

An Investigation of Total Quality Management Practices in Pakistan

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ABSTRACT

This study investigates the extent of total quality management (TQM) implementation in the textile companies of an under-researched country, Pakistan. It also examines whether ISO 9001 certification leads to improved business results and adoption of TQM. The perceived association of TQM practices with organisational performance and issues faced by the sample companies during the implementation of quality improvement initiatives are also identified.

A self-completion questionnaire was designed and perception-based data were collected from a sample of two hundred and ten (210) textile companies. One thousand and fifty (1050) questionnaires were sent to the companies. The respondents were managers from different departments of the sample companies. Statistical techniques like frequency tables, descriptive statistics, correlation coefficient, multiple regression and chi-square test were used to analyse the data.

The results of this study indicated that TQM philosophy is poorly implemented in the sample textile companies. The majority (81%) of respondents indicated that their companies are certified to ISO 9001:2008, whereas MBNQA, the EFQM excellence model and Six Sigma are not given much importance. The certification of ISO 9001 facilitates the achievement of better business results and the adoption of TQM practices. However, the length of certification is not associated with the business results. All TQM practices have a significant positive relationship with business results; however, partnership and resources are the best predictors of business results. The implementation of TQM practices is not affected by organisational size. However, it varies across the types of textile companies. The lack of awareness of TQM, managers' perception of quality as money wasting activity and the implementation of multiple quality improvement programmes are the major issues faced by the sample textile companies during the implementation of quality improvement initiatives.

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DECLARATION

I hereby declare that to the best of my belief and knowledge the work presented in this thesis is original. I have not submitted any part or the entire work to any other university or college for a degree.

Signature of the researcher:

.....

1 INTRODUCTION

1.1 Introduction

In the last few decades, a considerable amount has been written about the concepts of Total Quality Management (TQM), but many authors still consider it to be another management fad (Rich, 2008; David and Strang, 2006; Miller, Hartwick and Breton-Miller 2004; and Boaden, 1996). They argue that it is an “impractical or unachievable” management technique (Rich, 2008, p.1143). Some consider it to be a hazy and ambiguous concept, which is further confused by the founders of the philosophy (Dean and Bowen, 1994). This viewpoint is strengthened by the fact that leading authors, like Deming, Juran and Crosby, use different terms while discussing the topic in the literature. The difference between these terms is often not clear and creates further confusion. The opponents of TQM argue that the fundamental values of this management philosophy are part of already existing organisational change initiatives (Boaden, 1996). These critics relate the failure of TQM programmes to deficiencies in the fundamental assumptions and values of this management approach.

However, many studies indicate that the underlying principles, assumptions, values and theories of TQM are comparatively different from other improvement initiatives (Sousa and Voss, 2002; Hackman and Wageman, 1995; Dean and Bowen, 1994; Grant, Shani and Krishnan, 1994). Similarly, many studies report that the failure of TQM programmes is not due to the principles of TQM, but is because of the ineffective implementation of the management approach (Oakland and Tanner, 2007; Williams et al., 2006). Lemak, Mero and Reed (2002, p.403) assert that, “TQM failures may be attributed more to the failure to implement and

manage them as a system and less from any fundamental flaws in the system or its components”. This shows that implementation is the most critical aspect for the success of any TQM programme. However, the unavailability of a universal definition and the ambiguous nature of the TQM philosophy also create problems for the successful implementation of TQM.

Many authors provide guidelines and frameworks for the implementation of TQM. For example, Deming proposes fourteen principles (Deming, 1986), Crosby details fourteen steps (Crosby, 1984), and Juran (1986) suggests three stages in his trilogy, quality planning, control and improvement. Oakland (2007) describes a total excellence framework and Gryna et al. (2007) offer a road map for the enterprise, to achieve excellence in the processes. However, the literature does not seem to agree on a universal framework for the implementation of TQM philosophy. Some common elements which play a vital role in the success of the TQM programme can be identified. These elements include top management commitment, identification of customers and their requirements, process review, gap analysis, employee training and development, monitoring of the processes, measurement of the performance and establishing the feedback systems. Above all, sincerity in the implementation of the TQM programme (Baxter & Macleod, 2008) is crucial for its success.

The development of quality standards and excellence models has provided a more standardised approach for the implementation of TQM philosophy. They cover almost all the common elements which can be identified from the teachings of leading authors. However, the literature reveals mixed findings on the relationship

between business results, implementation of TQM practices and quality management standards.

ISO 9000 is one of the most widely used quality management standards in the world. According to ISO surveys, hundreds of thousands of companies in the world are certified to the latest version of the ISO 9000 series: ISO 9001:2008. ISO claim that certification to this standard will improve organisational performance and this version is more compatible with the TQM philosophy (ISO, 2011). The existing literature seems inconclusive about a positive association between the certification to the older version of this standard (e.g. ISO 9000:1994 and ISO 9001:2000) and organisational performance (see Section 2.5.1.2, p. 41 for further details). Furthermore, it is not yet clear whether certification to ISO 9000 complements the implementation of TQM or creates further problems for companies. Some studies indicate that certification to ISO 9000 contradicts the implementation of TQM (e.g. Martinez-Lorente and Martinez-Costa, 2004; Zhu and Scheuermann, 1999) while others highlight that it helps (Terziovski and Power, 2007; Magd and Curry, 2003). However, a review of the literature shows that there is less research available which has investigated the association between certification to the latest version of the standard (ISO 9001:2008) and the organisational performance and implementation of TQM practices. Therefore, the relationship needs to be investigated in further detail.

The gurus of quality management argue that organisational performance could be improved by the successful implementation of TQM practices. The practitioners have widely supported this assumption. However, findings from empirical studies seem to contradict this relationship. For example, many studies provide empirical

evidence that organisations can improve their performance, with effective implementation of the principles of TQM (Bou-Llugar et al. 2009; Tari, Molina and Castejon, 2007; Kaynak, 2003; Douglas and Judge, 2001). However, others highlight that organisations get very little benefit from this management philosophy (Corredor and Goni, 2010; Macinati, 2008; Benner and Veloso, 2008). Such contradictory findings indicate the need for further research in this area.

The proponents of TQM advocate that the principles of this management approach could be effectively implemented anywhere in the world. However, Jayaram, Ahire and Dreyfus (2010) indicate that the literature is inconclusive about the relationship between the implementation of TQM practices and contingency factors such as size and type of company. Sila and Ebrahimpour (2005), Shah and Ward (2003), Hendrick and Singhal (2000), Sitkin, Sutcliffe and Schroeder (1994). The literature has mixed findings regarding the effect of organisational size and type on the implementation of TQM. Both schools of thought provide strong empirical evidence. Thus, the association between contingency factors (the size and type of company) and the implementation of TQM practices needs to be examined in further depth.

A stream of literature has argued that the social, cultural and economic conditions of a country have the potential to affect the adoption and implementation of TQM practices (Kull and Wacker, 2010; Flynn and Saladin, 2006; Anwar and Jabnoun, 2006; Yoo, Rao and Hong, 2006; Prasad and Tata, 2003; Lagrosen, 2002, and Dahlgard, Kristensen and Kanji, 1998). Thiagaragan, Zairi and Dale (2001) indicate that less attention is given to studying the implementation of TQM in the context of developing countries. The TQM literature is dominated by empirical

studies conducted in the context of advanced countries like the USA, the UK and Japan; but the findings of such studies have limited relevance to developing countries like Pakistan. These countries have entirely different social, political and economic conditions compared to the developed nations. Therefore, an exploration into whether the findings of the existing empirical studies on TQM are relevant in the context of developing countries is needed.

The above discussion indicates that many contradictions and deficiencies can be identified in the existing TQM literature. Consultants or specialists from an operations and quality management background dominate the existing literature on quality management. This literature contains attractive success stories from Japanese and American companies (Deming, 1986; Crosby, 1984), but these stories are lacking in empirical validation. More empirical studies are required to evaluate the underlying assumptions of TQM implementation. Thus, this research will contribute by providing empirical evidence about the implementation of TQM philosophy and the association of TQM practices with business results in Pakistan, an under-researched country.

1.2 Background of the Study

In the last two decades, organisations throughout the world have faced increasingly fierce competition and come under tremendous pressure. Some newly established companies have become major players, whereas many old companies have disappeared from the scene or are struggling for survival. Juran & Godfrey (1999) argue that new trade agreements under the WTO have compelled countries to reduce subsidies and tariffs. International rules for trading in goods, services and intellectual properties have been laid down, thus trade is becoming more fair

and open. Indeed, it opens the doors to new markets but it has threatened domestic industries with increased competition because of higher import levels. It has also increased competition in the international market. In such a competitive situation, quality has become the most important factor for success.

Pakistan is a developing country and the textile sector is the backbone of its economy. Pakistan is the largest exporter of cotton yarn, the third largest consumer of cotton and the fourth largest producer of cotton in the world (Alam, 2009). The major part (60%) of Pakistani exports is based on textiles (Pakistan Economic Survey, 2011). However, in the last few years Pakistan has been unable to get reasonable share from the international market. In late 2006 and early 2007, the Asian Development Bank conducted a survey with the Indian Council for Research International Economic Relations (ICRIER). The sixteen major buyers who source textiles and clothing from South Asia and other parts of Asia were interviewed to understand how buyers rate their suppliers and on what basis they made their sourcing decisions. The results of this survey indicated that Pakistani textiles lagged behind other countries like China, India, Bangladesh and Sri Lanka with reference to design, quality, consistency and reliability (Asian Development Bank, 2009). This was an alarming situation for Pakistan. Therefore, it is imperative to evaluate the extent of the implementation of quality management initiatives in the textile companies of Pakistan, to see whether these initiatives have improved business results or not.

Another shortcoming in the existing TQM literature is that the majority of existing empirical studies have been conducted in the context of industries like fabrication, chemical production, heavy machinery, automobile production, electrical and

electronics. There are not many comprehensive empirical studies available from the context of large-scale textile companies. Fortunately or unfortunately, the majority of large-scale textile manufacturing companies are located in developing countries like Pakistan, Egypt, India and China. Thus, empirical studies on TQM need to be replicated in the context of this sector.

This research was undertaken for the above-mentioned reasons and the findings of this research will hopefully help practitioners, managers and policy makers, in Pakistan and the rest of the world.

1.3 Objectives of the Study

The main aim of this study is to investigate the implementation of TQM practices in Pakistan. To achieve this aim, the study was conducted in the textile industry, the most important manufacturing sector in Pakistan. This will be the first study on the Pakistani textile sector which will provide empirical evidence about the implementation of EFQM excellence model criteria and the use of quality tools and techniques (e.g. SPC, QFD, Kaizen, and FMEA). Furthermore, this study will provide empirical evidence about the association between the certification of the latest version of quality management system: ISO 9001:2008, and organisational performance and implementation of TQM practices. This relationship has not yet been investigated adequately in the existing literature (see Section 2.5.1.2, p. 41 for further details). Therefore, the findings of this study will be useful for academia and industry both in Pakistan and the rest of the world.

The detailed objectives of this study are summarised as follows:

1. To investigate the extent of TQM implementation in the textile companies of Pakistan.

2. To identify whether there is any association between ISO 9001 certification and the implementation of TQM practices and organisational performance.
3. To identify whether there is any association between TQM practices and organisational performance.
4. To identify whether the size and type of the textile company has any effect on the implementation of TQM practices.
5. To understand the issues and barriers faced by the textile companies of Pakistan during the implementation of quality improvement initiatives

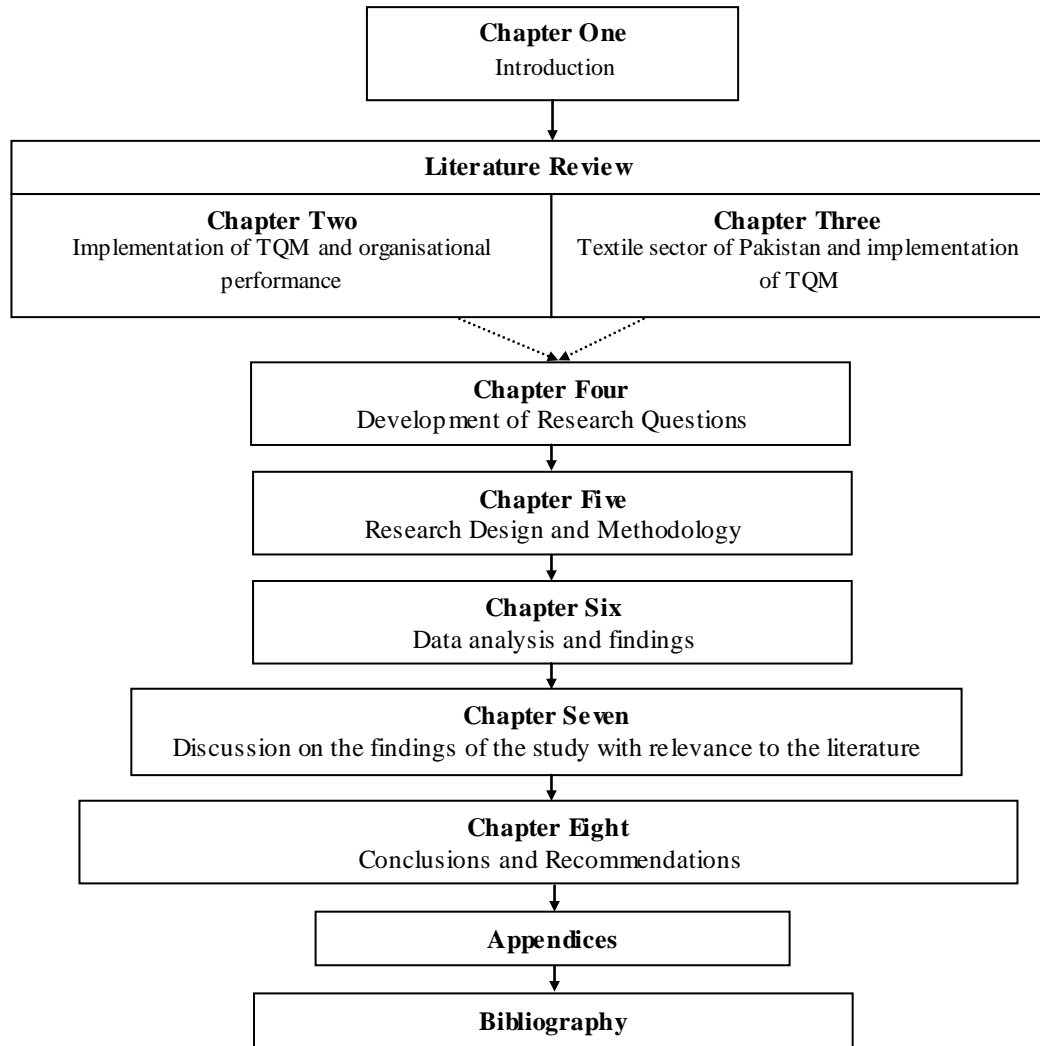
Keeping in view these objectives, a comprehensive literature review is conducted in Chapters Two and Three. Based on the literature review, detailed research questions are developed in Chapter Four (see Table 4.1, p. 113 for further details).

1.4 Structure of the Thesis

This thesis is divided into eight chapters, as shown in Figure 1.1. The details of the contents of each chapter are as follows:

Chapter One contains an overview of the research project and the objectives of the study. It introduces the background to this study and highlights its significance.

Figure 1.1: The Structure of the Thesis



Chapter Two presents the literature review related to the major concepts being addressed in this research. It starts with the concept of TQM and discusses in detail the origin and framework of this philosophy. Studies investigating the relationship between TQM and organisational practices are reviewed. Among the different frameworks of TQM, ISO 9000 and the EFQM excellence model are discussed in detail. The implementation of TQM and the issues which hinder the success of a TQM programme are elaborated. The effect of contingency factors, like size and type of company, are also reviewed in detail in this chapter.

Chapter Three provides detailed information about the textile industry in Pakistan. The characteristics, performance and global competitiveness of different areas of the Pakistani textile industry are discussed. The implementation of quality improvement initiatives and the role of the Pakistani government are also highlighted in this chapter.

Chapter Four presents the research questions being explored in this research project. The research questions are synthesised from the literature review chapters.

