focused on its goals, and in placing all its effort through its TQM philosophy on the overall goal of providing excellent customer service, the organisation is bound to achieve good financial outcomes. It can therefore, be concluded that these CSFs are both ingredients of an effective TQM programme, and the means by which financial performance is guaranteed.

The fifth objective was concerned with validating the research model generated as having sufficient explanatory power to predict which factors are important in producing the desired organisational performance in both financial and non-financial terms. As reported already, seven of the constructs were able to predict non-financial performance (CF, CI, EE, MC, CC, IA and TE), and four were able to predict financial performance (MC, CF, NF and CI). The conclusion to be drawn is clearly that service organisations in the Jordanian economy must give special attention to management commitment, the need for a customer focus, and the need for continuous improvement if they genuinely want to implement a sound TQM programme which will bring rewards in profit terms. It is also concluded that the research model is validated as it is capable of substantial explanatory power (83% of the total variance), and can therefore offer a robust appreciation of the factors that support/impinge upon the implementation of TQM, and the subsequent financial and non-financial performance in Jordanian service companies.

6.3 Contribution to Knowledge

The study findings make both a theoretical contribution, and a practical contribution in terms of management practice within the particular environment of TQM implementation in the Jordanian service sector. These contributions are now discussed.

6.3.1 Theoretical Contributions

Several theoretical contributions are made to the literature in the field of TQM, both in general terms, and in respect of the particular environment pertaining to Jordan's service sector organisations.

From the wider viewpoint of TQM in any setting, the study has contributed to the literature by developing a generic TQM implementation framework which identifies the link between the various TQM CSFs, and the subsequent non-financial, and financial performance of a service organisation. In identifying this relationship, the study has introduced a new perspective concerning which CSFs within the overall TQM approach are vital to the non-financial performance, and subsequently to the financial success of the organisation, and it has done so via statistical testing. The research provides a strong contribution to current knowledge through utilising the various existing frameworks to devise and develop a model that is unique. Building upon current discourse, the research has commenced from a wide perspective of

TQM and through structural testing and modelling created a framework that is specific to the service sector and in particular one that is developing. This provides unique insight into a particular sector and potentially signposts understanding of TQM practices, avenues for growth and the financial and non-financial implications that exist where quality practices are still limited. As such, the model provides signposting for industries, sectors and countries that are currently under-developed in TQM and have high level of potential to embed a more robust TQM strategy.

It is also noteworthy that the emergent model has strong similarities to previous TQM models and practices as expected. Nonetheless, it also extends upon these and identifies particular factors also affect TQM practices. This extends current theory towards the consideration of new factors of TQM and TQM success and in particular within the scope of service sectors.

Particularly, in the Jordanian context, however, this contribution is valuable as it represents the first study to probe so deeply into a set of hypotheses concerning TQM implementation that were essentially constructed on the basis of the existing literature, and therefore, related to more Western environments. The outcome, which shows the proposed model to be appropriate in the Jordanian service sector, which has different cultural predispositions from previous research contexts and might therefore be expected to promote differing results, is therefore interesting as it suggests that there might be even wider application of the model to other economic sectors within Jordan and in other Arab countries in a similar stage of development. Given that such a framework for TQM implementation has not been tested in the Middle East to the author's knowledge, the study has made a substantial addition to the understanding of the main constructs that combine to enable successful TQM implementation in these new contexts. Hence, there is a direct contribution to the management literature of the Middle East.

In this respect, it is worthy to note that a sound conceptual grasp of TQM is still not present in Jordan, where the business environment is in a state of rapid flux. This fragmented appreciation of TQM has been addressed as the study takes a step towards creating a more robust theory through its empirical observations in the developing service sector within Jordan, and its comprehensive exploration of the international literature, which has been shown to have applicability. Hence, the outcomes from diverse studies have enabled the formulation of an integrated

perspective which recognises the contributions made by the quality gurus (Deming, Juran, Crosby, Feigenbaum, and Ishikawa), the three quality award models (the Deming Prize, the European Quality Award, and the American Malcolm Baldrige National Quality Award), and the current researchers in the TQM arena.

Furthermore, the strategic position of Jordan, as a Middle Eastern country with a reputation for stability, makes Jordan a good role model in this time of radical change in the developing Arab countries. Jordan's commitment to TQM which can be enhanced via this study's recommendations, places Jordan in a good position to promote the TQM philosophy required to allow the necessary economic restructuring in the surrounding Arab countries. Shifts of this kind can have positive impacts upon regional economic development and security, and consequently, the study edges into that aspect of the literature dealing with those concepts.

The study also makes a theoretical contribution in as much as it has validated instruments for evaluating the degree of TQM implementation, and also for measuring financial and non-financial performance. These instruments are now at the disposal of others investigating TQM implementation.

Finally, this study has made a contribution to the TQM literature by validating the direct and indirect relations among TQM practices and the effects of these practices on the financial and non-financial performance of service sector organisations; and the influence of non-financial performance on financial performance. As such, it is clear that there is an inherent relationship between performance (financial and non-financial) with the use of TQM practices and TQM strategy. The research indicates that this is also evident in the service sector and in a region where TQM has potential for development. The model provides a more holistic understanding through extending the notion TQM combined with performance elements (financial and non-financial) that are vital in a firm. This comprehensive model is the first in the service sector and provides a unique overview of TQM. Hence, the study has widened knowledge since previous research efforts have only focused on the direct and indirect relationships between the CSFs. The inclusion of financial and non-financial outcomes makes a contribution to that section of the TQM literature concerned with the benefits of successful implementation.

6.3.2 Practical Contributions

The study also brings new knowledge into the practical situation, specifically for the use of managers in Jordan's service sector, but by extension to managers in service organisations in other developing Arab and Middle Eastern countries in general. This study also makes a significant contribution to organisations in service and operations and productions industries in developing and developed countries in as well. This new knowledge consists of insight into the various principles underpinning a successful TQM initiative, and the techniques required to ensure effective implementation. It is true that awareness of quality programmes is not low in Jordan, but nonetheless, it takes time for TQM implementations to acquire maturity, and the Jordanian case is one where this maturity has not yet been reached. Consequently, the insights regarding how to actually manage a TQM initiative are valuable, and the information that comes from the model developed in the study allows service organisations to enhance their TQM implementation as it provides the tools to identify which CSFs are in need of attention, and which quality management methods need to be introduced or bolstered. Essentially, the model can function as an evaluation tool to assess the maturity of a firm's quality management.

With the new knowledge offered to practitioners through the framework proposed by the study, the current practices of TQM implementation can be greatly enhanced. Management will be assisted in making crucial TQM-related decisions, firms can use their available resources more sensitively, and the overall improvement effort can be better supported. Hence, the maximum benefits can be derived from the TQM programmes implemented.

Moreover, this practical contribution is not limited only to Jordanian service sector firms since as a model coming from the West, and which has been shown to stand up to use in Jordan's service industries, it is possible to argue that the model is transferrable to other Arab countries in a similar stage of development as Jordan, where there are commonalities in the business environments which make it appropriate to generalise in predictions of employee and customer behaviour.

6.4 Practical Implications

Given the findings from the study, and the fact that service organisations in Jordan are keen to improve their TQM programmes and bring them to maturity as successful ventures, a number of managerial implications are made to the particular companies participating in the study. By extension, these implications will also be appropriate to other industries within the overall Jordanian service sector. The implications are made in relation to each of the objectives so that the implications of the findings of each can be seen.

Implications 1:

Objective 1 explored the level of TQM implementation in the Jordanian service sector, finding that there is great awareness among managers and organisations of the value of TQM, and that there are robust attempts being made to implement it. However, it is also clear that many companies have not yet reached maturity in their implementation. The recommendation is, therefore, that all companies that follow TQM programmes should make greater investment in those programmes and that where there is little or no attention paid to quality management, this should be remedied.

Implications 2:

Objective 2 explored the issue of whether type, size, years of TQM implementation, and ISO certification were influential in the success of TQM initiatives. The findings were that size, years of TQM implementation (maturity), and ISO certification were indeed influential in this way, whereas company type was not. Consequently, it is recommended that in non-TQM companies where there has been no attempt to achieve ISO certification, thought should be given to pursuing this as an initial objective as the criteria required in this respect can serve as guidance to managers in their formulation of a basic quality infrastructure that will serve to underpin the more sophisticated processes associated with TQM.