Chapter Five presents the research design and methodology used in this research project. Based on the research questions developed in Chapter Four, inappropriate data collection strategy was selected and a suitable instrument was designed. A sampling frame was selected and the sample size was carefully determined. The rationale for the selection of the data collection methodology and sample size is critically reviewed. The details of the pilot study are also discussed. Questionnaire distribution, data management and data analysis are discussed in detail. Different statistical tests and methods were selected for different research questions, keeping in view the nature of the variables and the data. The selection of these statistical tests is critically evaluated. The reliability and validity of the questionnaire is also discussed in this chapter.

Chapter Six contains the results of the survey. The data collected in this study is analysed in this chapter. The profile of the sample is discussed in detail, along with the reliability results of the questionnaire. The results of the statistical analysis are presented according to the sequence of research objectives (see Table

4.1, p. 113 for further details). The results of the statistical analysis are interpreted and clearly described.

Chapter Seven provides a detailed discussion on the findings of the study, with reference to the literature. The amount of agreement between the findings and previous work are critically discussed.

Chapter Eight presents the conclusions of the study. It starts with a detailed summary of the research work. All phases of the research work are reviewed. The research findings are presented according to the research objectives and further areas of improvement are indicated. The limitations and contributions of this study are discussed in detail.

2 Implementation of Total Quality Management and Organisational Performance

2.1 Introduction

This chapter reviews the literature on the concepts of TQM, its origin, evolution, frameworks and implementation. In the light of this research, an evaluation of whether the adoption of these frameworks facilitates companies in the implementation of TQM philosophy or creates problems for them will be made. The effects of TQM practices on business results are also reviewed. The implementation of TQM is discussed in detail and any potential issues, which might hinder the success of a TQM programme, are highlighted.

2.2 What is TQM?

In the last two decades, thousands of books and articles have been written about TQM, but a universal definition of what it is still cannot be found. Andersson, Eriksson and Torstensson (2006) consider that defining TQM is like the famous John Godfrey Saxe story “The Blind Men and the Elephant”; researchers and practitioners have adopted the definition which is most suited to their views (Boaden, 1997). Spencer describes a similar situation,

TQM is not a cut-and-dried reality but an amorphous philosophy that is continuously enacted by managers, consultants, and researchers who make choices based not only on their understanding of principles of TQM but also on their own conceptual frameworks concerning the nature of organisations. (1994, p.448)

A review of the research indicates that the literature seems to agree on the scope of this management approach. Initially, both academics and practitioners considered it to be an approach used for the improvement of product quality only, whereas now they consider that it could be used for the continuous improvement of every process in an organisation. For example, Juran & Godfrey (1999, p.14.2) indicate that, “TQM has become an umbrella term for many different collections of concepts, methods, and tools”. Gryna et al. (2007, p.16) also support this view:

The traditional scope of quality activities is undergoing a radical and exciting change from the historical emphasis on quality of physical products in manufacturing industries (little ‘Q’) to what is now emerging as the application of quality

concepts to all products, all functional activities, and all industries (big 'Q').

Table 2.1 shows changes in the understanding of quality within organisations while moving from little 'Q' to big 'Q'.

Evans & Lindsay (2008, p.10) support Gryna et al. (2007) describing the concept of TQM as extending from the “quality of management” to the “management of quality”. They consider that “rather than a narrow engineering or production-based technical discipline, quality took on a new role that permeated every aspect of running an organisation”.

Table 2.1: Changes in the concept of quality while moving from little 'Q' to big 'Q'

Topic	Content of little 'Q'	Content of big 'Q'
Products	Manufactured goods	All products, goods and services, whether or not for sale
Processes	Processes directly related to manufacture of goods	All processes; manufacturing; support; business, etc.
Industries	Manufacturing	All industries; manufacturing; service, government, etc., whether or not for profit

Source: Gryna et al. (2007, p. 16)

Fisher and Nair (2009, p.11) agree with Evans & Lindsay (2008). They believe that “TQM in its broadest sense examines all aspects of management”. Omachonu and Ross (2005, p.3) also give a similar explanation: “TQM is the integration of all functions and processes within an organisation in order to achieve continuous improvement of the quality of goods and services”.

In a similar vein, Oakland (1993, p.22) defines TQM as “an approach to improve the competitiveness, effectiveness, flexibility of the whole organisation”. Agreeing with the definitions of TQM given by the above-mentioned authors, Sadikoglu and Zehir (2010, p.13) assert that TQM is “a systematic quality improvement approach for firm-wide management for the purpose of improving performance in terms of quality, productivity, customer satisfaction, and profitability.”

Cartin (1999, p.6) argues that different authors use different names for TQM. These names include Six Sigma, organisation improvement, a search for excellence, total customer satisfaction, and so forth. Similarly, different businesses use this management approach but give it their own title, to create an impression of “home grown” identity. A careful review of all such initiatives indicates that all of these programmes are a variation of TQM.

Another stream of literature describes TQM as a complete system, consisting of values, practices and techniques. Effective implementation of TQM could be achieved by applying all of these components. For example, Dean and Bowen (1994, p.394) define total quality as an approach which is characterised by its principles, practices, and techniques. Hellsten and Klefsjo (2000) and Dahlgard, Kristensen and Kanji (1998) support Dean and Bowen (1994) and assert that TQM philosophy goes beyond the core principles. Hellsten and Klefsjo (2000, p. 243) also define TQM “as a management system consisting of the three interdependent components: values, techniques and tools. Techniques and tools support the values and together they form a whole”. Tari (2005) also supports this stance.

These components are discussed in detail in the following sections. Many authors have attempted to identify the common practices of TQM; however, all of them have come up with a different set (Zu, 2009; Karuppusami and Gandhinathan, 2006; Tari, 2005; Sila and Ebrahimpour, 2003). For example, Zu (2009) highlights seven practices; Tari (2005) conducted a survey of 106 ISO 9000 certified firms in Spain and identified eight practices. Sila and Ebrahimpour (2003) review survey-based research published between 1989 and 2000 and identify 25 TQM practices.

Certain TQM practices are much emphasised by leading quality management gurus, such as Deming, Juran, Crosby, and Feigenbaum. For example, Deming attaches a lot of importance to the involvement and training of employees, continuous improvement and customer satisfaction. He stresses that top management is responsible for the implementation of quality improvement initiatives within the organisations (Deming, 2000, 1986). Crosby (1984, p.5) supports Deming and argues, “the main obstacle to improvement is the stubbornness of management”. He also states that conformance to the requirements of customers should be the primary objective of an organisation. Furthermore, he places a lot of importance on the development of quality improvement teams and the education of employees. Juran (1986, 2000) also supports the main practices of TQM, like customer satisfaction and continuous improvement. In the three phases of his trilogy, Juran places emphasis on the identification of customer needs and process improvement. Juran and Godfrey (1999) also indicate that organisations cannot eliminate chronic waste without focusing on the improvement phase. Feigenbaum advocates the involvement of

everyone, including office staff, engineers and shop-floor workers in the improvement initiatives (2003, cited in Evans & Lindsay, 2008).

Hackman and Wageman (1995) consider that there is an agreement among the movement's founders about the key assumptions and practices of TQM. Tari (2005) argues that although the practices of TQM vary from author to author, common practices can still be identified. These practices include top management commitment, customer satisfaction, continuous improvement, involvement of employees and partnership with suppliers. Many authors agree that these practices are the core elements of TQM (Martinez-Costa, Choi and Martinez, 2009; Fotopoulos and Psomas, 2009; Lopez-Mielgo, Montes-Peon and Vazquez-Ordas 2009; Bou-Llusar et al., 2009; Zu, 2009; Li et al., 2008; Karuppusami and Gandhinathan, 2006 and Sila and Ebrahimpour, 2003). Furthermore, many studies empirically validate the above-mentioned TQM practices (Saraph, Benson and Schroeder, 1989; Flynn, Schroeder and Sakakibara, 1994; Badri et al. 1995; Ahire, Golhar and Waller, 1996; Quazi et al. 1998; Rao, Raghunathan and Solis, 1999, Kaynak, 2003; Fotopoulos and Psomas, 2009).

Bou-Llusar et al. (2009) explain and categorise TQM practices in more detail; the core practices of TQM can be categorised into two broad dimensions, social or soft, and technical or hard. The social dimension includes teamwork, leadership, training and involvement of employees, whereas the development of standardised and well-defined processes and procedures comes under the technical dimension. However, they emphasise that the social and technical dimensions of TQM are interrelated and mutually support one another.

Based on the above discussion, it might be concluded that focus on customers and stakeholders, participation and teamwork by everyone in the organisation and a process focus, supported by continuous improvement and learning, are the fundamental principles of TQM philosophy (Evans & Lindsay, 2008).

The question now is whether these principles are unique to TQM or derived from other management approaches. Boaden (1996, p.568) argues that the majority of the fundamental principles of TQM belong to other improvement initiatives. He asserts, “the principles commonly accepted as defining TQM are not unique to TQM but are part of many other organisational change initiatives or generally accepted 'good' management practice”. On the other hand, many authors do not support this argument. For example, Dean and Bowen (1994) have a detailed comparison of the concepts of total quality and management theory. They highlight that the underlying concepts of total quality and management theory are different. Similarly, Hackman and Wageman (1995) describe that the assumptions and practices of TQM as being entirely different, both conceptually and operationally, from other management change programmes. Sousa and Voss (2002, p.101) also support the findings of Dean and Bowen (1994) and Hackman and Wageman (1995). They maintain that quality management has an entirely different set of values, practices and principles compared to other improvement initiatives. Furthermore, they highlight that the literature seems to agree on the practices which come under the umbrella of quality management.

Keeping in view the above explanations, the following definition of TQM has been developed for use in this research project:

TQM is an approach to manage and continuously improve all the processes of an organisation by involving everyone to achieve customers' (both internal and external) satisfaction at the lowest cost.

The next section investigates beliefs about whether the implementation of TQM practices leads to improved organisational performance.

2.3 TQM and Organisational Performance

A considerable amount of the TQM literature has investigated whether there is an association between TQM practices and organisational performance. Empirical studies reveal contradictory findings. For example, substantial research provides empirical evidence that there is a positive association between TQM implementation and organisational performance (Bou-Llusar et al. 2009; Tari, Molina and Castejon 2007; Kaynak, 2003; Douglas and Judge, 2001; Easton and Jarrel, 1998). On the other hand, other work indicates that there is a weak or no relationship between TQM practices and business results, especially financial results (Corredor and Goni, 2010; Macinati, 2008; Benner and Veloso, 2008; Samson and Terziovski, 1999; Dow, Samson and Ford, 1999; Ho, Duffy and Shih 2001).

Leading quality researchers, like Deming, Crosby and Juran, support a positive association between quality implementation and organisational performance. For example, Deming (1986, p.1) asserts, "productivity increases with improvement of quality. Low quality means high cost and loss of competitive position". Similarly, Crosby (1980, p.1) states, "if you concentrate on making quality certain, you can probably increase your profit by an amount equal to 5% to 10%

of your sales". They also report many success stories of companies which implemented quality improvement initiatives. For example, Crosby (1984, p.148) describes a textile manufacturer saving \$700,000 from the cost of quality in the first six months. He also describes similar success stories from other manufacturing companies. He argues that these companies have saved millions of dollars by reducing error rates, minimising the cost of quality, eliminating customer complaints and decreasing material handling costs.

The results of considerable empirical studies conducted in various countries also support the positive associations between implementation of TQM and organisational performance. For instance, Hendricks and Singhal (1999) provide empirical evidence from six hundred quality award winning companies located in the USA that TQM implementation has a positive effect on organisational performance. They indicate that the award winning companies have a much better performance compared to non-award winning companies, in terms of operating income, total sales, total assets, return on sales and return on assets. Zairi, Letza and Oakland (1994) studied a five-year span of audited financial accounts of TQM and non-TQM UK companies. In this study, they examine 29 TQM companies. Twenty-two of these outperformed the industry averages in profit margin, return on total assets, turnover per employee, profit per employee, total assets per employee, fixed asset trends and average remuneration. Bou-Llusor et al. (2009) and Tari, Molina and Castejon (2007) provide empirical evidence from Spanish manufacturing and service organisations that TQM practices have a strong positive effect on organisational performance. Douglas and Judge (2001) provide empirical evidence from American hospitals that TQM practices are positively and significantly associated with financial performance. Prajogo and

Sohal (2003) report that TQM practices are significantly and positively associated with product quality and innovation. They collected data from manufacturing and service organisations in Australia. Gryna et al. (2007, p.127) discuss the findings of a study based on the Profit Impact of Market Strategies (PIMS) database, which contains data from more than 450 manufacturing and service organisations. The findings of this study indicated that quality is the most important factor affecting the organisational performance. This study underlines that companies with better quality have higher returns.

On the other hand, Harari (1993, p.33) maintains that by putting together the research conducted by independent companies such as Ernst and Young, McKinsey & Co., Arthur D. Little and Rath & Strong it is evident that “only about one-fifth, at best one-third, of TQM programmes in the United States and Europe have achieved significant or even tangible improvements in quality, productivity, competitiveness or financial returns”. Other research also argues that the majority of TQM programmes were unable to achieve the expected performance goals (Rich, 2008; Miller, Hartwick and Breton-Miller 2004; Walsh, 1995). Macinati (2008) provides empirical evidence from Italian health care providers which indicate that quality management practices are not significantly related to financial results.

Table 2.2: The Relationship Between TQM Practices And Organisational Performance

Study	Country	Nature of organisations	Research method	Findings
Corredor and Goni (2010)	Spain	Manufacturing and services	Analysis of secondary data related to the firm's profitability & achievement of quality awards.	Earlier adopters of quality awards can get more benefit as compare to late adopters. There was no significant difference in the performance of TQM and non-TQM firms.
Bou-Llusor et al. (2009)	Spain	Manufacturing and services	Questionnaire survey. Respondents: CEOs & quality managers. Analysis Technique: SEM	The excellence of enablers has a strong positive effect on results excellence. Both MBNQA and EFQM Excellence Model are the best models of TQM.
Macinati (2008)	Italy	Health care providers	Questionnaire survey. Respondents: Managing Director. Analysis Technique: Factor analysis, Correlations	There is a no significant relationship between financial results and quality management practices. However, quality management practices are positively associated with subjective performance.
Su et al (2008)	China	Manufacturing and services	Questionnaire survey & interviews. Respondents: Quality managers, Analysis Technique: SEM	Quality management practices have an indirect effect on business performance rather than a direct effect. However, this effect is mediated by quality and research and development construct.
Tari, Molina and Castejon (2007)	Spain	Manufacturing and services	Questionnaire survey. Respondents: Managers, Analysis Technique: SEM	TQM practices have direct and indirect effect on organisational performance.
Feng et al. (2006)	Australia and Singapore		Questionnaire survey, Respondents: Senior Managers. Analysis Technique: SEM	TQM dimensions like leadership & people management are more related to innovation, whereas customer satisfaction & process management are more related to quality performance.
Demirbag et al. (2006)	Turkey	Textile SMEs	Questionnaire survey. Respondents: Senior /quality managers. Exploratory & Confirmatory Factor Analysis	There is a strong positive association between TQM practices and non-financial performance. However, TQM practices have a weak direct relationship with financial performance.
Sila and Ebrahimpur (2005)	USA	Manufacturing	Questionnaire survey. Respondents: Senior /quality managers. Analysis Technique: SEM	Among different constructs of TQM, only leadership and process management have a direct positive relationship with business results.
Rahman and Bullock (2005)	Australia	Manufacturing	Questionnaire survey. Respondents: Managers. Analysis Technique: Factor analysis, correlations & regression analysis	The hard and soft elements of TQM are positively associated with each other. However, hard elements have a direct effect on organisational performance, whereas soft elements of TQM can affect performance indirectly, through hard TQM elements.
Kaynak (2003)	USA	Manufacturing and services	Questionnaire survey. Respondents: Senior managers. Analysis Technique: SEM	TQM practices have a positive direct and indirect effect on organisational performance.
Prajogo and Sohal (2003)	Australia	Manufacturing and services	Questionnaire survey. Respondents: Managers. Analysis Technique: SEM	TQM practices are positively and significantly related to product quality and innovation.
Douglas and Judge (2001)	USA	Hospitals	Questionnaire survey and secondary data, Respondents: CEO/Director quality. Analysis Technique: Correlation & Regression analysis	TQM practices are positively and significantly associated with financial performance and industry expert rated performance.
Ahire and Dreyfus (2000)	USA	Manufacturing	Questionnaire survey. Respondents: Mid-level managers. Analysis Technique: Confirmatory Factor Analysis, Path Analysis	The design and process management efforts have an equal effect on internal and external product quality.

Corredor and Goni (2010) offer empirical evidence from manufacturing and service organisations in Spain that only earlier adopters of TQM can get adequate benefits from the adoption of TQM. The findings of some of the major research which has investigated the relationship between TQM practices and business results are summarised in Table 2.2.

The discussion above and the review of the research shown in Table 2.2 indicates that the literature is not yet agreed about the positive association between TQM implementation and organisational performance. Sousa and Voss (2002, p.106) believe that there is a need for a

more detailed and solid understanding of quality management's performance effects, by using finer quality performance models (including all of the relevant variables and relationship), investigating the models' relationships across different contexts.

The review of the performance related TQM literature shows that there is a big difference in the use of performance measurement frameworks. The research does not use an adequate definition of organisational performance. For example, many studies measure performance in terms of financial measures only, like market share value, return on investment and profit (e.g. Nicolau and Sellers, 2010; Corredor and Goni, 2010; Easton and Jarrel, 1998). These studies do not consider any non-financial outcomes such as customer satisfaction, process improvement, employee satisfaction or society results adequately. Kaplan and Norton (1992) posit that traditional financial measures of accounting like return-on-investment and earning-per-share might give deceptive signals about organisational performance. However, studies such as Bou-Llusar et al. (2009), Martinez-Costa,

Choi, and Martinez (2009) and Curkovic et al. (2000) consider this issue and take both the financial and non-financial measures of performance. Thus, in future studies this issue needs to be considered and researchers should use sufficiently wide constructs to measure the organisational performance.

The review of empirical studies indicates that individual TQM practices do not have a similar effect on different dimensions of organisational performance. For example, Feng et al. (2006) find that customer focus and process management are associated with quality performance, whereas leadership and people management are related to innovation performance. Similarly, Choi and Eboch (1998) highlight that TQM practices have a strong effect on customer satisfaction compared to plant performance. Rahman and Bullock (2005) demonstrate that hard elements of TQM (e.g. process management) have a direct effect on organisational performance whereas soft elements (e.g. leadership and people management) affect performance indirectly through hard TQM elements. Samson and Terziovski (1999) emphasise that human resource management, leadership and customer focus were strong predictors of organisational performance, whereas the more system and analytic oriented elements of TQM were not strongly and positively related to the performance. Similar results are reported by Dow, Samson and Ford (1999) and Ho, Duffy and Shih (2001). Therefore, in future studies the association between individual TQM practices and different dimensions of organisational performance needs to be investigated in further depth.

The review of the existing literature also shows that the majority of studies which investigate the relationship between TQM and organisational performance are

conducted in the USA, the UK, Spain, Japan and other European countries. The studies indicated in Table 2.2 also highlight a similar trend. There is less research available which explores the association of TQM practices with different levels of organisational performance in South Asian countries like Bangladesh, Pakistan, India and Sri Lanka. Sila and Ebrahimpour (2005) suggest that several cross-country studies have been conducted, but it is an important area to be explored in more detail. Similarly, Forza and Filippini (1998) and Flynn and Saladin (2006) suggest that the relationship between TQM and organisational performance needs to be examined in the context of other countries.

The TQM literature review also reveals that the research which has attempted to identify the relationship between TQM practices and organisational performance in manufacturing organisations is dominated by industries like chemical, engineering, automotive, heavy machinery, electrical engineering and electronics. Only few studies are available in the context of the textile sector. The majority of textile companies are situated in countries like Pakistan, China, India and Egypt, all of which are developing countries. Interestingly, there is not a single comprehensive study available in the context of Pakistan, which attempts to identify an association between TQM practices and organisational performance. Therefore, there is an opportunity to contribute to the debate by carrying out a research project in this area.

The next section investigates the origin and evolution of the TQM philosophy, which will give a deeper understanding of TQM concepts.

2.4 The Origin and Evolution of TQM

There is a debate about whether the Americans or Japanese began TQM. It is argued that the beginning of TQM can be traced back to Shewhart (1931 cited in Murphy and Leonard, 2009), although this is challenged by Stuelpnagel who asserts TQM started with Ford and Crowther (1926 cited in Stuelpnagel, 1993). Boje and Winsor (1993) argue that the Japanese pioneered TQM through the transfer of American management know-how. Yong and Wilkinson (2001) agree with Boje and Winsor (1993), believing that the formal beginnings of quality management can be traced back to Shewhart, who was a US statistician and his work was extended by other statisticians like Dodge, Romig, and Deming.

Powell (1995) linked TQM roots to the Union of Japanese Scientists and Engineers. Linstead et al. (2009, p.428) agree with Powell, describing that the attitudes and norms of Japanese workplaces can easily be identified in the teachings of the ‘gurus’ of quality management. Such norms include trust, commitment, loyalty and a collective approach towards improvement initiatives.

In the 1980s, quality became a national concern in the USA, as American companies were facing fierce competition in the global market from their Japanese counterparts. Japanese companies had made substantial improvements in formerly US-dominated industries, like automobiles, consumer electronics and machine tools. Marcus (2008, p.324) argues that in the 1970s and early 1980s the Americans gave a good response to TQM, which was seen as a reason for Japanese success:

...and so it remained until the late 1970s when Americans complained about a large trade deficit with Japan and American

manufacturers saw a significant portion of their market share, especially in automobiles, going to that Asian island nation.

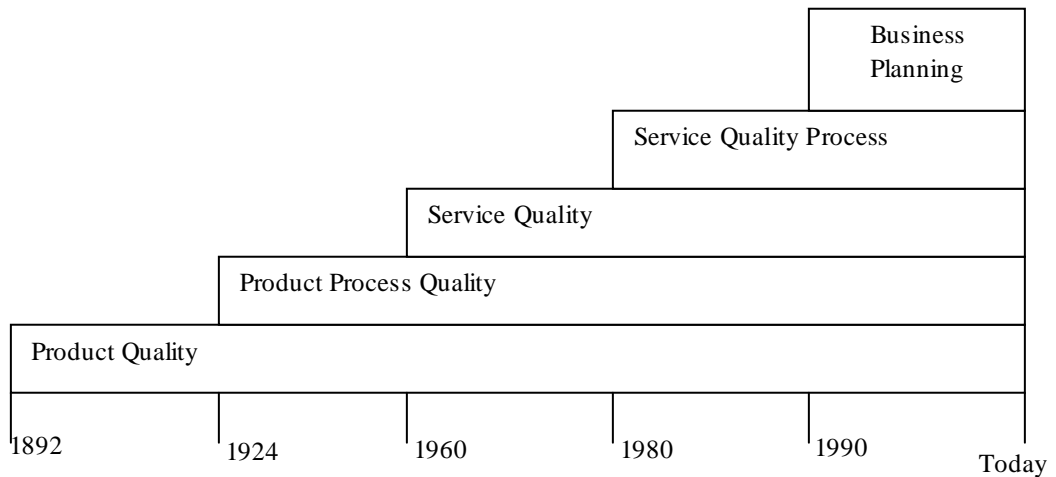
This set off a desperate search for the cause of what was called 'the Japanese miracle.'

The above discussion leads to the conclusion that the roots of TQM can be traced back to the USA. However, the Japanese revolutionised their organisations by using these concepts, with the help of American quality experts like Deming.

Many researchers argue that the TQM philosophy evolved from the simple concepts of inspection and quality control (Hafeez, Malik and Abdel-Meguid, 2006; Dahlgaard, Kristensen and Kanji, 2002). The subsequent emergence of national awards and the development of quality standards then extended the quality revolution (Gryna et al., 2007; Hafeez, Malik and Abdel-Meguid, 2006).

TQM appears to have evolved through several distinct steps or phases, which include a focus on product quality, product process quality, service quality, service process quality, business planning, strategic quality planning and integrated strategic quality planning (Juran and Godfrey, 1999). These steps are shown along with their time scale in Figure 2.1.

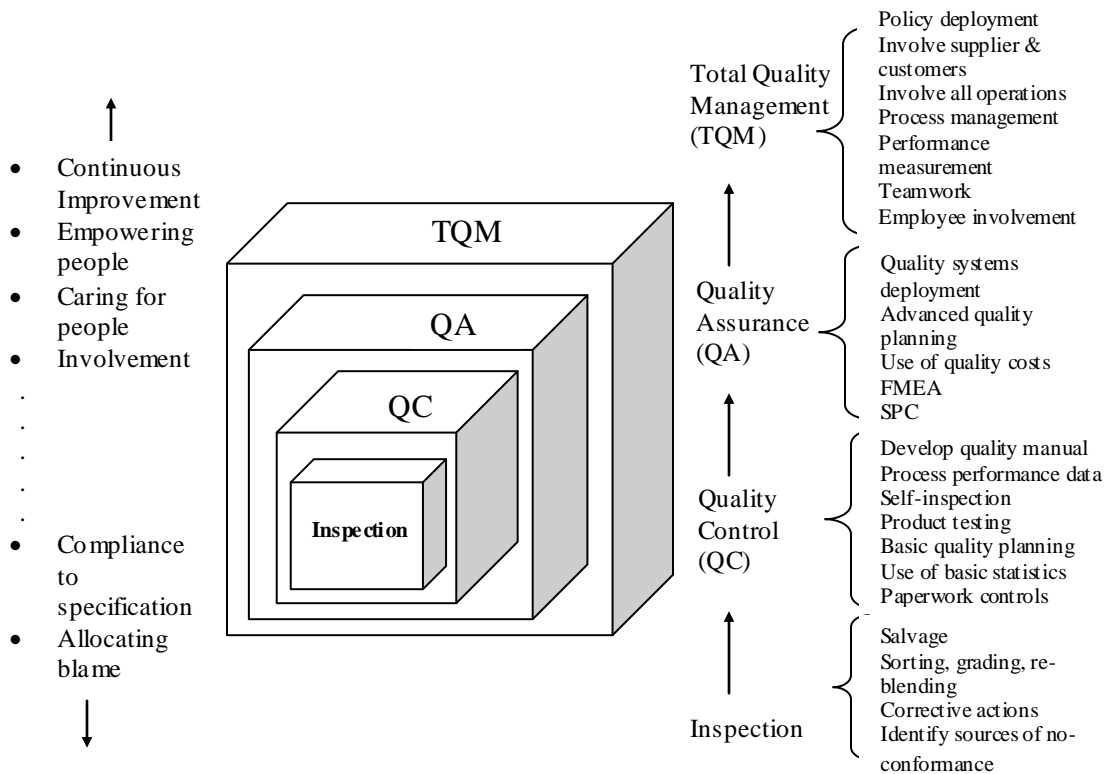
Figure 2.1: Stages of the Development of TQM Concepts



Source: (Juran & Godfrey, 1999, p.14.16)

Dale et al. (2007) argue that the evolution of TQM can be divided into four phases, shown in Figure 2.2. They state that quality control and quality assurance are the initial stages of TQM. In the quality control phase companies rely on the use of basic statistics, basic paper-work control of the processes and self-inspection. In this phase, companies develop a quality manual, which contains details of the implementation of quality within the organisation. In contrast, in the quality assurance phase, organisations adopt advanced tools and techniques of quality like Statistical Process Control (SPC). Such organisations further use quality costing systems carry out quality planning and ensure the implementation of quality systems to produce quality products. However, this phase does not emphasise the involvement of employees and suppliers. Furthermore, performance measurements and policy developments are not given adequate attention.

Figure 2.2: The four Levels in the Evolution of TQM



Source: Adapted from Dale et al. (2007, p.24)

A close look at the phases described by Dale et al. and Juran and Godfrey shows that they are talking about similar things in two different ways. For example, the first phase of Dale et al. is ‘inspection’. In this phase companies used the inspection of finished products to ensure product quality. Thus, in those days, the concept of quality was limited to product quality. Moreover, Juran and Godfrey (1999) also mention that product quality was the first phase in the evolution of TQM philosophy. Similarly, the ‘product process quality’ phase corresponds to the ‘quality control’ phase. The ‘service quality’ and ‘service quality processes’ phases can be mapped to the ‘quality assurance’ phase. Juran and Godfrey (1999) indicate that in the last few years, companies have initiated the integration of quality management into their business planning cycles. This phase corresponds exactly to the ‘TQM’ phase of Dale et al. (2007).

Gutierrez, Torres and Molina (2010) support the above mentioned phases of TQM evolution and further indicate that implementation of ISO 9000 could be considered as a mid-way point towards the adoption of advanced TQM models like the EFQM Excellence Model and Six Sigma. They argue that the implementation of these models requires more complexity and development in most of the quality management elements. In line with this explanation, the implementation of ISO 9000 could be mapped on to the phases of quality control and quality assurance. This standard adequately covers some of the elements of quality control and quality assurance mentioned by Dale et al. (2007). The standard does not give guidelines about the use of specific quality tools and techniques. The latest versions, such as ISO 9001:2008 cover many elements mentioned in the TQM phase by Dale et al. For example, a new version of this standard places much more emphasis on process management, policy development, supplier evaluation and performance measurement.

From the above discussion it could be concluded that evolution of TQM started from simple inspection and quality control processes. Initially, companies were only concerned with product quality, but consequently companies started to stress the development of quality assurance systems. Thus, the concepts of service quality and business planning emerged.

The development of old versions of ISO 9000 was also based on the philosophy of quality assurance. However, presently the Malcolm Baldrige National Quality Award (MBNQA) the EFQM Excellence Model and ISO 9001:2008 provide comprehensive guidelines for the implementation of TQM. All of these

frameworks are based on the fundamental principles of TQM. It is therefore these models and frameworks which are discussed in further detail in the next section.

2.5 TQM Frameworks

In the last few decades many standards, models and frameworks have been developed. Tari (2005) argues that these models and systems provide a structured and standardised approach to the implementation of TQM or to carry out self-assessment of organisational quality management system. Some popular models and standards are given in Table 2.3.

Hakes (1994) argues that in 1987, after the success of the Deming Prize in Japan, the US government introduced the national award for quality and productivity improvement in manufacturing companies. This framework was issued in the form of the MBNQA. The purpose of this award was to give national recognition to US companies that had achieved an excellent performance and to promote business competition both globally and locally. A million copies of the MBNQA framework were distributed among US companies from 1988 to 1992.

Table, 2.3: TQM Models/Frameworks used in different Countries

No.	TQM Model/Framework	Country/Organisation
1	The Deming Prize	Japan
2	The Malcolm Baldrige National Quality Award	USA
3	European Quality Award	European countries
4	Canadian Awards for Business Excellence	Canada
5	Australian Business Excellence Award	Australia
6	Quality Awards in China	China
7	ISO 9000, Quality Management System	All over the world, developed by the International Organisation for Standardisation (ISO)

Conti (2007) affirms that the MBNQA was the first well-structured framework for TQM and it was also considered to be the reference for quality managers and consultants in Europe, before the development of the EFQM Excellence Model. In 1992, the EFQM Excellence Model was developed by the European Foundation for Quality Management (EFQM) to facilitate European companies in the implementation of quality management (see Section 2.5.2 for further details). This model was based on the MBNQA with some minor changes to the criteria. The objective of the development of this model was to recognise quality efforts in Europe. Similarly, in 1988 the Australian Quality Award (AQA) was developed, to encourage the implementation of quality principles in Australian companies (Dawson, 1998). The International Organisation for Standardisation (ISO) developed a quality management standard in 1987, to provide a generic framework for the implementation of quality management in companies around the world (Sroufe and Curkovic, 2008) (see Section 2.5.1 for further details).

Saizarbitoria (2006) claims that among all the available models and frameworks of TQM, ISO 9000 and the EFQM model are the most popular for the implementation of quality management initiatives. Keeping in view the importance of the ISO 9000 quality management system and the EFQM Excellence Model, the two frameworks are discussed in detail in the following sub-sections.

2.5.1 The ISO 9000 Quality Management System

ISO 9000 is a family of standards which represents an international consensus on good quality management practices. It is developed by the International Organisation for Standardisation (ISO) which is established in 1947. The aim of

ISO was to develop international standards in many areas (ISO, 2011). The first set of standards for the promotion of quality in goods and services in UK industries was introduced by the British Standards Institute (BSI) in 1979, whereas ISO released its first ISO 9000 quality standard series in 1987, based on BS 5750 (Sroufe and Curkovic, 2008). The ISO has developed over 18,500 International Standards for various subjects. In the ISO 9000 family of standards, ISO 9001:2008 provides a set of standardised requirements for a quality management system. This standard can be implemented regardless of the user organisation's activities, size or type (e.g. private or public sector). This standard provides a tried and tested framework for the systematic management of organisational processes, in order to produce products which accord to the expectations of customers (ISO, 2011).