It is also recommended that companies that have adopted TQM and have some years' experience of implementation, and that have subsequently reached a degree of maturity, also aim for one of the international Quality Awards, since the process of securing one of these will fine-tune the existing TQM implementation, and bring benefits in the domestic and international marketplace..

Implications 3:

Objective 3 sought to identify the principal critical success factors underpinning effective TQM implementation in the four services industries investigated. The findings were that the following factors were critical in this respect: Management Commitment and Leadership, Customer Focus and Satisfaction, Continuous Improvement, Training and Education, Employee Encouragement, Supplier Partnership, Information/Analysis/Data, Strategic Quality Planning, and Culture and Communication.

Several individual recommendations follow from this, which are:

- A TQM philosophy must be embedded throughout the organisation to ensure successful implementation of TQM principles. All managers throughout organisations must be responsible for completing this task, and must be sufficiently educated and motivated to become effective agents of cultural change. They must therefore be good and informed leaders in as much as their personal education regarding quality management is concerned. This requires management awareness of global changes in management style, and recognition of the tools available to them (through information technologies) to upgrade their skills and talents in leading the move towards a more customer-focused environment. Hence, companies are recommended to instil the TQM philosophy with as much commitment as possible, to trickle this down throughout all levels of the workforce such that it reaches the entire labour compliment.

- Companies should address the need for systematic managerial and operational processes which are capable of identifying where improvements are required, where improvements have been made, and where organisational objectives need to be reappraised. Such a managerial and operational system, properly monitored, is required if companies are to achieve their targets and overall goals (non-financial and financial). The system should offer clarity in terms of the information required to underpin robust decision-making, and create

an unbroken flow of critical information. The system should also have embedded within it, policies that are fair, transparent, and properly communicated throughout the organisation, via communication channels which are open and known by all the workforce. The recommendation is that information is critical for effective quality and service management, and therefore, where companies do not have the necessary communication infrastructure, serious investment must be made to ensure the available tools, technology and programmes that can deliver the critical information required at the right time, and to the right person. It is also recommended that all employees should be appraised of their role in the wider communication process, and their obligations in this respect.

- Companies should institute rigorous education and training initiatives among the entire workforce to ensure that all organisational members are fully aware of TQM philosophy, of the fundamental building blocks within it, of the expectations placed upon them, and of their role in the overall process of continuous improvement. This education and training must be tailored to the existing talents of the workforce such that the necessary skills and abilities to deliver effective TQM implementation are developed, and the right environment can be created for that implementation.

- Companies should encourage employees to participate in TQM implementation not only by providing them with the training and education required (see previous recommendation) but also by adopting sensitive reward policies and practices which recognise the value of human resources, and individual efforts to innovate. They should give attention to employee involvement and empowerment as a means of securing commitment to the TQM philosophy, and preparing employees for change. Additionally, they should provide employees with regular and useful feedback on their performance

- Companies should engage in robust strategic planning to ensure the TQM philosophy remains embedded within and throughout. They are recommended to conduct systematic reviews of their formal TQM

strategy which should be undertaken consistently and via an approach that involves all departments within the company. The strategic plan must also be accepting of environmental changes which demand change within the TQM programme.

Implications 4:

Objective 4 investigated the extent to which the level of TQM CSF implementation influences firm performance, and in this respect it was found that seven CSFs were able to predict non-financial performance (CF, CI, EE, MC, CC, IA and TE), and four were able to predict financial performance (MC, CF, NF and CI). Consequently, it is recommended that companies concentrate particularly on achieving a Customer Focus, Management Commitment, and Continuous Improvement, since these three aspects of TQM are highly influential upon financial performance. They should also focus on Employee Encouragement, Culture and Communication, Information Analysis, and Training and Education since these have a strong influence upon Non-financial performance, and that in turn, has a favourable impact on financial performance.

Implications 5:

Objective 5 sought to provide recommendations concerning the effective implementation of key TQM principles for the benefit of enhanced service delivery in the Jordanian service sector, and those recommendations appear above. However, it is also recommended that companies take the model developed in this study as their blueprint in this respect since it has been tested in the Jordanian service context, and found to be appropriate as a predictor of success.

6.5 Limitations of the Study

It is possible to identify four limitations of the study, which are as follows.

Firstly, the sample is restricted to four types of organisation within the Jordanian service sector, these being banks, hotels, hospitals and communication firms. Although these four sectors represent the major sectors, there is the possibility that the findings may relate only to that sample, and not be transferrable to other organisations within Jordan's service sector, such as for example, schools, colleges, and universities. However, it should be noted that in the hypothesis relating to 'type' of organisation, it was found that no difference emerged in the TQM implementation success reported by the four different types of organisation included in the research, and therefore it could be said with some confidence that TQM principles have value in many different settings. Indeed, the literature reveals its validity and beneficial nature in industry generally. Hence, while the nature of the sample may be viewed as a limitation, it is not an important one, and does not in the researcher's view, hamper the potential for generalisation across Jordan's service sector.

A second limitation lies in the fact that subjective performance measures (via the Likert-type scale statements) were used in the hypothesis testing and in comparing the four different types of company. Additionally, subjective performance measures bring the potential that the information about TQM practices and performance, whilst provided by respondents considered to be knowledgeable in the area, might have been inaccurate or incomplete, given by those respondents in the interests of preserving their organisations' reputation.

And a third limitation relates to the use of a single key respondent when gathering data. It may have been that the level of management selected may not have been sufficiently knowledgeable to accurately rate all of the varied statements given in the questionnaire for collecting data, thereby creating a higher level of random error (Cao and Zhang, 2011). However, efforts were made to target those individuals with the appropriate expertise to give informed responses.

Finally, the study took a cross-sectional approach to explore the impact of TQM CSFs on firm performance, whereas a longitudinal angle may have revealed time components relating to the maturity of TQM CSF implementation, and revealed complementary findings.

6.6 6.6 Directions for Future Research

The limitations indicated in the previous section can all be addressed by future research which bears in mind those shortcomings in its design. Clearly, the global recognition of the value of TQM is a guarantee that research in this area will continue, and here there are opportunities for extension of the methodology of the current study. Specifically, the following opportunities for future research are highlighted.

Given that this study collected managerial perceptions of TQM implementation, it would be useful to use a similar methodology but with a different level of respondent, i.e., to involve employees since the outcomes would give valuable insight into the genuine level of commitment throughout the organisation to the TQM philosophy, rather than providing a focus on what management believes to be the case.

The use of subjective measures to collect the data in this study could be complemented by the employment of more objective quantifiable methods. Such a strategy would provide greater reliability of the findings.

The insignificant relationship between strategic planning, and employee involvement with performance may be indicative of an indirect relationship or a relationship that is non-linear. Such a relationship may involve some mediation by another variable, hence, it would be useful to incorporate the exploration of mediational or indirect relationships between TQM practices.

The design of the current study may be used with or without amendment in other types of service organisation in Jordan, and in other service contexts in other Arab countries to determine whether greater generalisability of the outcomes of this study is possible. It may also be used in other industrial contexts in Jordan, for example, in manufacturing.

In respect of the Jordanian service sector specifically, there is room for a comprehensive study to identify the obstacles that might exist to prevent the effective implementation of the TQM CSFs. Such a study could usefully be tied in with an exploration of the role of organisational culture within Jordan's service sector

as it is likely that any barriers to the implementation of the TQM CSFs will be associated with cultural predispositions.

The influence of the external environment could usefully feature in subsequent research to establish how outside pressures affect management and the potential to fully implement TQM in the Jordanian service sector.

6.7 A Final Word

This study has been conducted with the pervading goal of improving the national development in Jordan although this has not been specifically stated. However, any enhancement of service delivery plays its part in attracting both domestic and international investment and securing the market position of Jordan's service companies. Through the empirical work and literature review undertaken, the researcher has learned much to help assist with that goal, and it is hoped that the recommendations coming from the study will also be valuable in that respect.

In terms of the research journey, this has been a great developmental aspect of the researcher's life, bringing the acquisition of new skills and abilities. These will be put to good use as some of the research opportunities identified will be pursued in the future.