The ISO periodically review their standards, keeping in view the experiences of certified organisations, experts and consultants. The first revision of ISO 9001 was carried out in 1994, then in 2000 and the current version of this standard was released in 2008. However, no significant changes were carried out in the latest version ISO 9001:2008 compared to ISO 9001:2000 (Martinez-Costa, Choi and Martinez, 2009).

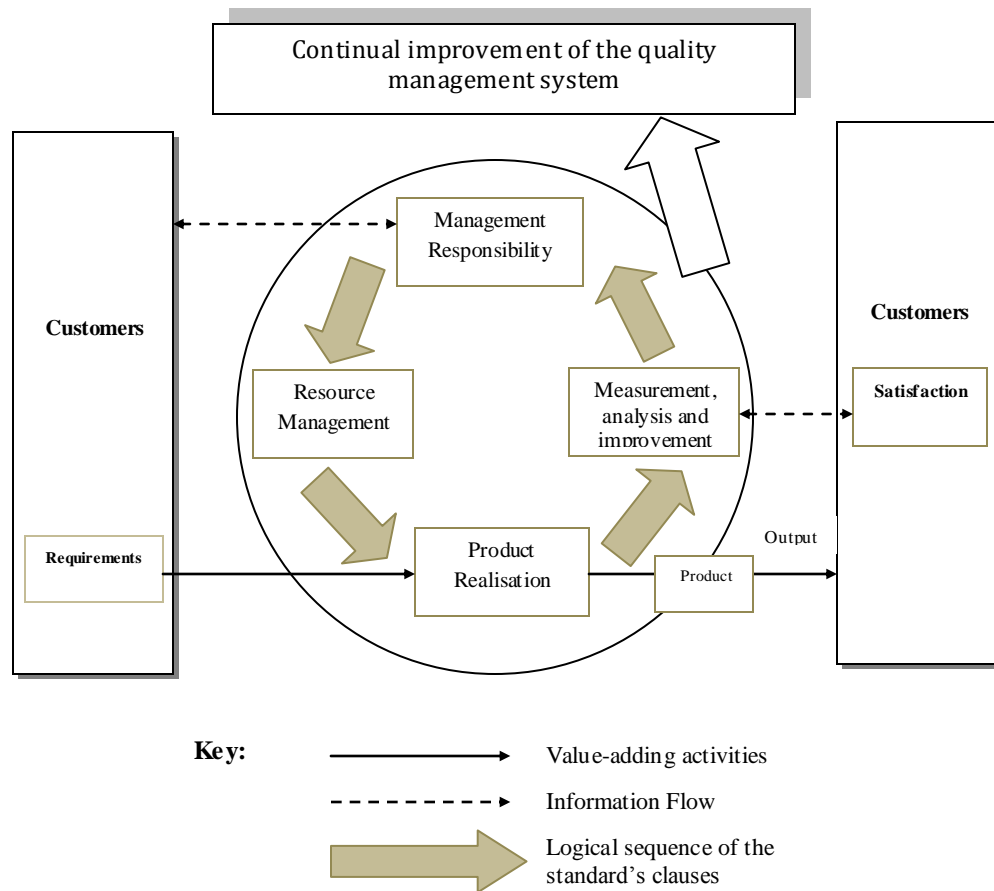
The other standards of the ISO 9000 family provide information about other aspects of quality management system like vocabulary, fundamental concepts and auditing. For example, ISO 9000:2005 provides the fundamentals concepts of quality management systems and defines related terms; whereas ISO 9004:2009 gives guidance to organisations to help support sustained achievements. However,

these two standards are not used for certification, contractual or regulatory use (ISO, 2011).

According to ISO (2011), ISO 9001:2008 is based on eight principles of quality management. These principles are leadership, involvement of people, process approach, system approach to management, continual improvement, and factual approach to management, mutual beneficial supplier relationship and customer focus.

Further, ISO 9001:2008 is based on eight clauses. The first three clauses indicate the scope, normative references and terms and definitions. Clause Four describes the requirements of quality management system. The general and documentation requirements for this standard are also contained in this clause. Clauses Five to Eight present the requirements of the standard related to management responsibility (Clause 5), resource management (Clause 6), product realisation (Clause 7) and measurement, analysis and improvement (Clause 8) (ISO 9001:2008).

Figure 2.3: A Model of a Process-based Quality Management System



(Source: ISO 9001:2008, Quality Management Systems-Requirements, p.vi)

The process approach is considered to be the corner stone to achieve continual improvement in this standard. The “process approach” refers to

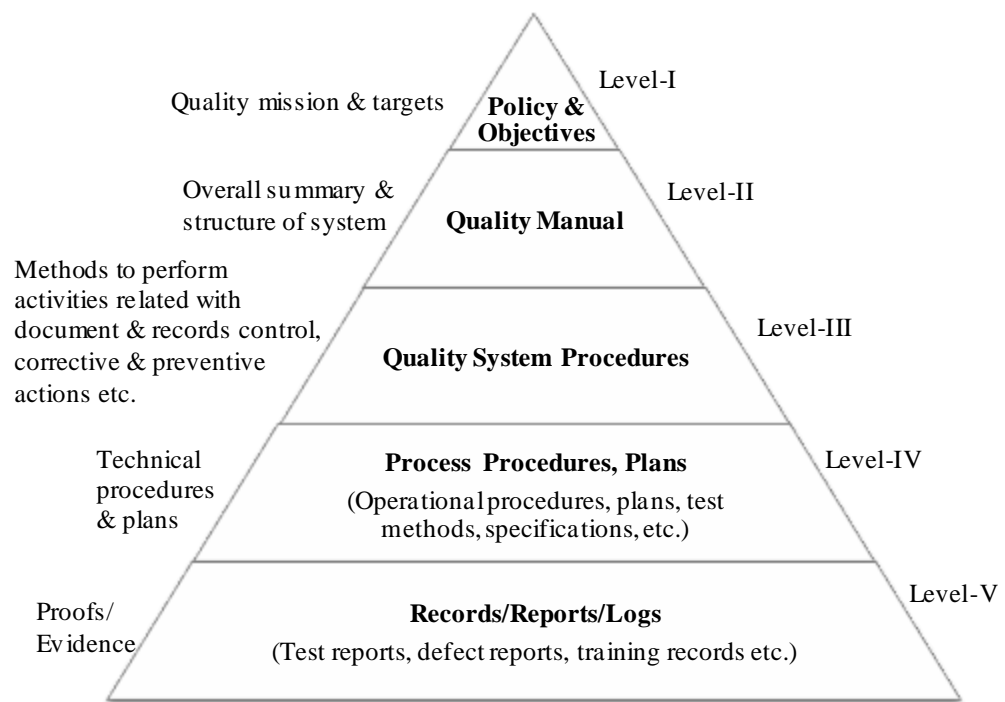
the application of a system of processes within an organisation, together with the identification and interactions of these processes, and their management to produce the desired outcome. (ISO 9001:2008, p. v)

This process approach is depicted in Figure 2.3.

This model indicates the process links between Clauses Four to Eight of ISO 9001:2008. From this model it is evident that customer satisfaction is given great

importance in this standard. The customers play a vital role in defining the requirements as inputs. At later stages, organisations have to determine whether they were able to satisfy their customers. This comparison provides the opportunity for further improvement (ISO 9001:2008).

Figure 2.4: The General Documentation requirements of ISO 9001:2008



Source: Based on the documentation requirements in Clause 4.2.1 of ISO 9001: 2008 Quality Management Systems

ISO 9001:2008 has a different structure from the EFQM Excellence Model. It does not contain separate sections for enablers and results. However, ISO 9001:2008 places a lot of emphasis on the documentation of the quality management system. Figure 2.4 depicts the documentation requirements of ISO 9001:2008. There are five levels of documents required by this standard.

Figure 2.4 also contains some details about each level. An organisation which is interested in getting certification to this standard needs to develop all of these

documents. There are some mandatory requirements in the documentation. For example, it is compulsory to develop procedures for document control, record control, auditing, preventive actions, corrective actions and control of non-conforming products (ISO 9001:2008).

It is mandatory to develop a quality manual. Some procedures, especially in operations, are not required in documented form. Similarly, organisations have to show evidence of the implementation of the quality system in the form of records. The mandatory records required by this standard are shown in Table 2.4.

The review of activities in Table 2.4, with the records required by ISO 9001:2008, indicates that these are not strange activities. Such activities are performed in every organisation. This standard only requires that organisations should keep a record that all of these activities were performed at their specific occasions. Such records help organisations in the review of their performance and the effectiveness of their quality management system.

Table 2.4: The records of activities required by ISO 9001:2008

Activity	Clause of ISO 9001:2008	Activity	Clause of ISO 9001:2008
Management reviews	5.6.1	Results of design and development reviews	7.3.4
Education, training, skills and experience of employees	6.6.2e	Results of design and development verification and validation	7.3.5 and 7.3.6 respectively
Evidence that the realisation processes and resulting product fulfil requirements	7.1d	Results of review of design and development changes	7.3.7
Design and development inputs	7.3.2	Results of calibration	7.6
Results of supplier evaluations	7.4.1	Internal audits	8.2.2
To demonstrate process validity where output cannot be measured	7.5.2d	Release of product	8.2.4
The unique identification of a product	7.5.3	Nonconforming products	8.3
Customer property	7.5.4	Results of corrective action	8.5.2
Basis for calibration of measuring equipment	7.6a	Results of preventive action	8.5.3

Companies that are interested in getting certification to this quality management system need to satisfy all the requirements against which the developed system can be evaluated. A third party (certification body) audits the organisational quality management system against the criteria of ISO 9001:2008. If the certification body is satisfied about the implementation of the quality management system, they award an ISO 9001:2008 certificate to the company and specify the scope of the certification.

Normally, this certificate is awarded for the duration of three years. Within that time the certification body again audit the system after a specific duration (normally one year). If they find any major violations of the standard's requirements, they can cancel the certificate. However, organisations can also implement ISO 9001:2008 for their own internal and external benefit, without trying for certification

Stevenson and Barnes (2001) reveal that many experts criticise the formal certification process of ISO 9000. They believe that certification is too expensive and is about the pursuit of quality certificates rather than the achievement of any quality goals. They further assert that many companies have indeed achieved benefits after the implementation of ISO 9000, but these benefits were substantially less than the anticipated ones. Excessive paper work undermines the efficiency of work processes. Similarly, the costs involved in getting ISO 9000 certification are too high compared to the benefits achieved.

The latest version of ISO 9000 (ISO 9001:2008) is based on almost all the key elements of TQM discussed in Section 2.2. However, Gryna et al. (2007, p.51) claim that the "ISO 9000 series should be viewed as the minimum elements of a quality system".

A detailed discussion about the correspondence between TQM and ISO 9001:2008 is given in Section 2.5.1.1.

2.5.1.1 ISO 9000 and TQM

Considerable research has investigated the association between ISO 9001 certification and the implementation of TQM philosophy. However, the literature

seems inconclusive about this relationship (Sampaio, Saraiva and Rodrigues, 2009). Martinez-Lorente and Martinez-Costa (2004) consider that the principles of ISO 9000 contradict TQM philosophy. They indicate that there are some areas where ISO 9000 and TQM comply with each other; however, other areas contradict each other. For example, ISO 9000 is very bureaucratic, which demotivates employees. Similarly, TQM emphasises the development of long-term relations with suppliers, whereas ISO 9000 focuses on the control of products are being received from suppliers.

In contrast to Martinez-Lorente and Martinez-Costa, the findings of Magd and Curry (2003) agree that ISO 9000 is an important aspect of TQM and combined implementation of both approaches could lead to organisational success. They further indicate that both approaches have a propensity to complement each other. The early implementation of ISO 9000 can provide stability and consistency in an organisation's work. Later on the implementation of the TQM philosophy can enhance the overall performance of an organisation.

Magd and Curry (2003) are supported by the findings of Rao, Ragu-Nathan and Solis (1997), which provide empirical evidence from four countries: India, USA, Mexico and China. They show that the companies that were certified to ISO 9000 had higher levels of information and analysis, quality leadership, human resource development, strategic quality planning, supplier relationship, quality assurance, and customer orientation. Similarly, Srivastav (2010) offers empirical evidence from the production units of the Indian public sector manufacturing industry, describing how implementation of ISO 9000 facilitates organisational development. He further indicates that this standard enhances the functionality of

organisational culture, strengthens problem solving through teamwork and weakens problem-avoidance. Jang and Lin (2008) conducted a study in Taiwan and identify that ISO 9000 certification supports the implementation of process management. They suggest that organisations improve their operational performance after getting ISO 9001:2000 certification. Sroufe and Curkovic (2008) also indicate that certification to ISO 9001:2000 improves processes and helps to minimise production losses. Rao, Ragu-Nathan and Solis (1997) highlighted that the companies which were certified to ISO 9000:1994 had higher levels of quality leadership, human resource development, strategic quality planning, supplier relationship, quality assurance, and customer orientation.

Wiele, Dale and Williams (1997) point out that any differences between TQM and ISO 9000 are in the process rather than the content. A review of the contents of the latest version of ISO 9000 shows that all the principles of this standard are based on TQM philosophy. Thus, these two approaches do not contradict each other. However, the documentation of organisational processes is much more emphasised in ISO 9000. This gives the impression that the nature of this standard is bureaucratic. One aspect which is emphasised in TQM philosophy but given less importance in ISO 9000 is the development of a quality culture. However, Terziovski and Power (2007) stress that ISO 9000 certification can help organisations in the development of quality culture.

The above research and discussion leads to the conclusion that it is not yet clear whether ISO 9000 facilitates the implementation of TQM or contradicts it. Indeed, the new version of the quality management system is more compatible with the

TQM philosophy; however, an empirical investigation of this assumption is still needed, because the previous literature is inconclusive about such a relationship.

2.5.1.2 The Relationship of ISO 9001 Certification with Organisational Performance

The literature is also inconclusive about the relationship between ISO 9001 certification, and organisational performance and competitiveness. For example much empirical research indicates that there is no relationship or a very weak relationship between ISO 9001 certification and organisational performance (Benner and Veloso, 2008; Casadesus and Karapetrovic, 2005; Magd and Curry, 2003; Heras, Gavin and Casadesus, 2002; Wayhan, Kirche and Khumawala, 2002). On the other hand, a number of studies suggest that an organisation's certification to ISO 9001 quality management system is positively associated with the improvement of its performance (Karapetrovic, Fa and Saizarbitoria, 2010; Srivastav, 2010; Masakure, Henson and Cranfield, 2009; Feng et al., 2006; Terziovski and Power, 2007; Chow-Chua, Goh and Wan, 2003).

Many studies provide empirical evidence that ISO 9001 certification enhances customer satisfaction and improves internal processes. For example, Karapetrovic, Fa and Saizarbitoria (2010) conducted a longitudinal survey using data from 1998, 2002 and 2006. The data was collected from more than 1,000 companies based in Catalonia (Spain). The findings of this study reveal that these companies achieved a significant increase in customer satisfaction along with a decrease in defects and customer complaints. Similarly, Chow-Chua, Goh and Wan (2003) suggest that ISO 9001 certification helps in the improvement of internal processes. They emphasise that the documentation for ISO 9000 facilitates employees having

better work instructions and procedures. Consequently, it helps organisations to improve profitability. Srivastav (2010) also reports that implementation of ISO 9000 helps organisational development.

Some studies show that ISO 9000 certification helps in the improvement of export performance. For example, Masakure, Henson and Cranfield (2009) conducted research in the context of textiles and the agro-food sector in Pakistan and show that export performance is positively related to ISO 9001 certification. They add that ISO 9001 certification plays a vital role in establishing credibility in the export environment. Nicolau and Sellers (2010) provide empirical evidence that the stock market reacts positively to the certification of quality management systems.

All of the above-mentioned research indicates that ISO 9001 certification improves organisational performance and competitive positioning. However, a large number of studies find the reverse (Benner and Veloso, 2008; Magd and Curry, 2003). For example, Dick, Heras and Casadesus (2008) state that they cannot find any solid evidence for the influence of ISO 9001 certification on business performance. Heras, Gavin and Casadesus (2002) highlight that ISO 9001 certification has no significant influence on profitability and sales growth. Tsekouras, Dimara and Skuras (2002) assert that the performance of organisations is not significantly improved based on empirical evidence from 143 Greek firms, in both the manufacturing and service industries. Similarly, Dick (2000) underlines that ISO 9000 does not help to improve organisational performance.