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Appendix 1

Dear respondent,

The researcher is currently engaging in a survey that aimed to assess the critical success factors associated with TQM implementation, and their effects upon performance in the Jordanian service sector this research will contribute in identifying the obstacles of effective implementation of TQM in your company performance, and therefore it can be easily treated.

I would like to confirm that your responses will be analysed collectively and used only for purposes of academic research. Your responses will be kept anonymous and store in a safe place at the university.

After analysing the questionnaires, the researcher is keen to provide the decision maker in your company by the study findings and it is hoped that they well be of benefit. Therefore, I would like to invite you to participate by filling in this questionnaire, which will not take more than 15 minutes.

"I have read the information sheet provided and I am happy to participate. I understand that by completing and returning this questionnaire I am consenting to be part of this research study and for my data to be used as described in the information sheet provided"

Should you need further information please do not hesitate to contact me

Yours Sincerely

Wa'el Alkaraki

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Part (A) general information

1- Which industry sector described your company?

Hotels Sector □Hospitals Sector □Communications Sector □Banking Sector

□ **Other (please specify)……..**

1. في أي من القطاعات التالية تعمل بها مؤسستك؟
   a. قطاع الفنادق
   b. قطاع الخدمات الصحية والمستشفيات
   c. قطاع الاتصالات
   d. قطاع البنوك

2- Your highest educational level.

□ Secondary education

□ College

□ Bachelor degree

□ Master Degree

□ PhD Degree

□ Other …….. Please specify…….

2. ما هي أعلى درجة علمية حصلت عليها؟
   a. الثانوية العامة
   b. الدبلوم
   c. البكالوريوس
   d. الماجستير
   e. الدكتوراه
   f. أخرى .....

3- years of service in the company

□3 year or less

□ 4-5 year

□ 6-10 years

□ More than 10 years

3. ما هو عدد السنوات التي قضيتها في العمل داخل المؤسسة؟
   a. 3 سنوات فأقل
   b. من 4 الى 5 سنوات
   c. من 6 الى 10 سنوات
   d. أكثر من عشرة سنوات

ا **4- Your position**

□ Manager

□ Financial Manager □ Quality manager

□ Other …….. Please specify…….

4. ما هو مسماك الوظيفي الحالي؟
   a. مدير

b. مدير مالي
c. مدير جودة
d. أخرى ...

5- What is the total number of permanent employees in your company?

Less than 50

50-99

100-249

250-499

500 or more

5. ما هو عدد الموظفين الدائمين في المؤسسة ؟
a. أقل من 50
b. من 50 -99
c. من 100 -249
d. من 250 – 499
e. 500 او اكثر

6- Is your company certified with ISO?

Yes

No

If yes, please specify …….

6. هل حصلت شركتك على احدى شهادات الأيزو؟
a. نعم
b. لا
c. في حالة الإجابة بنعم اذكرها

7- Which kind of Quality Award has you company obtained?

Only local quality award (example (King Abdullah II Award for Excellence))

Only international quality award (example (European Foundation Quality Model (EFQM)))

Local and international award nothing

7. ما نوع جوائز الجودة التي حصلت مؤسستك عليها؟
a. جوائز جودة محلية فقط
b. جوائز جودة دولية فقط
c. جوائز جودة محلية ودولية

8- How **long your company implement the TQM?**

Less than 1 year.

1-3.

4-6.

More than 6 years.

8. كم عدد سنوات التطبيق لإدارة الجودة الشاملة في مؤسستك؟
a. اقل من سنة
b. من 1 – 3
c. من 4 – 6
d. أكثر من 6 سنوات

Part (B) On a scale ranging from strongly disagree (1) to strongly agree (5), please indicate your level of agreement/disagreement regarding the following statements:

من خلال مقياس ليكرت من (5) الرجاء اختيار أحد الدرجات الخمسة التي تصف رأيك بالعبارات التالية (1: غير موافق بشدة، 5: موافق بشدة):

	Management Commitment and Leadership **التزام الإدارة والقيادة**	1 Strongly disagree	2 disagree	3 neutral	4 agree	5 Strongly agree
1	Our top management actively participates in quality management and improvement process. الإدارة العليا تشارك بفعالية في إدارة الجودة وتطوير العمليات					
2	Our top management learns quality-related concepts and skills. الإدارة العليا تعلم مهارات ومفاهيم الجودة					
3	Our top management strongly encourages employee involvement in quality management and improvement activities. الإدارة العليا تشجع الموظفين على المشاركة في عمليات إدارة الجودة وتطوير العمليات					
4	Our top management arranges adequate resources for employee education and training. الإدارة العليا توفر الموارد اللازمة لتدريب وتعليم الموظفين					
5	Our top management discusses many quality-related issues in top management meetings. الإدارة العليا تقوم بمناقشة مواضيع تتعلق بالجودة في اجتماعاتها					
6	Our top management focuses on product quality rather than yields. الإدارة العليا تركز على جودة المنتج وليس على انتاج الكميات الكبيرة					
7	Our top management pursues long-term business success. الإدارة العليا تسعى لتحقيق النجاحات طويلة الأمد					
8	Our top management actively encourages change in moving towards 'Best Practice'. الإدارة العليا تسعى الى التغيير نحو الأفضل					
9	Our top management clearly identify quality goals for employees to achieve. تضع الإدارة العليا أهداف جودة واضحة للموظفين لتحقيقها					
10	Our top management views quality as more important than cost and schedules objectives. الإدارة العليا تولى الجودة أهمية أكبر من التكاليف المالية والمحددات الزمنية					
11	Our top management implements a culture of trust/involvement/commitment in moving towards 'Best Practice'. تطبق الإدارة العليا مبدأ الثقة، المشاركة، الالتزام وذلك لتحقيق أفضل الطرق والأساليب.					

	Customer focus and Satisfaction رضا العميل	1 Strongly disagree	2 disagree	3 neutral	4 agree	5 Strongly agree
1	Our company knows our external customers' requirements المؤسسة على دراية تامة بحاجة العملاء					
2	In designing new products and services our company uses the requirements of domestic customers. عند تصميم منتج او خدمة جديدة تأخذ المؤسسة حاجات العملاء بعين الاعتبار					
3	Our company has an effective process for resolving external customers' complaints. المؤسسة تتبع أساليب فعالة في معالجة شكاوى العملاء					
4	Customer complaints are used as a method to initiate improvements in our company's current processes. تستخدم شكاوى العملاء كآلية لتطوير العمليات داخل المؤسسة					
5	Our company systematically measures external customer satisfaction. تقوم المؤسسة بقياس رضا العميل					
6	Our company collects extensive complaint information from customers. تجمع الشركة معلومات كبيرة من شكاوى العملاء					
7	Customers feedback are utilised for quality improvement التغذية الراجعة من العملاء تستخدم لتطوير عمليات الجودة					
8	Communication training process emphasise customer focus. تعزز عمليات التدريب من درجة خدمة العملاء					
9	Quality-related customer complaints are treated with top priority شكاوى العملاء المتعلقة بالجودة لها الأولوية الكبرى في التعامل معها وحلها					
10	Our company has been customer focused for a long time. المؤسسة تركز على رضا العميل منذ فترة طويلة					

	Continuous improvement التطوير المستمر	1 Strongly disagree	2 disagree	3 neutral	4 agree	5 Strongly agree
1	Our company improves systematically key processes to achieve better service. تقوم لمؤسسة بتطوير العمليات بشكل منتظم وذلك للوصول لأفضل الخدمات					
2	We regularly measure the services and processes quality. تقوم المؤسسة وبشكل منتظم بتطوير جودة العمليات بشكل منتظم ودائم					

3	Our company regularly monitors improvement in quality of service and processes. تراقب وتتحكم المؤسسة بعمليات التطوير الحاصلة في الخدمات لديها					
4	We have a program aimed at finding time and cost loses in internal processes. يوجد نظام داخلي في المؤسسة يعمل على إيجاد وتحديد الوقت والأموال الضائعة					
5	Our company uses “the seven quality control (QC) tools”* extensively for process control improvement. تستخدم المؤسسة ادوات ضبط الجودة السبعة في عمليات تطوير العمليات					
6	Our company employs PDCA (plan-do-check-adjust) cycle extensively for process control and improvement. تستخدم الوسائل ألية ديمينغ (التخطيط – الفعل – الفحص – التصحيح) في تطوير العمليات					
7	I believe targeted quality-related data assesses performance of all the departments أنا أؤمن ان بيانات الجودة تساهم في تقييم أداء المديريات في المؤسسة					
8	I believe suitable feedback is provided to employees on their quality performance. أنا أؤمن بأن الشركة تقوم بتقديم التغذية الراجعة الملائمة للموظفين فيما يتعلق بمواضيع الجودة					
9	Our decisions regarding quality improvement always are based on objective data. القرارات الصادرة والتي تتعلق بتطوير جودة المليات تبنى على أسس منطقية وسليمة					

*The seven tools are: Cause-and-effect diagram (also known as the "fishbone" or Ishikawa diagram), Check sheet, Control chart, Histogram, Pareto chart, Scatter diagram, Stratification (alternately, flow chart or run chart).

	employee involvement **اشراك الموظفين**	1 Strongly disagree	2 disagree	3 neutral	4 agree	5 Strongly agree
1	Our company undertakes employees’ involvement type quality programmes (e.g. quality circles, quality improvement teams or other). تقوم المؤسسة بإشراك الموظفين في برامج الجودة (حلقات الجودة، فرق تطوير الجودة)					
2	Building Quality awareness among employees is an ongoing process in the company. عمليات توعية الموظفين عن الجودة هي عملية مستمرة في المؤسسة					
3	The company utilizes teamwork structures for process improvement. تقوم المؤسسة ببناء فرق العمل بما يمكنها من تطوير العمليات					
4	Employee’s suggestions are highly considered in our company. تهتم المؤسسة بآراء الموظفين وتوليها أهمية كبيرة					
5	Reporting work problems is encouraged in our company. تشجع المؤسسة الموظفين على الإبلاغ عن المشاكل في العمل					

6	Employees are keenly concerned in quality-related issues. الموظفون يهتمون ويركزون على الأمور التي تتعلق بالجودة					
7	Top management Push decision making to the lowest practical level. الإدارة العليا تدفع نحو القرارات الى الحد الأدنى العملي					

	Training and education التدريب والتعليم	1 Strongly disagree	2 disagree	3 neutral	4 agree	5 Strongly agree
1	Our company encourages employees to accept education and training in our company. تشجع المؤسسة الموظف على قبول التعلم والتدريب داخلها					
2	Our company gives quality awareness education to employees. تقوم المؤسسة بعقد ورشات التوعية المتعلقة بالجودة للموظفين					
3	Employees are trained in problem-solving skills الموظفون مدربون على مهارات حل المشكلات					
4	Employees are trained in teamwork يدرب الموظفون في حلقات تدريب جماعية					
5	Our company regards employees as valuable, long-term resources worthy of receiving education and training throughout their career تعتبر المؤسسة الموارد البشرية كمورد ذو قيمة أساسية للمؤسسة واستثمار طويل المدى ولذلك لا بد ان يحصل على تدريب مناسب خلال سنوات عمله					
6	Our company allocates sufficient funds for employee training on quality matters تخصص المؤسسة ميزانية محددة لتدريب الموظفين فيما يتعلق بالجودة					
7	Employees' performance is measured and recognized in order to support quality programs أداء الموظفين يقاس ليدعم برامج الجودة					
8	Resources are available for employee education and training in our company. الموارد متوفرة لتدريب وتعليم الموظفين في المؤسسة					
9	Most employees in our company are trained on how to use quality management methods (tools). معظم الموظفين في المؤسسة مدربون على أدوات تطوير الجودة					

	Employee encouragement تشجيع وتحفيز الموظفين	1 Strongly disagree	2 disagree	3 neutral	4 agree	5 Strongly agree
1	There are regular formal measurement of employee satisfaction. يوجد نموذج رسمي واعتيادي لقياس الرضى الوظيفي					
2	We have transparent and effective appraisal system for recognizing and rewarding. لدى المؤسسة نظام يقيم يقيس أداء الموظفين ويرتبط بالمكافآت والحوافز					

3	Our company provides a safe and healthy work environment توفر المؤسسة بيئة عمل صحية وآمنة					
4	Our company stresses teamwork and team spirit. تشجع المؤسسة العمل الجماعي وروح الفريق					
5	Our company improves working circumstances in order to distinguish employee quality enhancement efforts. تقوم المؤسسة بتحسين ظروف العمل وذلك لتميز الجهود التي يبذلها الموظفين من اجل تحسين جودة العمل					
6	Our company motivates supports and encourages employees. تقوم المؤسسة بتحفيز ودعم وتشجيع الموظفين					
7	Position promotions are based on work quality in our business. الترقية في العمل تعتمد على جودة العمل					
8	Our management motivates employees and fully develops their potential. تحفز الإدارة الموظفين وتقوم بتطوير أدائهم					
9	Recognition and remuneration activities efficiently encourage employee assurance to quality improvement. التقدير وزيادات الأجور تشجع الموظفين على التطوير من جودة العمل					

	Supplier Partnership الشراكة مع الموردين	1 Strongly disagree	2 disagree	3 neutral	4 agree	5 Strongly agree
1	Our company strives to establish long-term relationships with suppliers. تسعى المؤسسة لبناء علاقات طويلة المدى مع الموردين					
2	Our company relies on a small number of high quality suppliers. تعتمد المؤسسة على عدد قليل من الموزعين من ذوي الجودة العالية					
3	Our suppliers are evaluated according to quality, delivery performance and price, in that order. يتم تقييم الموردين من خلال جودة المواد وموعد التسليم والأسعار					
4	Our company has a thorough supplier rating system. لدى الشركة نظام ترتيبي (تقييمي) للموردين					
5	Our suppliers are involved in our quality training. ينخرط الموردون في تدريبات المؤسسة التي تتعلق بالجودة					
6	Our company provides technical assistance to our suppliers. تقدم المؤسسة المساعدة الفنية للموردين					
7	Our suppliers are selected based on quality instead of price or schedule يتم اختيار الموردين على الجودة وليس السعر او موعد التسليم					

	Information/Analysis /Data المعلومات / التحليل / البيانات	1 Strongly disagree	2 disagree	3 neutral	4 agree	5 Strongly agree
1	Our company presents and transmits important information to employees. تقوم لمؤسسة بعرض ونقل المعلومات الهامة للموظفين					
2	Our company collects and analyses data related to its activities. تقوم المؤسسة بجمع وتحليل البيانات بما يتعلق بنشاطاتها					
3	Our company harnesses information to improve its key processes, products and services. تقوم المؤسسة بالاستفادة من المعلومات لغايات تطوير عملياتها الأساسية ومنتجاتها وخدماتها					
4	Our company has precise data about the competition used to identify areas of improvement لدى المؤسسة معلومات دقيقة عن المنافسين وذلك للإفادة منها في تعريف الأماكن التي تحتاج للتحسين					

	Strategic quality planning تخطيط الجودة الاستراتيجي	1 Strongly disagree	2 disagree	3 neutral	4 agree	5 Strongly agree
1	Our company bases the development and implementation of strategies and plans on data concerning customers' requirements and the firm's capabilities. تضع المؤسسة خططها واستراتيجياتها بناء على حاجات العملاء وقدراتها					
2	Our management sets objectives for managers. تضع الإدارة العليا الأهداف للمدراء					
3	Our management sets objectives for all employees تضع الإدارة الأهداف للموظفين					
4	Our management communicates its strategy and objectives to the whole staff. تقوم الإدارة باطلاع جميع الموظفين على الأهداف والخطة الاستراتيجية للمؤسسة					
5	Our management involves the employees in the setting of its objectives and plans. تشرك الإدارة الموظفين في عمليات وضع الأهداف والخطط					
6	Results are evaluated by comparing them to planned results, in order to make improvements تقيم النتائج الفعلية من خلال مقارنتها بالنتائج المتوقعة وذلك للقيام بعمليات التطوير					