Wayhan, Kirche and Khumawala (2002) argue that companies only try to get ISO 9001 certification when they are compelled to by their customers. Thus, ISO 9001

certification is considered more to fulfil external requirements than being a true internal improvement initiative.

The above-mentioned research shows contradictory findings. It is not yet established whether ISO 9001 certification leads to an improved performance.

As discussed in Section 2.3, researchers have not used an adequate framework to measure performance while studying the relationship between TQM and organisational performance. Therefore, the relationship between ISO 9001 certification and organisational performance needs to be investigated using an adequate framework for organisational performance.

Another deficiency in the existing literature has also been identified; the association between the lengths of ISO 9001 certification and the organisational performance was not studied adequately. In all of the above-mentioned studies, the length of time ISO 9001 certification was held is not clear. Thus, it would be very useful to address this aspect to get an in-depth understanding of the association between ISO 9001 certification and organisational performance.

In the next section, the implementation of ISO 9000 quality management system in different parts of the world will be discussed.

2.5.1.3 Adoption of ISO 9000 in the World

ISO 9000 is a widely used quality management standard. This standard has been implemented by over a million organisations in 176 countries, and the number increases yearly. It is especially widely accepted in export-oriented countries (ISO, 2011).

In 2009, the ISO conducted a survey. Data was collected from companies who were certified to ISO 9001:2008. This survey gives detailed insights into the implementation of ISO 9000 quality management system in different countries and regions of the world. It indicates that the percentage growth rate of ISO 9001 certification is different in various areas of the world. For example, annual percentage growth of certification is highest in Far-Eastern countries, followed by European countries, whereas a decline was observed in North American and Central/South American countries. The graph in Figure 2.5 indicates the annual percentage growth in ISO 9001 certifications in the different regions of the world. The majority of Far-Eastern countries are export-oriented, as is China, therefore, the certification of this quality management system could be an essential requirement for their customers. It could also provide a competitive advantage for companies in the international market.

Figure 2.5: The annual growth in the certification of ISO 9000 in 2009

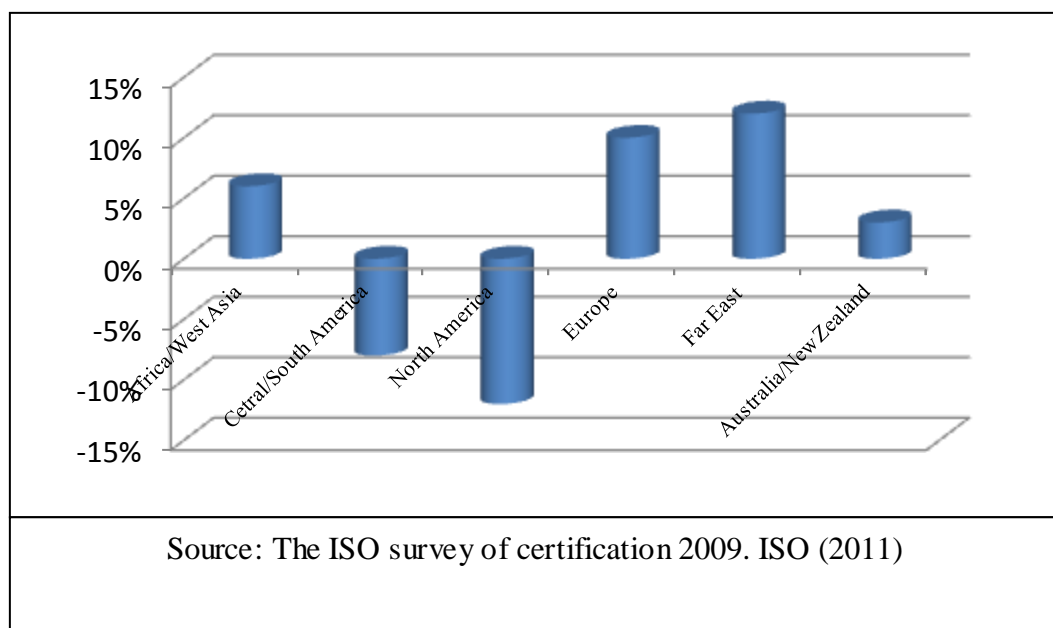
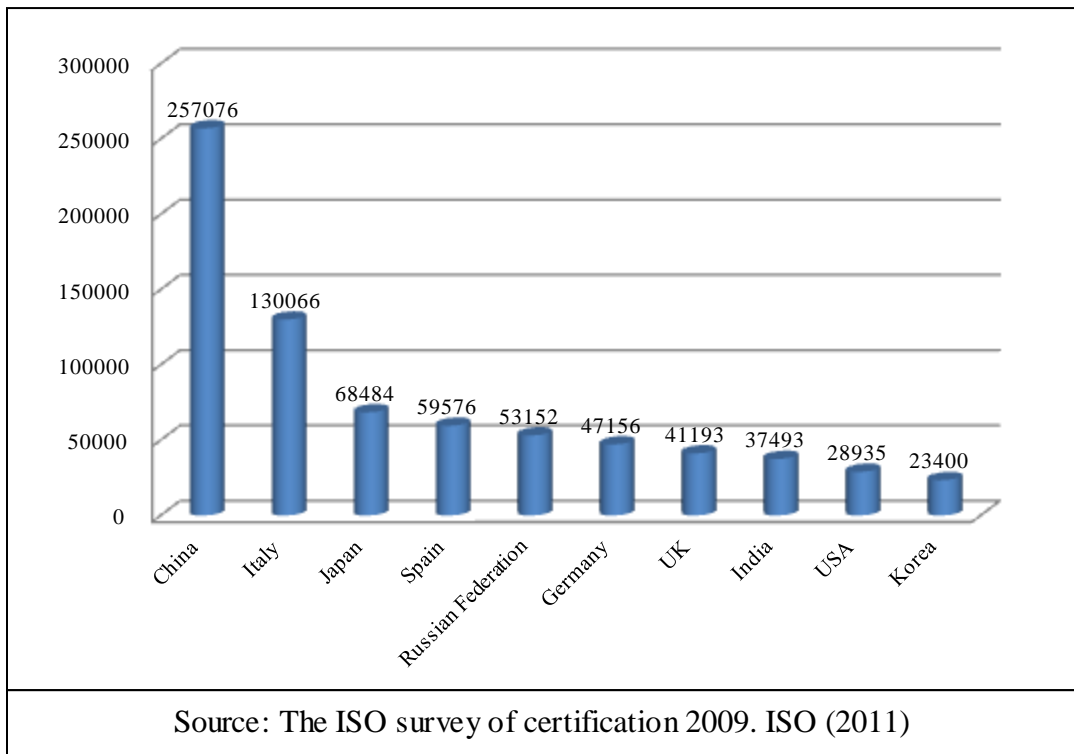
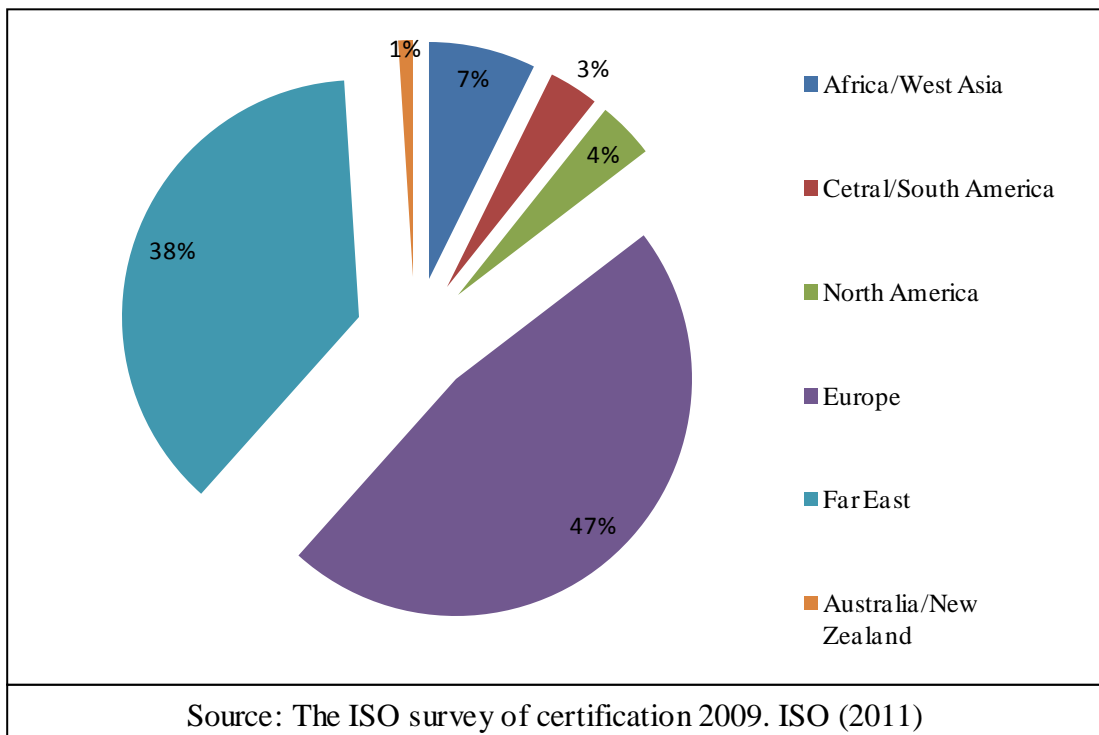


Figure 2.6: The top ten countries in the world for ISO 9001 certification



According to this survey, China is leading the world, with most certified companies, followed by Italy and Japan. The top ten countries according to the number of certified companies are shown in Figure 2.6.

Figure 2.7: The regional share in the ISO 9000 certification in 2009



According to the graph in Figure 2.7, 47% of total ISO 9000 certified companies belong to European countries, whereas just 7% belong to North, South, and Central America. According to this survey ISO 9000 is much more popular in Europe than America.

These results are strengthened by the study of Sun (1999), who showed that North American and Japanese companies lean more towards TQM but less to ISO 9000. However, companies in Europe were more interested in ISO 9000 and less in TQM. He posits that a combination of both ISO 9000 and TQM could produce better results. He further indicated that companies in Australia, the UK and Spain are trying to combine the two approaches, to improve the quality of their organisations.

It is quite interesting to see the percentage of companies certifying to this quality management standard in different parts of the world. However, it would be more interesting if ISO could provide information about companies which have discontinued using the standard after adopting it.

In the next section, the EFQM Excellence Model will be discussed in detail. The effectiveness of this Excellence Model as a TQM framework is evaluated and compared with the other available models and frameworks of TQM.

2.5.2 EFQM Excellence Model

The EFQM Excellence Model was developed by the European Foundation for Quality Management (EFQM) in 1992. The EFQM was formed in 1988 by fourteen leading European businesses. It is a member based, not for profit organisation, which specifically supports European companies in their attempt to

achieve sustainable excellence. The EFQM model was introduced for the European Quality Award. The latest version of the EFQM Excellence Model was issued in 2009. It is a non-prescriptive framework and organisations can use it to evaluate their performance as part of the process towards excellence gaining an awareness of their strengths and weaknesses. It claims to be a complete system for quality management (EFQM, 2011).

According to the CEO of the EFQM, as the majority of organisations are being affected by the recession in 2009, they are facing serious challenges in improving their performance. By applying the EFQM Excellence Model these organisations can effectively improve their organisations. He stated that:

The EFQM Excellence Model can play a vital role in reviewing and updating strategy, based on the needs, expectations and concerns of the stakeholders, to develop strategies and supporting policies that will cope with these pressures. The Model can help to ensure that these strategies and policies are effectively deployed within the organisation; playing to the strengths and ensuring any organisational weaknesses that will affect the ability to deliver these strategies are identified, understood and addressed.(EFQM, 2010, p.3)

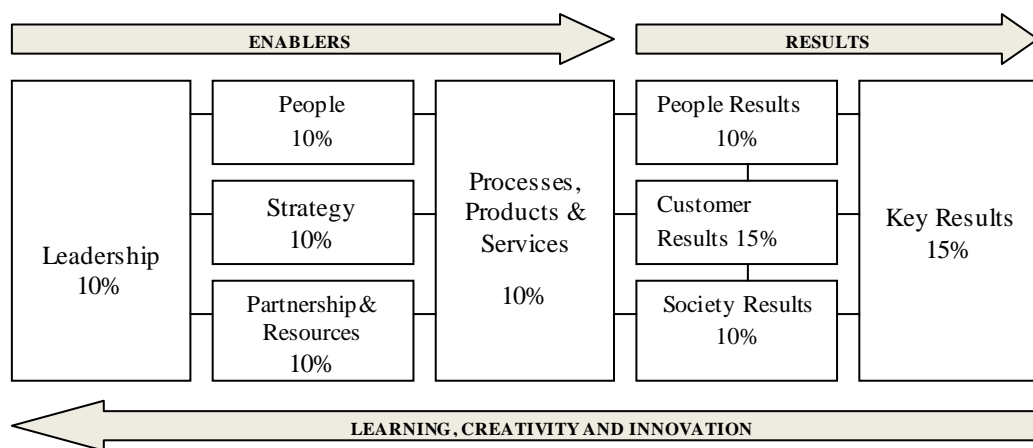
Martin-Castilla and Rodriguez-Ruiz (2008) assert that the EFQM Excellence Model could be used as a learning model. They argue that this Model provides a strategic framework for knowledge management and innovation. Tari and Molina-Azori (2010) note that EFQM Excellence Model could be used for environmental management. However, Rusjan (2005) maintains that the Model does not give

specific guidelines for problem identification. He further adds that this model does not offer any structured approach to exploit strengths or prioritize areas of improvement.

Eight fundamental concepts of excellence provide the basis for the Model. These are customer focus, results orientation, leadership & constancy of purpose, management by processes & facts, people development & involvement, continuous learning, improvement & innovation, partnership development and corporate social responsibility (EFQM, 2010).

The EFQM Excellence Model has two major categories, ‘Enablers’ and ‘Results’. There are nine criteria in this Model. Five of these come under ‘Enablers’ and four in the ‘Results’ category. Figure 2.8 shows the structure of the EFQM Excellence Model.

Figure 2.8: The EFQM Excellence Model



Source: EFQM (2011)

Table 2.5 contains the Enablers’ constructs. The EFQM excellence framework is based on the premise that “excellent results with respect to performance, customers, people and society are achieved through leadership driving policy and

strategy that is delivered through people, partnerships and resources, and processes” (EFQM, 2003, pp. 7, 12).

Table 2.5: The Definition of the Enablers in the EFQM Excellence Model

Dimension	Definition
Leadership	Excellent organisations have leaders who shape the future and make it happen, acting as role models for its values and ethics and inspiring trust at all times. They are flexible, enabling the organisation to anticipate and react in a timely manner to ensure the on-going success of the organisation.
Strategy	Excellent organisations implement their mission and vision by developing a stakeholder focused strategy. Policies, plans, objectives, and processes are developed and deployed to deliver the strategy.
People	Excellent organisations value their people and create a culture that allows the mutually beneficial achievement of organisational and personal goals. They develop the capabilities of their people and promote fairness and equality. They care for, communicate, reward and recognize, in a way that motivates people and builds commitment and enables them to use their skills and knowledge for the benefit of the organisation.
Partnership and Resources	Excellent organisations plan and manage external partnerships, suppliers and internal resources in order to support strategy, policies, and the effective operation of processes.
Processes, Products & Services	Excellent organisations design, manage and improve processes to generate increasing value for customers and other stakeholders.