	Culture and communication البيئة والاتصالات	1 Strongly disagree	2 disagree	3 neutral	4 agree	5 Strongly agree
1	Continuous quality improvement is part of all employees' responsibility rather than of the quality department alone. عمليات تطوير الجودة المستمرة هي مسؤولية جميع الموظفين وليست مسؤولية دائرة الجودة لوحدها					
2	Our company attaches importance to start employee coaching with the concept of quality rather than the policy. تولى المؤسسة الأهمية في تدريب الموظفين على معاني الجودة اكثر من السياسات					
3	All employees are ready and willing to be trained and educated with new concept on quality. جميع الموظفين في المؤسسة يمتلكون الرغبة والجهوزية لتلقي التدريب والتعليم حول معاني ومهارات الجودة الجديدة					
4	Our company establishes long-term goals related to quality. تبني المؤسسة أهداف جودة طويلة المدى					
5	Our company develops a company-wide culture of quality تتبنى المؤسسة ثقافة الجودة على مستوى جميع الأقسام					

	Benchmarking المقارنات المعيارية	1 Strongly disagree	2 disagree	3 neutral	4 agree	5 Strongly agree
1	Our company is engaged in extensive benchmarking of competitors' service that are similar to our primary service. تقوم المؤسسة بعمليات المقارنة المعيارية مع منافسيها في نفس قطاع العمل					
2	Our company has engaged in extensive benchmarking of other companies' business processes in other industries. تقومالمؤسسةبعملياتالمقارنةالمعياريةمع المؤسسات الأخرى فيقطاعاتعمل مختلفة					
3	Benchmarking has helped improve our service. المقارنات المعيارية أدت الى تطوير الخدمات في المؤسسة					
4	The quality system in our company is continuously improving. نظام الجودة في المؤسسة في حالة تطور مستمر					

	Social and environmental responsibility المسؤولية المجتمعية والبيئية	1 Strongly disagree	2 disagree	3 neutral	4 agree	5 Strongly
1	Our company considers public health issues as a company responsibility. تهتم المؤسسة بالصحة العامة للمجتمع وتعدها أحد مسؤولياتها					
2	Our company considers public safety issues as a company responsibility. تهتم المؤسسة بالسلامة العامة للمجتمع وتعدها أحد مسؤولياته					
3	Our company considers environmental issues as a company responsibility. تهتم المؤسسة بالبيئة المحيطة وتعدها أحد مسؤولياته					
4	Our company extends its quality commitment to the external community. تعكس المؤسسة التزامها بالجودة على المحيط الخارجي من حولها					

	Non- Financial performance & operational	1 Strongly disagree	2 disagree	3 neutral	4 agree	5 Strongly
1	Our company has a high percentage of suppliers' on-time deliveries. يقوم الموردون بتسليم البضائع بالوقت المحددة وبنسبة عالية					
2	Our company has a high reputation for providing quality service. تمتلك المؤسسة سمعة عالية فيما يتعلق بجودة الخدمات					
3	Our company has high overall level of customer satisfaction لدى المؤسسة درجة مرتفعة من رضى العملاء					
4	Our company has high skill level of employees. تمتلك المؤسسة موظفين ذووا مهارات عالية					
5	Our company has high level of employee satisfaction. تمتلك الشركة درجة عالية من الرضى الوظيفي					
6	I believe our company has high Productivity. تمتلك المؤسسة درجة عالية من الإنتاجية					
7	Our company has high number of repeat customers. تمتلك المؤسسة عدد كبير من العملاء الدائمين					
8	Our company has low number of customer complaints. تمتلك المؤسسة نسبة قليلة من شكاوى العملاء					
9	Our company has low level of employee absenteeism. تمتلك المؤسسة نسبة قليلة من التغيب الوظيفي الناجم عن المرض					

10	Our company has high percentage of on-time deliveries. تمتلك المؤسسة نسبة عالية في معدل إيصال الخدمات للعملاء في الموعد المحدد					
11	Our company has law level of employee turnover. تمتلك المؤسسة معدل دوران وظيفي منخفض					

	Financial performance	1 Strongly disagree	2 disagree	3 neutral	4 agree	5 Strongly agree
1	Over the last three years, we had increases in debt-to-equity ratio. في السنوات الثلاث الأخيرة ارتفعت نسبة الدين الى حقوق الملكية في المؤسسة					
2	Our company has increases in net profit as a percentage of net assets (return on asset). لقد ارتفعت نسبة العائد الى الموجودات في المؤسسة					
3	Over the last three years our revenue growth has increased لقد ارتفعت نسبة المبيعات في المؤسسة					
4	Our company has increases in gross profit as a percentage of sales (return on sales). لقد ارتفعت نسبة العائد المالي من مبيعات المؤسسة					
5	Over the last three years our market share has increased. في السنوات الثلاث الأخيرة تم زيادة حصة المؤسسة السوقية					

Thank you for taking time in filling the questionnaire

Appendix 2

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Mean_MC	314	2.10	5.00	3.7691	.61356
Mean_CF	314	2.11	4.89	3.6890	.67730
Mean_CI	314	2.11	4.89	3.6398	.52918
Mean_EI	314	2.14	4.86	3.5514	.59992
Mean_TE	314	2.22	4.78	3.5708	.65950
Mean_EE	314	2.11	4.67	3.6288	.66312
Mean_SP	314	2.17	4.83	3.4931	.61157
Mean_IA	314	2.00	5.00	3.6521	.76761
Mean_SQ	314	2.17	8.67	3.5993	.69083
Mean_CC	314	2.00	5.00	3.6070	.66020
Mean_BM	314	1.25	5.00	3.4363	.78342
Mean_SR	314	1.33	4.00	2.8132	.69005
Mean_NF	314	2.27	4.82	3.6314	.71748
Mean_F	314	1.00	5.00	3.4459	.77859

MC	N	Minimum	Maximum	Mean	Std. Deviation
MC1	314	1.00	5.00	3.7707	.89280
MC2	314	1.00	5.00	3.8280	.88059
MC3	314	2.00	5.00	3.7580	.89301
MC4	314	2.00	5.00	3.7580	.87858
MC5	314	2.00	5.00	3.7325	.88207
MC6	314	2.00	5.00	3.7834	.85586
MC7	314	2.00	5.00	3.7643	.86568
MC8	314	2.00	5.00	3.7962	.88103
MC9	314	2.00	5.00	3.8089	.87298
MC10	314	2.00	5.00	3.7134	.85387
MC11	314	1.00	5.00	3.7675	.90088

CF	N	Minimum	Maximum	Mean	Std. Deviation
CF1	314	1.00	5.00	3.8344	.88903
CF2	314	2.00	5.00	3.7325	.88207
CF3	314	1.00	5.00	3.6720	.82921
CF4	314	1.00	5.00	3.8280	.92310
CF5	314	1.00	5.00	3.6847	.97211
CF6	314	1.00	5.00	3.7516	.83575
CF7	314	1.00	5.00	3.7898	.87223
CF8	314	2.00	5.00	3.7516	.90194
CF9	314	1.00	5.00	3.6943	.82425
CF10	314	2.00	5.00	3.7866	.96040

CI	N	Minimum	Maximum	Mean	Std. Deviation
CI1	314	1.00	5.00	3.7452	.80259
CI2	314	1.00	5.00	3.6529	.80961
CI3	314	1.00	5.00	3.7070	.81724
CI4	314	1.00	5.00	3.6051	.83653
CI5	314	1.00	5.00	3.6242	.80663
CI6	314	1.00	5.00	3.4809	.78806
CI7	314	2.00	5.00	3.6975	.87247
CI8	314	2.00	5.00	3.5987	.77385
CI9	314	2.00	5.00	3.6433	.78738

EI	N	Minimum	Maximum	Mean	Std. Deviation
EI1	314	1.00	5.00	3.5573	.82584
EI2	314	2.00	5.00	3.4682	.85382
EI3	314	1.00	5.00	3.5669	.77314
EI4	314	2.00	5.00	3.6306	.73076
EI5	314	1.00	5.00	3.5318	.85756
EI6	314	1.00	5.00	3.5478	.84932
EI7	314	2.00	5.00	3.5541	.86016
	314				

TE	N	Minimum	Maximum	Mean	Std. Deviation
TE1	314	2.00	5.00	3.6242	.91431
TE2	314	2.00	5.00	3.6146	.83527
TE3	314	2.00	5.00	3.4682	.90116
TE4	314	2.00	5.00	3.5350	.92552
TE5	314	2.00	5.00	3.5573	.85623
TE6	314	2.00	5.00	3.5924	.90406
TE7	314	2.00	5.00	3.6083	.82458
TE8	314	2.00	5.00	3.5318	.84252
TE9	314	2.00	5.00	3.6051	.92711

EE	N	Minimum	Maximum	Mean	Std. Deviation
EE1	314	2.00	5.00	3.5191	.82761

EE2	314	1.00	5.00	3.5732	.90228
EE3	314	2.00	5.00	3.6847	.92496
EE4	314	2.00	5.00	3.6529	.94101
EE5	314	2.00	5.00	3.6019	.96129
EE6	314	2.00	5.00	3.5732	.87714
EE7	314	1.00	5.00	3.6242	.80663
EE8	314	2.00	5.00	3.6115	.90189
EE9	314	2.00	5.00	3.8185	.85843
Valid N (listwise)	314				

SP	N	Minimum	Maximum	Mean	Std. Deviation
SP1	314	2.00	5.00	3.7261	.85805
SP2	314	2.00	5.00	3.3694	.82908
SP3	314	2.00	5.00	3.4809	.82374
SP4	314	2.00	5.00	3.4268	.87349
SP5	314	2.00	5.00	3.4554	.86071
SP6	314	2.00	5.00	3.5000	.86556
SP7	314	2.00	5.00	3.4777	.88715
Valid N (listwise)	314				

IA	N	Minimum	Maximum	Mean	Std. Deviation
IA1	314	2.00	5.00	3.6561	.91291
IA2	314	2.00	5.00	3.6401	.91200
IA3	314	2.00	5.00	3.6656	.85328
IA4	314	2.00	5.00	3.6465	.91798
Valid N (listwise)	314				

SQ	N	Minimum	Maximum	Mean	Std. Deviation
SQ1	314	2.00	5.00	3.6624	.81169
SQ2	314	2.00	5.00	3.5828	.83904
SQ3	314	2.00	5.00	3.5382	.80343
SQ4	314	2.00	5.00	3.5828	.85787
SQ5	314	2.00	5.00	3.5892	.86094
SQ6	314	2.00	5.00	3.5446	.88991

CC	N	Minimum	Maximum	Mean	Std. Deviation
CC1	314	2.00	5.00	3.6083	.88801
CC2	314	2.00	5.00	3.5796	.88384
CC3	314	2.00	5.00	3.5701	.88826

CC4	314	2.00	5.00	3.6465	.81079
CC5	314	2.00	5.00	3.6306	.92039
Valid N (listwise)	314				

MB	N	Minimum	Maximum	Mean	Std. Deviation
BM1	314	1.00	5.00	3.3758	.97190
BM2	314	1.00	5.00	3.4618	.99847
BM3	314	1.00	5.00	3.4459	1.01676
BM4	314	1.00	5.00	3.4618	.99847
Valid N (listwise)	314				

SR	N	Minimum	Maximum	Mean	Std. Deviation
SR1	314	1.00	5.00	2.9618	1.01984
SR2	314	1.00	5.00	2.6720	1.01618
SR3	314	1.00	5.00	2.5000	.99279
SR4	314	1.00	5.00	2.8057	.90992
Valid N (listwise)	314				

	N	Minimum	Maximum	Mean	Std. Deviation
NF1	314	1.00	5.00	3.6720	.87056
NF2	314	2.00	5.00	3.5796	.93308
NF3	314	2.00	5.00	3.7006	.92162
NF4	314	1.00	5.00	3.5191	.94647
NF5	314	2.00	5.00	3.6369	.85836
NF6	314	2.00	5.00	3.6338	.89885
NF7	314	1.00	5.00	3.6274	1.01962
NF8	314	2.00	5.00	3.6115	.88401
NF9	314	2.00	5.00	3.6656	.92167
NF10	314	1.00	5.00	3.6688	.90004
NF11	314	1.00	5.00	3.6306	1.00660

	N	Minimum	Maximum	Mean	Std. Deviation
F1	314	1.00	5.00	3.4140	.87598
F2	314	1.00	5.00	3.3981	.93090
F3	314	1.00	5.00	3.3949	.90971
F4	314	1.00	5.00	3.5350	.93582
F5	314	1.00	5.00	3.4873	.90869
Valid N (listwise)	314				

Appendix 3

Third Run

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.938
Bartlett's Test of Sphericity	Approx. Chi-Square	16426.074
	df	2415
	Sig.	.000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	24.764	35.377	35.377	24.764	35.377	35.377	7.315	10.450	10.450
2	3.870	5.529	40.906	3.870	5.529	40.906	5.586	7.980	18.430
3	3.616	5.166	46.073	3.616	5.166	46.073	5.503	7.861	26.291
4	2.497	3.567	49.640	2.497	3.567	49.640	4.446	6.352	32.643
5	2.279	3.256	52.896	2.279	3.256	52.896	4.414	6.305	38.948
6	2.155	3.079	55.975	2.155	3.079	55.975	4.397	6.281	45.230
7	2.046	2.922	58.898	2.046	2.922	58.898	3.833	5.476	50.706
8	1.740	2.486	61.383	1.740	2.486	61.383	3.649	5.213	55.919
9	1.530	2.186	63.569	1.530	2.186	63.569	3.612	5.160	61.078
10	1.507	2.153	65.723	1.507	2.153	65.723	3.251	4.644	65.723
11	.992	1.417	67.140						
12	.959	1.369	68.510						
13	.917	1.311	69.820						
14	.880	1.258	71.078						
15	.847	1.210	72.288						
16	.780	1.114	73.401						
17	.729	1.041	74.442						
18	.717	1.024	75.467						
19	.699	.999	76.465						
20	.652	.931	77.396						
41	.332	.474	92.004						
42	.319	.455	92.459						
43	.307	.439	92.898						
44	.295	.421	93.320						
45	.285	.408	93.727						
46	.280	.401	94.128						
47	.263	.375	94.503						
48	.257	.367	94.870						
49	.253	.361	95.231						
50	.243	.348	95.579						
51	.232	.332	95.911						
52	.224	.319	96.230						
53	.211	.302	96.532						
54	.205	.292	96.824						
55	.195	.279	97.104						
56	.192	.274	97.377						
57	.180	.258	97.635						
58	.167	.239	97.874						
59	.161	.230	98.104						
60	.156	.223	98.326						
61	.145	.207	98.533						
62	.137	.196	98.729						
63	.131	.187	98.917						
64	.127	.182	99.098						
65	.123	.176	99.274						
66	.115	.164	99.438						
67	.110	.157	99.595						
68	.106	.152	99.747						
69	.092	.132	99.879						
70	.085	.121	100.000						

Extraction Method: Principal Component Analysis.

Rotated Component Matrix[a]

	Component									
	1	2	3	4	5	6	7	8	9	10
CF1	.773									
CF5	.756									
CF7	.748									
CF2	.729									
CF4	.714									
CF3	.682									
CF6	.681									
MC5		.757								
MC1		.702								
MC4		.656								
MC3		.618								
MC2		.601								
MC6		.600								
MC7		.566								
IA3			.727							
IA2			.706							
IA4			.674							
IA1			.643							
EE6				.824						
EE3				.800						
EE5				.777						
EE2				.773						
EE4				.772						
TE5					.803					
TE4					.791					
TE2					.759					
TE3					.734					
TE6					.730					
EI4						.673				
EI1						.666				
EI6						.616				
EI5						.611				
EI2						.606				
EI3						.514				
CI6							.785			
CI4							.738			
CI5							.730			
CI1							.726			
CI2							.684			
CC1								.855		
CC2								.828		
CC3								.813		
SQ6								.792		
SQ5									.814	
SQ4									.791	
SQ3									.784	
SQ1									.773	
SQ2									.738	
SP5										.823
SP3										.757
SP4										.732
SP6										.719

Appendix 4

Initial SEM final model (table 4.45)

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	143	1233.348	803	.000	1.536
Saturated model	946	.000	0		
Independence model	43	9804.773	903	.000	10.858

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.035	.852	.826	.723
Saturated model	.000	1.000		
Independence model	.241	.180	.141	.172

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.874	.859	.952	.946	.952
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.889	.777	.846
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	430.348	339.409	529.228
Saturated model	.000	.000	.000
Independence model	8901.773	8586.869	9223.161

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	3.940	1.375	1.084	1.691
Saturated model	.000	.000	.000	.000
Independence model	31.325	28.440	27.434	29.467