Source: EFQM (2011)

Some studies empirically evaluate the internal structure of the EFQM Excellence Model (Bou-Llusar et al. 2009; Calvo-Mora, Leal and Roldan, 2005; Eskildsen, Kristensen and Juhl, 2001; Eskildsen and Dahlgard, 2000 and Dijkstra, 1997). The results of these studies show that the underlying assumptions of the structure of EFQM Excellence Model are valid. For example, Bou-Llusar et al. (2009) provide empirical evidence that excellence in Enablers leads to excellence in

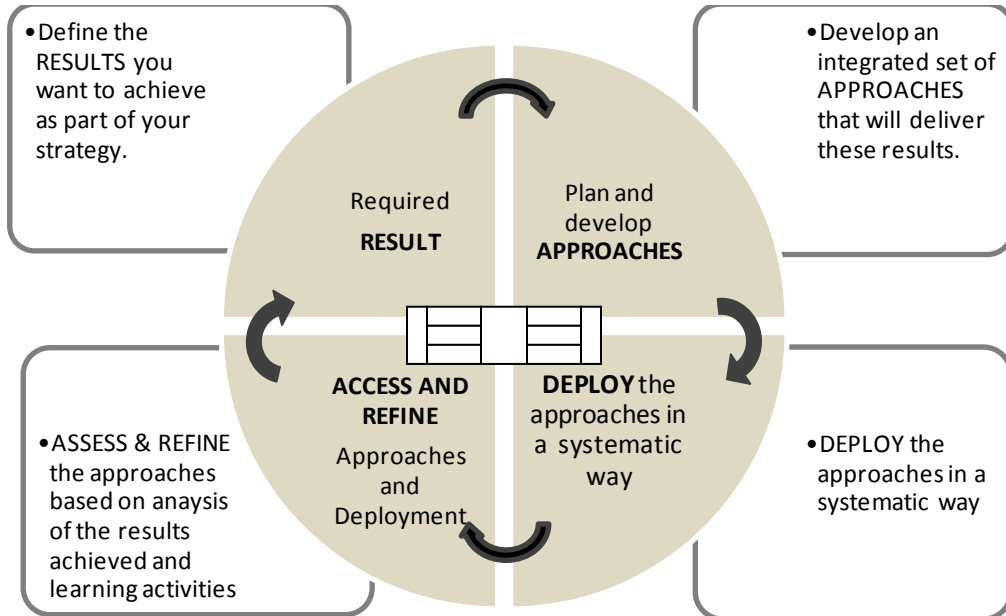
results. They indicate that all the Enablers are interrelated to form a combined factor. They argue that this factor could be considered to be TQM. Eskildsen and Dahlgaard (2000) identify that an organisation can improve employee satisfaction by focusing on the criteria of the five Enablers in the Excellence Model. Furthermore, Calvo-Mora, Leal and Roldan (2005) evaluate the Model in the context of educational institutes and confirm that excellence in Enablers leads to better business results.

In the EFQM Excellence Model different criterion weights are given to the constructs in the Enablers and Results criteria. This difference was quite high in the old versions of the Model. Eskildsen, Kristensen and Juhl (2001) argue that less effort has been made to study the criterion weights, which is a problematic area in relation to the use of the Model. The size and nature of the organisation and the economic conditions of the market may affect the strategic focus of the organisations within each industry and country. In their empirical study of Danish companies, they highlight that companies' weights were not aligned with the official EFQM weights. These companies do not consider the Enablers and Results block as being equally important. For the Danish companies 'customer results' and 'people results' are perceived as more important than 'society results' and 'key performance results'. In the latest version of EFQM Excellence Model this issue is addressed and an effort has been made to balance the criterion weights (EFQM, 2010).

This model is based on RADAR (Results, Approach, Deployment, Assessment and Review) logic. Figure 2.9 shows the RADAR approach, which emphasises

defining the results an organisation wants to achieve as part of their strategy, before the planning phase (EFQM, 2011).

Figure 2.9: The 'RADAR' Approach in EFQM Excellence Model



Source: Adapted from EFQM (2011)

In the latest revisions of the EFQM Excellence Model, along with many other changes the words “TQM” and “quality” are being wiped out of the whole model. This change has initiated a debate about the concepts of TQM and organisational excellence along with many questions, such as whether the Excellence Model is based on TQM principles or if they are different. Dale et al. (2000, p.7) criticise the EFQM because of the elimination of the term “quality” from the Excellence Model. They assert, “there is no justification for the EFQM to have tampered with the model in the manner described, particularly at a time when even cynics have started to believe in its value”. They further add that the use of the term “excellence” may be fine for quality foundations, management consultants and businesses, but it creates problems in the explanation of excellence, in the

educational process. Ultimately, the concept behind “excellence” cannot be explained without discussing “quality”.

Adebanjo (2001, p.40) says that TQM and business excellence are not two different concepts: “not only does TQM complement excellence, quality never really died at least, not with historically quality oriented organisations.”

Some research empirically evaluates the internal structure of the EFQM Excellence Model and identifies that it reflects the holistic approach of TQM (Bou-Llugar et al., 2009; Westlund, 2001; Ghobadian and Woo, 1996). Corredor and Goni (2010) suggest that the EFQM Excellence Model could be used as a proxy of TQM implementation. Bou-Llugar et al. (2009, p.16) recommend that the EFQM Excellence Model or the MBNQA could be used as guidelines for the implementation of TQM. They describe the EFQM Excellence Model as providing “detailed information through the definition of the criteria, sub-criteria and guidance points that can be useful in the measurement of TQM implementation.” Kim, Kumar and Murphy (2010, p. 692) also put forward that “the EFQM model, however, is based on the principles and practices of total quality management (TQM)”. A similar conclusion is reached by Tari (2005). In addition, Martin-Castilla and Rodriguez-Ruiz (2008, p.135) seem to agree with these authors and mention that, “quality is a living concept that has experienced a continuous evolution acquiring new meanings. Currently, it is mostly understood as “excellence”.

The comparison of the excellence principles mentioned in EFQM (2010) and quality management principles described in ISO 9001:2008 indicate minor differences. These minor differences, if they exist, further decrease when the

principles of excellence are compared to the 14 points introduced by Deming (1986), the 14 steps for quality improvement of Crosby (1984) and the teachings of Juran & Godfrey (1999) .

Thus, after evaluating the literature above, it is difficult to say that the EFQM Excellence Model is not based on the principles of TQM. The above discussion also indicates that TQM or *quality* is a reality, it will not go away. However, it may take different forms, sometimes as ‘excellence’ or ‘business excellence’ or ‘organisational excellence’, but the underlying assumptions will remain the same. Thus, it can be concluded that the EFQM Excellence Model is a good approximation of TQM. Therefore, in this research, the terms ‘excellence’ and TQM philosophy are used interchangeably.

2.5.2.1 Comparison between EFQM Excellence Model and Other Standards

A number of researchers have compared the EFQM Excellence Model to other management standards and approaches. The majority of such studies conclude that the EFQM Excellence Model is the best available framework to implement the concepts of TQM philosophy (Adebanjo, 2001).

Russell (2000) gives a detailed comparison between the main and sub-criteria of the EFQM Excellence Model and ISO 9001:2000. It is evident from the comparison that there is a very clear link between the sub-criteria of the Excellence Model and the clauses of ISO 9001:2000. However, there are a few places where the relationship is not very strong. In particular, ISO 9001:2000 does not address society results and does not put emphasis on people and key

performance results. Russel (2000) compares this model with the old version of ISO 9000. A similar situation still exists in the latest version, ISO 9001:2008, especially in the case of the society results. Nevertheless, Gutierrez, Torres and Molina (2010) indicate that ISO 9001:2008 could be used as a ladder in the implementation of the EFQM Excellence Model.

Comparing the EFQM Excellence Model to the MBNQA, ISO 9001:2001, and the Deming Application Prize Tari (2005) shows the Excellence Model is the best representative of TQM philosophy compared to the other models.

Kim, Kumar and Murphy (2010) indicate that the EFQM Excellence Model enables organisations by providing categories of the practices and detailed criteria to measure the performance. Indeed the underlying concepts in the EFQM Excellence Model are substantially the same as the MBNQA, but in the EFQM Excellence Model the society and people results are addressed more comprehensively. It also gives greater importance to partnership development and customer results.

It is evident from the above discussion that the EFQM Excellence Model seems the best option to implement TQM from among the available frameworks and models.

Table 2.6: A Comparison between the EFQM Excellence Model and other Models

Elements	EFQM Model	ISO 9000	MBNQA
Purpose	To promote sustainable excellence in European organisations and to increase awareness of the importance of quality in their competitiveness across the European community	To assist organisations to implement and operate an effective QMS	To recognize US organisations for their achievements in quality and performance and to raise awareness of the importance of quality and performance excellence as a competitive edge
When/by whom Established	1992, created by the EFQM	1987, established by the ISO	1988, established by the US Congress.
Basic Premise	Excellent results with respect to performance, customers, people and society are achieved through leadership, people, policy and strategy, partnerships and resources, and processes	Certain generic features of management practices can be standardised. A well-designed, implemented, and managed QMS improves confidence that companies' outputs will meet customer requirements and satisfaction	An organisation can improve overall performance by concentrating on the Baldrige performance excellence criteria
Scope of the Model	All activities and all interested parties of an organisation	All requirements for a QMS	All activities and all interested parties of an organisation
Key evaluation criteria	Leadership, people, policy and strategy, partnerships and resources, processes, people results, customer results, society results, and key performance results	Customer, management responsibility, resource management, product realization, measurement, analysis, and improvement	Leadership, strategic planning, customer and market focus, information and analysis, human resources focus, process management, and business results
Fundamental principles	Results orientation, customer focus, leadership and constancy of purpose, management by processes and facts, people development and involvement, continuous learning, innovation and improvement, partnership development, and corporate social responsibility	Customer focus, leadership, involvement of people, process approach, system approach to management, continual improvement, factual approach to decision making, and mutually beneficial supplier relationships	Focus on results, continuous improvement, delivery of value to customers, valuing employees and partners, focus on the future, innovation, management by fact, social responsibility, leadership, system perspective, and organisational and personal learning
Major model	The EFQM Excellence Model	The model of a process-based QMS describing the ISO 9000 family of standards	The Baldrige award criteria framework
Type of Audit	Self-assessment and external audit	First-party, second party, and third-party audit	Self-assessment and external audit including a scoring scheme
Output	Award: The feedback report to identify strengths and opportunities for improvement and show scoring ranges in each criterion	Certification: The audit report to include conformity or nonconformity with audit criteria and indicate opportunities for improvement	Award: The feedback report to identify strengths and opportunities for improvement and show scoring ranges in each criterion
Source: Kim, Kumar and Murphy (2010, p.688)			

2.6 Implementation of TQM

A number of studies report that the majority of TQM programmes are unable to achieve their stated goals (Rich, 2008; Miller, Hartwick and Breton-Miller, 2004; Walsh, 1995; Harari, 1993). They argue that there are fundamental flaws in TQM philosophy. However, in contrast, the majority of researchers are in favour of the argument that nothing is wrong with the TQM philosophy; rather organisations are unable to implement the approach effectively. For example, according to Lemak, Mero and Reed (2002, p.403), “TQM failures may be attributed more to the failure to implement and manage them as a system and less from any fundamental flaws in the system or its components”. Oakland and Tanner (2007) and Williams et al. (2006) also strongly support this argument. This shows that the way in which TQM is implemented needs to be considered.

A variety of guidelines and frameworks on the successful implementation of TQM philosophy are available in the literature. Many leading researchers, such as Deming (1986), Crosby (1984), Juran (1989), Gryna et al. (2007), Oakland (2001) and Dale et al. (2007), have addressed this aspect. Similarly, models like ISO 9001:2008 and EFQM Excellence Model also give a framework for the implementation of TQM principles. However, it is difficult to find any agreement on the stages involved.

Among different frameworks, the cycle proposed in Deming (2000) is considered to be a general approach for the implementation of any change and improvement initiative. This cycle follows a logical sequence, which starts with the planning of change, followed by the implementation of the change programme. Subsequently, the results of the implementation of the planned initiatives are reviewed and

deficiencies in the planning phase are identified. In the last phase, it is decided whether the change should be adopted or not. Thus, this cycle goes on repeatedly.

Table 2.6: The Three Universal Processes of Managing for Quality

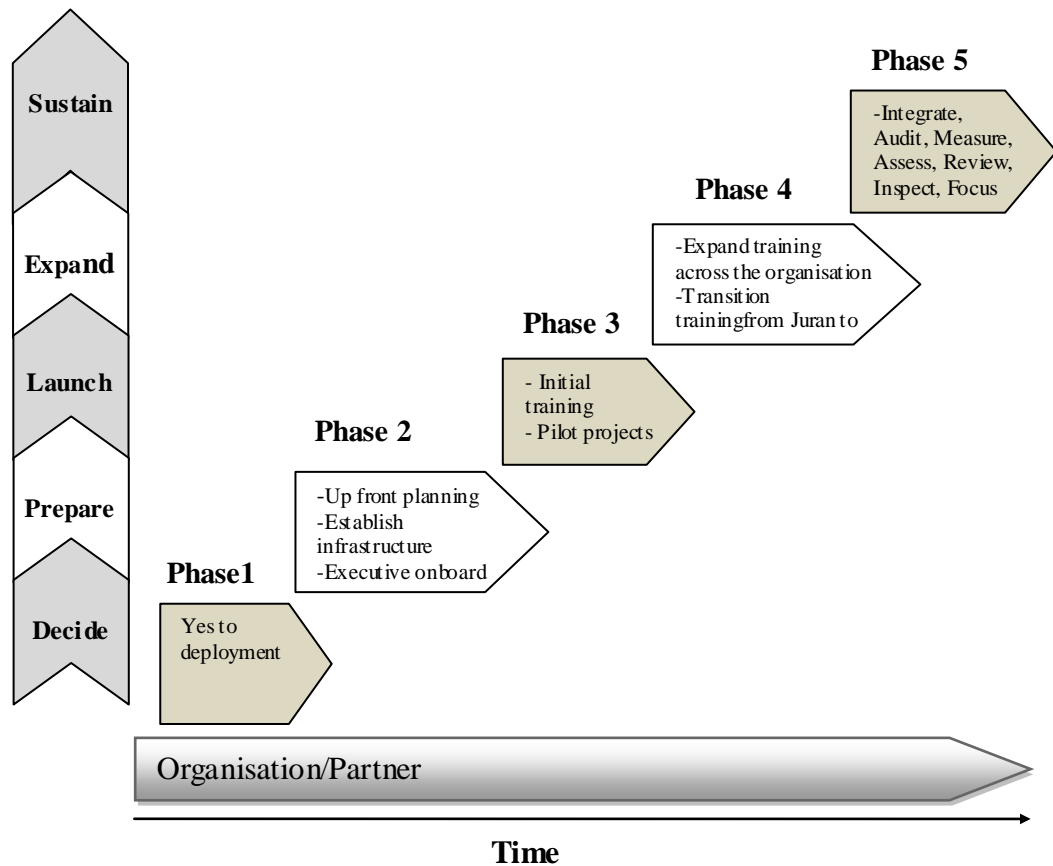
Quality Planning	Quality control	Quality improvement
Establish quality goals Identify who the customers are	Evaluate actual performance	Prove the need
Determine the needs of the customers	Compare actual performance with quality goals	Establish the infrastructure
Develop product features that respond to customer needs	Act on the differences	Identify the improvement projects
Establish process controls; transfer the plans to the operating forces		Establish project teams
		Provide the teams with resources, training, and motivation to: Diagnose the causes Stimulate remedies
		Establish controls to hold the gains

Source: Adapted from Juran (1989 cited by Juran & Godfrey, 1999, p.2.6)

Similarly, Crosby (1984, p.99) has “fourteen steps for the quality improvement” and Juran (1986) offers more detailed and specific insights about the management of quality initiatives in his trilogy. He describes three phases for the effective management of quality. These phases are quality planning, quality control, and quality improvement. Table 2.6 shows the steps which need to be taken within these three phases. Juran argues that these three phases must be completed to minimise chronic waste. Furthermore, this cycle needs to be repeated for continuous improvement. The trilogy diagram demonstrates how chronic waste varies from the quality control phase to the quality improvement phase. Juran and Godfrey (1999) emphasise that organisations should go through all these phases

repeatedly for the elimination or minimization of chronic waste and to improve the quality of their products.