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.041	.037	.046	.999
Independence model	.177	.174	.181	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	1519.348	1566.129	2055.512	2198.512
Saturated model	1892.000	2201.472	5438.926	6384.926
Independence model	9890.773	9904.840	10051.997	10094.997

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	4.854	4.564	5.170	5.004

Model	ECVI	LO 90	HI 90	MECVI
Saturated model	6.045	6.045	6.045	7.033
Independence model	31.600	30.594	32.627	31.645

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	221	229
Independence model	32	33

Final SEM final model (new result after deleting SP and SQ result Amos file table4.47)

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	103	818.064	527	.000	1.552
Saturated model	630	.000	0		
Independence model	35	8083.968	595	.000	13.587

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.034	.874	.849	.731
Saturated model	.000	1.000		
Independence model	.269	.179	.131	.169

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.899	.886	.961	.956	.961
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.886	.796	.851
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	291.064	217.533	372.533
Saturated model	.000	.000	.000
Independence model	7488.968	7201.911	7782.466

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	2.614	.930	.695	1.190
Saturated model	.000	.000	.000	.000
Independence model	25.827	23.926	23.009	24.864

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.042	.036	.048	.992
Independence model	.201	.197	.204	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	1024.064	1050.836	1410.251	1513.251
Saturated model	1260.000	1423.755	3622.118	4252.118
Independence model	8153.968	8163.065	8285.196	8320.196

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	3.272	3.037	3.532	3.357
Saturated model	4.026	4.026	4.026	4.549
Independence model	26.051	25.134	26.989	26.080

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	223	232
Independence model	26	27

Appendix 5

All SEM result accepted and rejected table 4.46

Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
Mean_NF	<---	CC	.065	.033	1.969	.049	par_82
Mean_NF	<---	SP	-.033	.039	-.840	.401	par_83
Mean_NF	<---	IA	.339	.048	6.988	***	par_84
Mean_NF	<---	SQ	-.005	.047	-.102	.919	par_85
Mean_NF	<---	TE	.105	.048	2.188	.029	par_86
Mean_NF	<---	EE	.096	.036	2.642	.008	par_87
Mean_NF	<---	MC	.344	.072	4.765	***	par_88
Mean_NF	<---	CF	.219	.055	3.972	***	par_89
Mean_NF	<---	CI	.167	.045	3.688	***	par_90
CI6	<---	CI	1.000				
CI4	<---	CI	1.169	.087	13.363	***	par_1
CI5	<---	CI	.868	.083	10.479	***	par_2
CI1	<---	CI	1.041	.084	12.436	***	par_3
CI2	<---	CI	1.015	.083	12.230	***	par_4
CF6	<---	CF	1.000				
CF1	<---	CF	1.109	.075	14.753	***	par_5
CF4	<---	CF	1.282	.078	16.476	***	par_6
CF7	<---	CF	1.184	.074	16.055	***	par_7
CF2	<---	CF	1.222	.074	16.495	***	par_8
MC6	<---	MC	1.000				
MC3	<---	MC	1.158	.109	10.663	***	par_9
MC4	<---	MC	1.088	.105	10.321	***	par_10
MC1	<---	MC	1.157	.108	10.679	***	par_11
MC5	<---	MC	1.120	.107	10.473	***	par_12
EE5	<---	EE	1.000				
EE2	<---	EE	.983	.057	17.184	***	par_13
EE3	<---	EE	.974	.059	16.493	***	par_14
EE6	<---	EE	.951	.055	17.338	***	par_15
TE5	<---	TE	1.000				
TE4	<---	TE	1.081	.064	16.993	***	par_16
TE2	<---	TE	1.023	.064	15.990	***	par_17
TE6	<---	TE	1.095	.070	15.543	***	par_18
TE3	<---	TE	1.018	.070	14.561	***	par_19
EE4	<---	EE	1.000	.061	16.476	***	par_20
CC1	<---	CC	1.000				
CC2	<---	CC	.931	.050	18.713	***	par_21
CC3	<---	CC	.992	.049	20.174	***	par_22
IA2	<---	IA	1.000				
IA3	<---	IA	.891	.060	14.769	***	par_23
IA4	<---	IA	1.046	.064	16.379	***	par_24
IA1	<---	IA	1.006	.063	15.999	***	par_25
SP5	<---	SP	1.000				
SP3	<---	SP	.923	.064	14.375	***	par_26
SP4	<---	SP	.903	.070	12.963	***	par_27
SP6	<---	SP	.969	.071	13.728	***	par_28
SQ1	<---	SQ	1.000				
SQ3	<---	SQ	1.285	.108	11.920	***	par_29
SQ5	<---	SQ	1.346	.120	11.182	***	par_30
MC7	<---	MC	.950	.101	9.427	***	par_67
SQ4	<---	SQ	1.190	.116	10.229	***	par_68
Mean_F	<---	CI	.150	.044	3.419	***	par_73
Mean_F	<---	CF	.254	.053	4.759	***	par_74
Mean_F	<---	MC	.212	.073	2.912	.004	par_75
Mean_F	<---	EE	.046	.034	1.326	.185	par_76
Mean_F	<---	TE	.006	.045	.132	.895	par_77
Mean_F	<---	SQ	-.008	.044	-.189	.850	par_78
Mean_F	<---	IA	.042	.050	.833	.405	par_79
Mean_F	<---	SP	-.004	.037	-.106	.915	par_80
Mean_F	<---	CC	.056	.031	1.770	.077	par_81
Mean_F	<---	Mean_NF	.517	.064	8.094	***	par_91

Appendix 6

		Management, Commitment and Leadership	Customer Focus and Satisfaction	Process Practices	Continuous Improvement and Innovation	Employee Involvement	Training and Education	Employee Encouragement	Human-resource	Supplier Partnership	Information Analysis/Data	Strategic Quality Planning	Benchmarking	Culture and Communication	Social and Environnemental Responsabilité	Design and development - Practice	Measurement- practice	Tool and technique- practice	Resource Practice	Role of Quality Department	Other
Saraph Benson and shroeder	1989	1		1		1	1			1	1					1				1	
Black and Porter (1995)	1995		1							1		1		1				1			1
Anderson et al.	1995	1	1	1	1		1		1	1											
Flynn, Schroeder, and Sakakibara	1995	1	1	1					1	1						1					
Powell	1995	1	1	1		1	1		1	1			1				1				
Choi and Liker	1995			1					1		1	1									
Ahire	1996	1	1			1	1	1		1	1		1			1	1	1	1		
Black and Porter (1996)	1996		1							1				1				1			
Adam et al.	1997	1		1		1	1	1	1							1					
Grandzol and Gershon	1997	1		1				1	1	1		1									
Choi and Eboch	1998			1					1		1	1									
Forza and Flippini	1998		1	1						1											1
Ahire and O'Shaughnessy	1998	1	1	1		1	1	1		1	1		1			1					
Solis et al.	1998	1	1						1	1	1	1						1			1
Rungtusanatham et al.	1998	1	1	1	1		1	1		1											
Dow, Samson, and Ford	1999		1			1	1		1	1		1	1			1	1	1			
Samson and Terziovski	1999	1	1	1					1		1	1									
Zhang et al. (2000)	2000	1	1	1		1		1		1		1				1			1		
Das et al.	2000		1				1			1								1			
Wilson and Collier	2000	1		1					1		1	1									
Sun	2000	1	1	1					1	1	1	1									
Brah, Wong, and Rao	2000	1	1	1	1	1	1	1		1			1			1					1
Douglas and Judge	2001	1	1				1										1				1
Ho, Duffy, and Shih	2001						1	1		1											
Cua, McKone, and Schroeder	2001		1	1						1						1					
Agus	2001					1	1			1											
Brah, Lee, and Rao	2002	1	1	1	1				1			1									
Antony et al. (2002)	2002	1	1		1	1	1	1		1	1			1		1				1	
Huarng and Chen	2002	1		1		1		1		1											

		Management, Commitment and Leadership	Customer Focus and Satisfaction	Process Practices	Continuous Improvement and Innovation	Employee Involvement	Training and Education	Employee Encouragement	Human-resource	Supplier Partnership	Information Analysis/Data	Strategic Quality Planning	Benchmarking	Culture and Communication	Social and Environnemental Responsabilité	Design and development - Practice	Measurement- practice	Tool and technique- practice	Resource Practice	Role of Quality Department	Other
Sila and Ebrahimpour (2002)	2002	1	1			1	1	1			1			1							
De Ceiro	2003		1	1	1				1	1						1					
Lee , Rho, and Lee	2003	1	1	1					1		1	1									
Prajogo and Sohal	2003	1	1	1					1		1	1									
Claver, Tari, and Molina	2003	1	1	1	1		1		1	1		1									
Kaynak	2003	1		1		1	1			1	1					1					1
Hasan and Kerr	2003	1		1		1	1			1			1	1		1		1			
Sánchez-Rodríguez and Martínez-Lorente	2004	1							1	1	1		1	1							
Lau, Zhao, and Xiao	2004	1	1	1					1		1	1									
Prajogo and Sohal	2004	1	1	1					1	1	1										
Agus	2004	1	1			1	1						1								
Sila and Ebrahimpour	2005	1	1						1		1	1						1			
Rahman and Bullock	2005		1	1	1	1	1	1	1	1		1									1
Yeung, Cheng, and Lai	2005	1		1														1			1
Prajogo	2005	1	1	1					1	1	1										
Sánchez-Rodríguez and Hemsworth	2005	1							1	1	1		1	1							
Kaynak and Hartley	2005	1	1	1		1	1			1	1					1					
Mellat Parast, Adams, and Jones	2006	1		1					1	1	1	1									
Samat et al. (2006)	2006	1	1		1	1	1	1			1			1							
Sharma	2006	1	1	1		1	1	1		1			1				1	1			1
Fuentes-Fuentes, Montes, and Fernández	2006	1	1	1	1	1	1	1						1							
Lakhal, Pasin, and Limam	2006	1	1	1	1	1	1	1			1										
Brah and Lim	2006	1	1	1	1				1			1									
Hoang, Igel, and Laosirihongthong	2006	1	1	1	1	1	1	1	1		1										1
Lin and Chang	2006	1	1	1			1			1	1										
Demirbag et al.	2006	1	1	1			1		1	1	1										
Das et al (2006)	2006	1	1		1	1	1	1		1			1				1				
Sila 2007	2007	1	1	1					1	1	1	1									
Ou et al.2007	2007	1	1	1					1	1	1					1					
Ooi et al. (2007)	2007		1					1						1				1			
Khamala and Lingaraj (2007)	2007	1	1		1		1	1		1			1	1							
Yusuf, Gunasekaran, and Dan	2007	1	1		1	1	1	1	1				1								1

		Management, Commitment and Leadership	Customer Focus and Satisfaction	Process Practices	Continuous Improvement and Innovation	Employee Involvement	Training and Education	Employee Encouragement	Human-resource	Supplier Partnership	Information Analysis/Data	Strategic Quality Planning	Benchmarking	Culture and Communication	Social and Environnemental Responsabilité	Design and development - Practice	Measurement- practice	Tool and technique- practice	Resource Practice	Role of Quality Department	Other
Tari, Molina, and Castejon	2007	1	1	1	1	1			1	1									1		
Kaynak and Hartley	2008	1	1	1	1	1	1			1		1									
Zu, Fredendall, and Douglas	2008	1	1	1					1	1	1					1					
Fening, Pesakovic, and Amaria	2008	1	1	1					1	1	1					1					
Sharma and Gadenne	2008	1	1	1	1		1	1									1				1
Sharma and Kodali (2008)	2008	1	1	1	1				1	1								1			
Martínez-Costa, Martínez- Lorente, and Choi	2008	1	1	1					1	1	1					1					
Prajogo and Hong	2008	1	1	1					1		1	1									
Macinati	2008	1	1			1	1			1	1	1									1
Arumugam, Ooi, and Fong	2008	1	1	1	1	1				1	1										1
Bayraktar et al (2008)	2008	1	1	1		1	1	1		1		1		1		1	1				
Fotopoulos and Psomas	2009	1	1	1	1	1	1			1	1							1			
Zu	2009	1	1	1			1			1	1					1					
Kumar et al.	2009	1	1			1		1		1	1	1		1		1		1			
Salaheldin	2009	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Awan et at. (2009)	2009	1	1	1			1	1	1	1	1		1	1		1				1	
Manaf Noor Hazilah (2009)	2009	1		1		1	1	1		1		1		1							1
Fotopoulos and Psomas (2010)	2010	1	1	1		1					1							1	1		
Zakuan et al.(2010)	2010	1	1						1		1	1		1						1	
Jamali et al. (2010)	2010	1	1	1		1	1			1		1		1		1					
Talib et al. (2010)	2010	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
Srinivasu et al. (2010)	2010	1	1	1			1			1	1			1				1			
Al-Shobaki et al. (2010)	2010				1		1				1		1	1							
Baird et al. (2011)	2011			1						1	1					1					
Valmohammadi (2011)	2011	1	1	1					1	1	1			1				1			
Ooi et al. (2011)	2011	1	1	1					1		1	1									
Mittal et al. (2011)	2011	1	1		1	1	1							1					1		
Oakland (2011)	2011			1					1					1			1				
Kumar et al. (2011)	2011	1	1						1		1			1	1						
Ciptono et al. (2011)	2011	1					1			1						1				1	
Talib et al. (2011)	2011	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
Sajjad and Amjad (2011)	2011	1	1						1		1	1	1		1					1	

		Management, Commitment and Leadership	Customer Focus and Satisfaction	Process Practices	Continuous Improvement and Innovation	Employee Involvement	Training and Education	Employee Encouragement	Human-resource	Supplier Partnership	Information Analysis/Data	Strategic Quality Planning	Benchmarking	Culture and Communication	Social and Environnemental Responsabilité	Design and development - Practice	Measurement- practice	Tool and technique- practice	Resource Practice	Role of Quality Department	Other
Punnakitikashem et al. (2011)	2011	1	1	1					1	1	1										
Mallur et al. (2012)	2011	1	1	1	1		1			1				1	1	1					
Shukla and Agrawal (2012)	2012	1	1	1			1				1			1							
Al-Ababneh and Lockwood (2012)	2012	1		1		1	1	1		1	1	1									
Gulbarga et al. (2012)	2012	1	1	1	1			1	1		1	1		1							1
Sajjad and Amjad (2012)	2012	1	1						1		1	1	1		1						
Ooi (2012)	2012	1	1	1					1		1	1									
Lazur et al. (2013)	2013				1	1	1					1									
Singh and Sushil (2013)	2013	1	1	1	1	1	1	1					1	1			1		1	1	1
Khanam et al.(2013)	2013	1	1		1	1	1			1				1							
Wiengarten et al. (2013)	2013	1	1	1	1	1						1									
Talib et al. (2013)	2014		1		1		1							1							
Gupta and Belokar (2014)	2014		1			1				1				1			1				1
Kaur and Sharma (2014)	2014	1	1	1					1	1										1	
Bani et al. (2014)	2014	1	1			1					1		1	1							1
Mitreva and Tashkov (2014)	2014				1	1	1											1			
Magd, (2014)	2014	1	1	1		1	1		1	1	1	1									
Mehmood et al. (2014)	2014	1	1		1	1								1				1			
Mora et al. (2014)	2014	1		1	1				1	1				1				1			
Latif et al. (2014)	2014	1				1	1					1									
Haque et al. (2014)	2014		1		1																
Mbithi and Shale (2014)	2014	1					1				1							1	1		
Ahmad and Elhuni (2014)	2014	1	1	1	1	1	1	1		1		1	1					1	1		
Sengar et al. (2014)	2014	1	1	1		1	1			1	1		1					1			
Gajdzik and Sitko (2014)	2014	1		1	1								1	1		1				1	
Hassan et al. (2014)	2014	1	1	1	1	1	1														
Sweis et al. (2014)	2014	1	1									1					1		1		1
Sadikoglu and Olcay (2014)	2014	1	1	1		1						1						1			
Mosadeghrad (2015)	2015		1	1	1		1		1	1	1			1					1	1	
Valmohammadi and Roshanzamir (2015)	2015	1	1	1		1						1									
Psomas and Jaca (2016)	2016	1	1	1			1														
Samawi et al. (2018)	2018	1	1	1					1		1										