Figure 2.10: The Road Map for Enterprise Quality



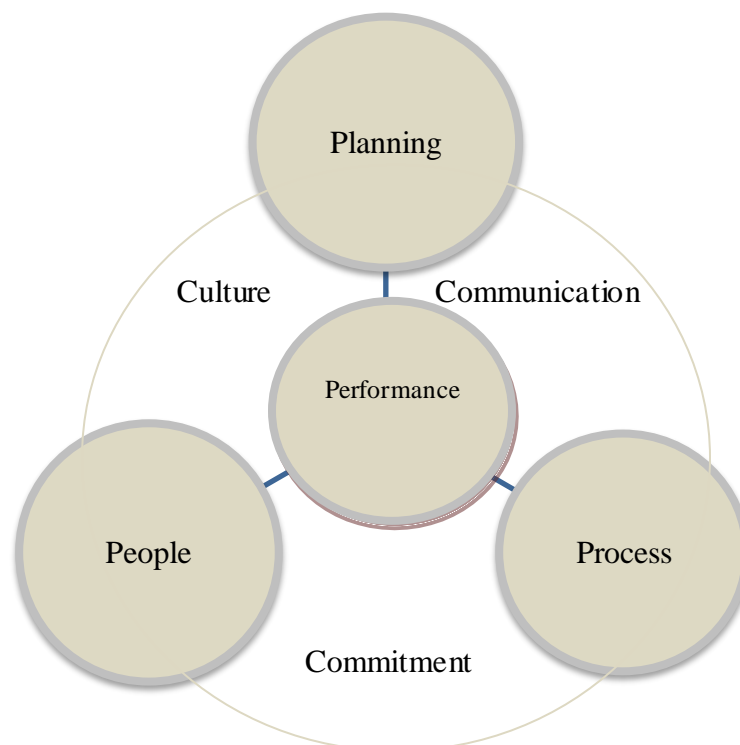
Source: Gryna et al. (2007, p.3), Juran's Quality Planning and Analysis, McGraw Hill

Gryna et al. (2007) provides a road map for enterprise quality. This road map is depicted in Figure 2.10. The road map bears a large resemblance to Deming's cycle and might be considered a detailed and extended form. The first two phases in the Gryna et al. (2007) framework seem similar to Deming's cycle. However, they divide up Deming's 'Plan' phase into two phases, *Decide* and *Prepare*. In the *Decide* phase a member of the executive team decides to implement change and then collects the best information about the change. Whereas in the *Prepare* phase,

the infrastructure required for change is established and all the executives are brought on board.

One aspect which is different from Deming's cycle is the deployment of the plan. Gryna et al. (2007) suggested that in the first phase of execution, organisations should implement pilot projects. The lessons learned in the pilot project should be properly reviewed and then these projects should be expanded. The last three phases of Gryna et al. (2007) covers all the aspects mentioned in the *Study* and *Act* phases of Deming's cycle. The Gryna et al. framework also covers the majority of the fourteen steps found in Crosby (1984).

Figure 2.11: The Framework for Quality Management by Oakland

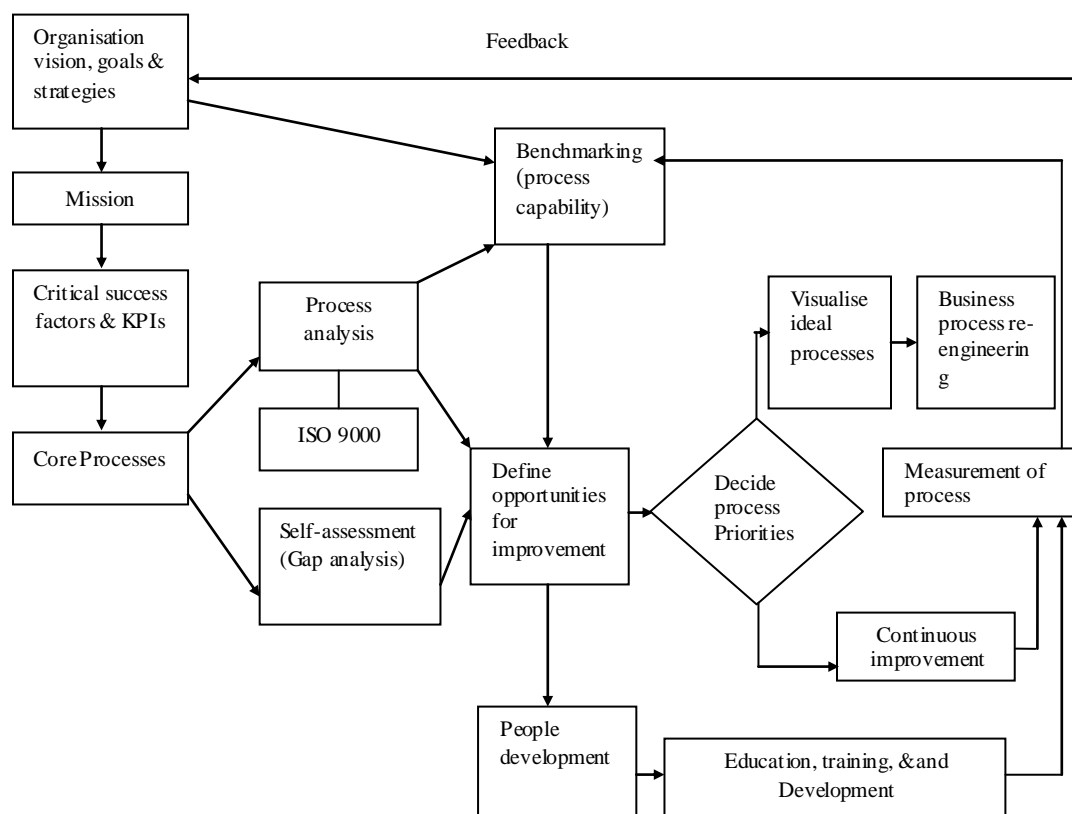


Source: Oakland, 2004, p.36

Oakland (2004) offers a model for the implementation of quality management, which is depicted in Figure 2.11. According to this model, planning, process and people play the vital roles in delivering quality products and improving

organisational performance. He calls these four constructs hard management necessities. He also maintains that change in the organisational culture, commitment of the top management and the establishment of communication channels are important as well. He suggests that effective planning should be the first phase in the implementation of quality management initiatives. In the framework given in Figure 2.12, Oakland elaborates in detail the activities which organisations need to perform at different stages in the implementation of quality management.

Figure 2.12: The Framework for Total Organisational Excellence

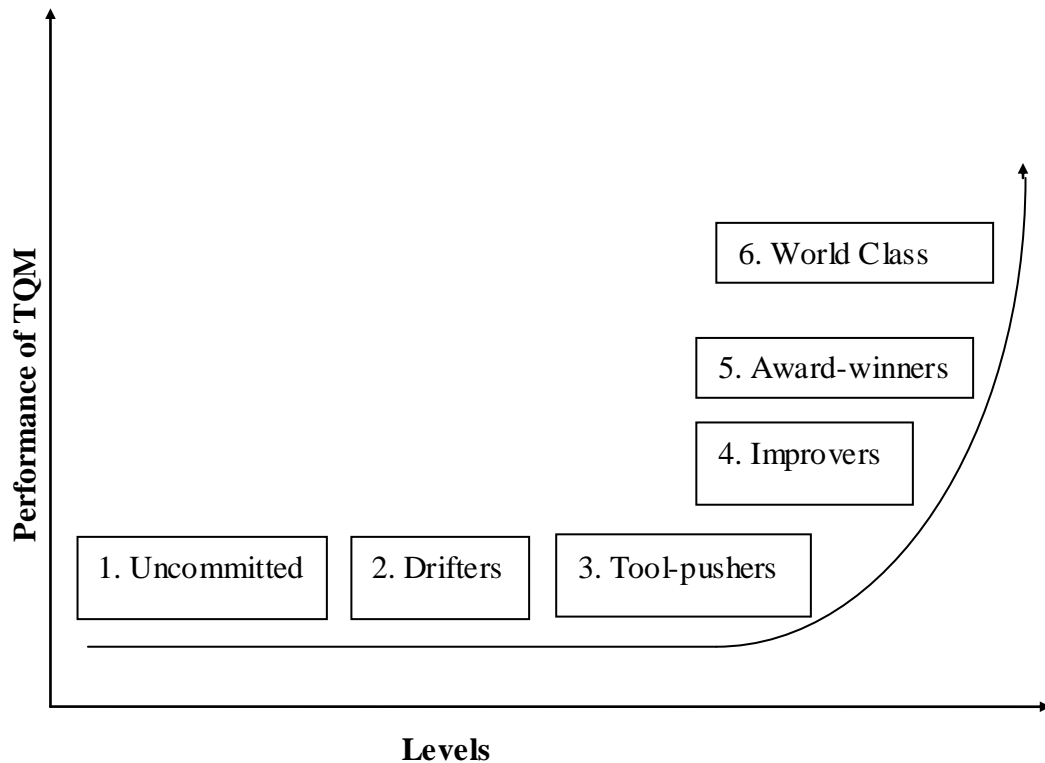


Source: Oakland (2004, p.446)

Dale et al. (2007) have a very detailed framework for evaluating the level of TQM implementation within any organisation. They identify six different levels of

TQM adoption (shown in Figure 2.13), which are uncommitted, drifters, tools-pushers, improvers, award-winners and world-class.

Figure 2.13: A Framework to identify the Levels of TQM Implementation



Source: Dale et al. (2007, p. 111)

It is not necessarily important that organisations pass through all these stages; however, these are characteristics and behaviours which organisations might display at one point in time, in relation to the implementation of TQM. Uncommitted organisations are limited to attaining ISO 9000 certification and the use of a few tools and techniques. Such companies only want to retain the ISO 9000 certification to satisfy their customers. Furthermore, retaining ISO 9000 is considered to be the responsibility of quality department alone. In this framework, uncommitted organisations consider quality as an externally imposed contractual requirement and money wasting activity.

Therefore fewer resources are allocated for quality improvement initiatives. Drifters consider continuous improvement as a programme rather than a strategy; they have superficial teamwork, high expectations from ISO 9000 and no real changes are made in the corporate culture after adopting the TQM philosophy. Tool-pushers have few top managers committed to TQM; therefore, continuous improvement efforts are normally concentrated in the manufacturing departments rather than extending to the whole organisations. These companies have a reactionary management style.

Improvers have the infrastructure for policy deployment and problem solving, along with company-wide training programmes. Such companies have cross-sectional teams and also have trust in each other. Finally, award-winners have a leadership culture throughout the business, which is not dependent on a few individuals. Strategic benchmarking is practiced and decision powers are given at lower levels. To achieve this, world-class companies develop unique success models and work closely with their stakeholders.

The review of the literature related to the implementation of TQM emphasises some key aspects, which need to be considered for the successful implementation of any TQM programme. These aspects include top management commitment to TQM, identification of customers and their requirements, process review, gap analysis, employee training and development, monitoring of the processes and measurement of the performance. Thus, some of these factors will be briefly discussed in the remaining part of this section.

2.6.1 Top Management Commitment to TQM

The most important thing suggested in the literature for the effective implementation of TQM is top management commitment. Many researchers like Deming (1986), Crosby (1984) and Oakland (2004) agree that top management should lead the TQM implementation. Soltani and Wilkinson (2010) support the role of top management in the successful implementation of improvement initiatives. Beer (2003, p.638) describes “the implementation of the technical methods and principles of TQM requires a quality of management—managerial values, attitudes, skills, and behaviour—that enable TQM to flourish over time”. Harari (1993) makes this point very clearly and considers that people at all levels of the organisation become ‘boss watchers’, meaning that they give preference to the tasks that the boss likes. If the boss is preoccupied with quality, they will be too; otherwise quality will not be a priority. Consequently, the implementation of TQM should be initiated from the top, with a clear commitment and dedication for its success.

Quality frameworks like ISO 9001:2008 and the EFQM Excellence Model also describe top management as responsible for the implementation of the TQM programme. The EFQM Excellence Model give considerable emphasis to the leadership construct and regards it as the driving force behind the implementation of the whole framework (EFQM, 2010). In addition, in Figure 2.12, Oakland (2004) clearly indicates that it is the vision of management which leads the organisation during the implementation of TQM.

2.6.2 Identification of Customers and their Requirements

The other important factor in the implementation of TQM is the identification of the organisation's customers. Section 2.2 discusses customer satisfaction as the cornerstone of the TQM philosophy. It is not credible that an organisation can satisfy its customers without knowing them and having information about their needs and wants.

In order to attain this, Deming (2000, p.7) suggests that an organisation should have a close connection with its customers, and "they should work together as a system". However, Deming also makes it very clear that it is not the case that customers tell manufacturers what to produce. As an example he mentions that that, "no customer asked for the photography. No customer asked for the telegraph, nor for a telephone", but "an educated customer may have a firm idea about his needs, what he would wish to purchase" (*ibid*). Thus, organisations should try to identify those needs.

Juran (1986) also gives much importance to the identification of customers and their needs in the planning phase of the trilogy diagram (see Table 2.6, p. 55 for further details). Similarly, ISO 9001:2008 sees the development of customer related processes in the design of quality management system as very significant and Clause 7.2 of ISO 9001:2008 quality management standard is focused on this. This clause briefly explains the steps to be taken by the organisations to gain customer satisfaction (ISO 9001:2008). The EFQM Excellence Model also places emphasis on customer related process in its Enabler criteria (EFQM, 2010).

2.6.3 Installation of Process Monitoring and Performance Measurement Systems

The next step for successful TQM programme implementation is the installation of process monitoring and performance measuring systems. The motivation behind the implementation of TQM is always performance improvement, but because of the unavailability of an adequate performance measurement system, companies are not able to discover the effectiveness of their quality improvement initiatives. Baxter & Macleod (2008, p.55) state that, “effectiveness is a core concept of modern management and depends on an understanding of the process and an ability to measure it”. Abdel-Maksoud, Dugdale and Luther (2005, p. 264) assert that “what you measure is what you get”. Furthermore, Evans (2004, p.230) describes the “positive relationship between the maturity of performance measurement systems and customer, financial, and market results”. Finally, Hall (2008) indicates that performance measurement systems influence managers’ cognition and motivation, which, in turn, influence managerial performance.

All the above-mentioned studies indicate that it is imperative to measure performance for the successful implementation of TQM; however, both in the research and in industry the meaning of ‘performance’ identification understood differently. Meyer (2005) considers that it is difficult to define the term ‘performance’. However, the majority of organisations use financial indicators for their performance measurement.

According to Kaplan and Norton (1992), using financial measures alone does not give adequate information about the performance. Along with financial measures, non-financial measures should also be taken into account, in order to get the real picture of performance improvement initiatives.

Dossi and Patelli (2010, p.502) strengthen this viewpoint and suggest that “performance measurement systems including non-financial indicators offer a more comprehensive picture of performance drivers, because they measure performance areas beyond the financial results”. Fullerton and Wempe (2009) also indicate that the utilization of non-financial measures mediates the association between lean manufacturing and financial performance. The warm acceptance of Excellence Models like EFQM Excellence Model and MBNQA further reinforces the viewpoint that TQM principles with adequate performance measurement systems are more effective.

One important aspect which the author has noticed in his industrial experience is that organisations sometimes collect raw data from different processes, but they never perform any further analysis to get meaningful information. Thus, such exercise of data collection does not add value to the process. Furthermore, it is observed that the majority of companies rely on corrective measures rather than taking a preventive approach. This could be the reason that ISO 9001:2008 has made it compulsory in Clauses 8.5.2 and 8.5.3, so that any organisation intending to get ISO 9001:2008 certification has to prove that they have sufficiently established and implemented corrective and preventive procedures for the control of non-conformance within the processes.

2.7 Obstacles in the Implementation of TQM

The literature indicates many obstacles in the success of any TQM programme; some of the significant issues have been identified and will be discussed further in the following sub-sections.

2.7.1 Superficiality

Superficiality in the implementation of the TQM approach is a major issue. Baxter and Hirschhauser (2004, p.208) consider that the implementation of the majority of performance improvement initiatives, like TQM, are intended to highlight the company's competence to the outside world, and the company may never really intend to revolutionise the workplace. The 'pink factories' which adopt this approach in their implementation of TQM can never get success using this philosophy.

Soltani, Meer and Williams (2005, p. 226) assert that, "registration with either the EFQM or one of its partners, such as the British Quality Foundation (BQF) and Quality Scotland Foundation (QSF) or MBNQA, does not necessarily make an organisation a quality-driven one". In addition, Magd and Curry (2003) indicate that the majority of companies get ISO 9000 certification because of customer pressure. They want to show their competence to their customers and are not really concerned about improving the system by using the principles of ISO 9000. This could be the reason that in spite of having ISO 9000 certifications, the majority of companies are unable to improve organisational performance.

The research argues that TQM philosophy should be integrated into the business strategy. For example, Beer (2003, p.633) states that until management do not consider TQM as the "core strategic capability" required to succeed, the initiative will fail. Similarly, Asif et al. (2009), Gryna et al. (2007) and Oakland (2004) say that organisations should not consider TQM as a quick fix, and organisations should implement the spirit of the management approach. The successful

implementation of TQM requires wholehearted effort, from the top to the bottom of an organisation.

2.7.2 Change in Cultural Values

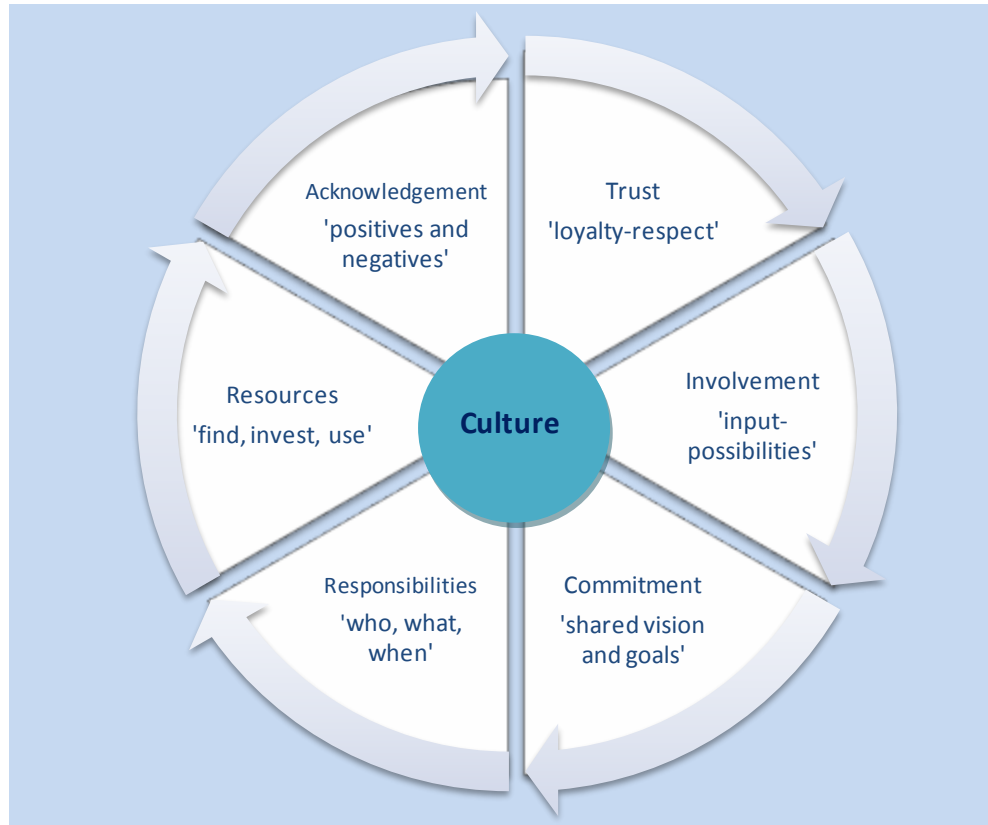
A considerable amount of work argues that the culture of the organisation has the potential to affect successful implementation of TQM (Gryna et al., 2007; Kujala and Lillrank, 2004; Oakland, 2004; Detert, Schroeder and Mauriel, 2000; Youssef and Zairi, 1995). Gryna et al. (2007, p265) emphasise that it is important to “stimulate a culture throughout the organisation that continuously views quality as a primary goal”. They argue that “technology touches the head; culture touches the heart.” Therefore, there should be a change in the pattern of habits, beliefs, values and behaviour concerning quality, along with the technological improvements for the better implementation of quality improvement initiatives.

Kujala and Lillrank (2004) indicate that the success of TQM programmes is dependent on the compatibility of the basic principles of TQM with dimensions of organisational culture. Furthermore, Detert, Schroeder and Mauriel (2000) support this argument, claiming that the gap between the actual culture of the organisation and the culture desired for TQM should be low; otherwise such change initiatives will be very difficult to implement.

Oakland (2004) suggests an ‘openness model’ for the development of a supportive organisational culture. This model is shown in Figure 2.14. According to this model ‘trust’ leads to more involvement of employees, enhances their commitment, increases their empowerment and so on. This cycle moves around

the clock. However, if 'trust' is replaced by 'fear' then it is possible that whole process could be reversed.

Figure 2.14: The Openness Model



Source: Oakland (2004, p.411)

2.7.3 Other Issues

In the previous sections some of the major issues have been discussed. However, there is a range of other factors which have the potential to affect TQM implementation. For example, many companies fail to implement quality improvement initiatives because they do not have sufficient resources (Gryna et al. 2007). Masters (1996) sees inadequate knowledge of TQM, improper planning, incompatible organisational structure and isolated departments as the major issues which organisations could face in the implementation of TQM. He has also

highlighted that the majority of companies do not have an appropriate reward system; thus they are unable to motivate their employees. Dale et al. (2007) also identify similar pitfalls in their study.

2.8 Quality Management Tools and Techniques

Quality management tools and techniques are skills, practical methods or mechanisms which can be used to perform a particular task related to quality improvement initiatives (Mcquater et al., 1995). A tool can be defined as a device which has a clear role. It is often narrow in focus and is usually used on its own. On the other hand, technique has a wider application compared to tool. However, both play a pivotal role in the company-wide approach to continuous improvement (Evans & Lindsay, 2008).

Different research studies (Tari and Sabater, 2004; Ahmed and Hassan, 2003; Bunney and Dale, 1997) highlight that the use of quality tools and techniques is positively related to the level of TQM implementation. Tari and Sabater (2004) identify that use of quality tools and techniques are positively associated with a firm's TQM level and business results. The use of quality tools and techniques indicates the maturity of TQM within an organisation. Additionally, the results of Ahmed and Hassan (2003) support the findings of Tari and Sabater. Bunney and Dale (1997) and Herbert, Curry and Angel (2003) have also found similar results.

Table 2.7: A List of Tools and Techniques for Quality Improvement

The Seven basic quality control tools	The seven management Tools	Other Tools	Techniques
Cause and effect diagram	Affinity diagram	Brainstorming	Benchmarking
Check Sheets	Arrow diagram	Control Plan	Departmental purpose analysis
Control Charts	Matrix diagram	Flow chart	Design of experiments
Graphs	Matrix data analysis method	Force field analysis	Failure mode and effects analysis
Histograms	Process decision program chart	Questionnaire	Fault Tree analysis
Pareto diagram	Relations diagram	Sampling	Poka yoke
Scatter diagram	Systematic diagram		Problem solving methodology
			Quality costing
			Quality Function Deployment
			Quality Improvement Teams
		Statistical Process Control	
Source: Tari and Sabater (2004, p.271)			

Many researchers, such as Goetch and Davis (1994), Rao et al. (1996), Evans & Lindsay (2008), Bunney and Dale (1997) and Mcquater et al. (1995) provide a list of quality tools and techniques. However, Tari and Sabater (2004, p.271) categorise them comprehensively. All of the tools and techniques are given in Table 2.7.

Table 2.8: The Definitions and uses of Major Quality Tools and Techniques	
Tools and Techniques	Definition & Use
Flow Charts	Identify the sequence of activities or the flow of materials and information in a process. Flow charts help the people involved in the process understand it much better and more objectively by providing a picture of the steps needed to accomplish a task.
Control charts	Show the performance and the variation of a process or some quality or productivity indicator over time, in a graphical fashion that is easy to understand and interpret. They also identify process changes and trends over time and show the effects of corrective actions.
Histograms	Provide clues about the characteristics of the parent population from which a sample is taken. Patterns that would be difficult to see in an ordinary table of numbers become apparent.
Cause-and-effect diagrams	It is a simple graphical method for presenting a chain of causes and effects and for sorting out causes and organizing relationships between variables.
Pareto diagrams	A histogram of the data from the largest frequency to the smallest.
Scatter diagrams	Graphical component of regression analysis. Do not provide rigorous statistical analysis. Just provide the important relationship between variables.
Check sheets	Special types of data collection forms in which the results may be interpreted on the form directly without additional processing.
Quality Function Deployment	A planning process to guide the design, manufacturing, and marketing of goods by integrating the voice of the customer throughout the organisation. QFD benefits companies through improved communication and teamwork between all constituencies in the value chain, such as between marketing and design, between design and manufacturing, and between purchasing and suppliers.
Statistical Process Control	A methodology for monitoring a process to identify special causes of variation and signalling the need to take corrective action when it is appropriate.

Adapted from Evans & Lindsay (2008)

Seven tools and techniques among those listed are considered to be the basic quality control tools; some of the seven tools are used for the collection of data (e.g. check sheets) and others (e.g. control charts and histograms) for the display of data. The collection and appropriate display transforms raw data into useful information. This information can be used to solve problems, keep track of work being done and even predict future performance and problems (Goetch and Davis, 1994).

The definitions and use of the major quality tools and techniques are given in Table 2.8, some of the major tools and techniques will now be discussed in further detail.

The requirements of the customer need to be addressed at every stage of the product development. Customers speak in a language different from the engineers; therefore, there is a possibility of loss of the intended message in the translation and subsequent interpretation by design or production personnel. In order to integrate the voice of customers throughout the design process and production systems Quality Function Deployment (QFD) is used (Evans & Lindsay, 2008). Goetch & Davis (1994) comment that QFD helps to reduce product development time, promotes teamwork and provides comprehensive documentation on the integration of the customer voice into the product development processes. Govers (2001) argues that QFD is not a panacea to solve all design problems and produce perfect products. However, it is an excellent tool to control and plan the product development process. It helps to involve the employees from cross functional departments.

Another important technique is SPC, defined by Goetch & Davis (1994, p.488) as “a statistical method of separating variation resulting from special causes from natural variation in order to establish and maintain consistency in the process improvement”. According to Evans & Lindsay (2008), SPC provides a means by which a firm may demonstrate its quality capability, an activity necessary for survival in today’s highly competitive markets. This is the most effective technique used to manage and control organisational processes.

Other quality tools and techniques include Kaizen, Quality Control Circles (QCC) and 5S (five ‘S’). Kaizen is a Japanese word, which means “gradual, orderly, continual improvement” (Soltero and Waldrip, 2002, p. 23). They assert that Kaizen is an evolutionary change process which emphasises making incremental improvements in the organisational processes and product, without large capital investment. The involvement of everyone in the organisation in the change processes is a fundamental requirement of Kaizen. McCarty et al. (2004) agree with Soltero and Waldrip (2002), mentioning that Kaizen is a movement which reflects the personal role and commitment of all employees from an organisation, in working continuously to find a better way. Brunet and New (2004, p.25) indicate that Kaizen is an “embedded way of thinking about work practices”.

5S is another important technique in TQM (Shari-Mohd & Aspinwall, 2001). Kobayashi, Fisher and Gapp (2008) consider 5S to be a strategy for organisational development and learning. Ablanedo-Rosas et al. (2010, p.7079) claim that 5S is both a “philosophy and a set of guiding principles that lead to a continuously improving organisation”. However, to Fukui et al. (2003), 5S represents good housekeeping concepts. They state that the term 5S comes from the English

equivalents of five Japanese words and the Romanized spelling of these words also starts with 'S'. The words are: Sorting (seiri), meaning to sorting out unnecessary items in the workplace and discard them; Systematising (seiton), meaning to arrange necessary items in good order so that they can be easily obtained for use; Sweeping (seiso), meaning to clean your workplace completely so that there is no dust on the floor, machinery, or equipment; Sanitising (seiketsu), meaning to maintain high standards of housekeeping and workplace organisation at all times; and, Self-discipline (shitsuke), meaning to train people to follow good housekeeping disciplines habitually, without being directed.

Kobayashi, Fisher and Gapp (2008) maintain that 5S is based in the philosophical assumptions of Shintoism, Buddhism and Confucianism and the Japanese consider it to be a holistic philosophy, which can be used to raise moral and ethical standards. They empirically highlight that 5S is implemented differently in the US, the UK and Japan. The Japanese have implemented 5S as a philosophy or way of life, whereas managers in the UK and USA consider it to be a tool or technique.

Quality Control Circles (QCC) is a technique in which small groups of frontline operators solve different problems within the workplace by jointly following problem solving processes. QCC helps in the improvement of problem solving skills in the organisation, especially for those who have not yet implemented TQM as a leading philosophy (Fukui et al. 2003). Similarly, benchmarking is widely used as a management technique to improve organisational processes (Adebanjo, Abbas and Mann, 2009; Wong and Wong, 2008).

Many studies indicate that different aspects need to be considered during the implementation of quality tools and techniques. For example, Brunet and New (2004) say that the implementation of Kaizen in Western countries is not the same as in Japan. Employment practices, such as performance bonuses, recognition of the seniority and lifetime contracts, might affect the implementation of Kaizen. They hold that Western managers and workers exist in a more unstable environment compared to their Japanese counterparts. Therefore, Western managers might face challenges in adopting Kaizen as a way of life.

Govers (2001) contends that for the successful implementation of QFD, companies have to develop a quality culture within the organisation. He further argues that before the implementation of QFD organisations have to be able to control production processes by using basic quality techniques or standards like ISO 9000. The other issues in the implementation of quality tools and techniques are the same as those described for TQM in Section 2.7. For example, Ablanedo-Rosas et al. (2010) state that for the effective implementation of 5S, companies should invest in training of management and employees and the top management should show their commitment. Al-Mashari, Zairi and Ginn (2005) emphasise that customer satisfaction, internal customer-supplier chains, benchmarking, teamwork and multi-disciplinary use of quality and tools are the fundamental blocks of QFD. Similar factors are indicated by Herbert, Curry and Angel (2003) for the effective implementation of quality control tools and SPC.

The above discussion indicates that TQM principles cannot be implemented without the use of quality tools and techniques. The use of these tools and techniques ensures the effective implementation of the TQM philosophy and

improves the competitive position of the company. Furthermore, the achievement of business results is associated with the use of quality tools and techniques.

2.9 The Effect of Organisational Size and Type on the Implementation of TQM

The proponents of TQM argue that this management philosophy is universally applicable. However, many studies have questioned this argument and suggest that organisations have to consider the context in which they intend to implement the principles (Sousa and Voss, 2008; Sitkin, Sutcliffe and Schroeder, 1994; and Dean and Bowen, 1994). Sitkin, Sutcliffe and Schroeder (1994, p. 538) maintain “TQM is not a panacea that can be unthinkingly used, but that it must be implemented with a clear sense of the degree to which the context is characterized by uncertainty, non-routines, and/or instability”. Similarly, Keats and Hitt (1988, p.575) claim that “as an organisation develops, the size and structure that evolve begin to exert constraints on organisational actions”.

Among the different contextual factors, organisation size and type are considered very important. However, organisation size is conceptualised differently in various studies, with some referring to ‘size’ as the scope of an organisation and its responsibilities, and others referring to it as the scale of operations. The number of employees in an organisation is used as a generic measure of size (Kalleberg and Buren, 1996).

The literature review shows mixed findings on the effect of organisation size and type on the implementation of TQM. A number of research studies indicate that organisational size and type has an effect (Jayaram, Ahire and Dreyfus, 2010;

Temtime, 2003; Sun and Cheng, 2002; Hendrick and Singhal, 2000; Ghobadian and Gallear, 1997) while others highlight that no such association exists (Sila, 2007; Sharma, 2006; Taylor and Wright, 2003; Germain and Spears, 1999).

Jayaram, Ahire and Dreyfus (2010) indicate that firm size and industry type moderate the effect of top management commitment, customer focus and trust on customer satisfaction, and quality of product and process. Temtime (2003) asserts that as firms grow they place more importance on TQM practices, whereas small firms give more importance to managerial leadership, customer satisfaction and employee empowerment. Ghobadian and Gallear (1997) maintain that organisational size has an influence on the type of strategies used to get greater cross-functional integration, which is also associated with the nature and substance of management leadership, communication methods and the content and extent of training programmes. Similarly, Sun and Cheng (2002), Terziovski and Samson (2000) and Hendrick and Singhal (2000) stress that implementation of TQM practices are associated with organisation size.

In contrast, Sharma (2006) conducted an empirical study in the American Midwest, in which questionnaires were sent to 437 companies in different industries. The findings of this study show that company size and industry type do not significantly affect acceptance of TQM and TQM performance. Similar results are reported by Taylor and Wright (2003), who conducted a longitudinal study which revealed that organisational size is not significantly associated with the successful implementation of TQM programmes. Sila (2007) also highlights that organisational size has no effect on TQM implementation. Furthermore, Germain and Spears (1999) suggest that the size of an organisation has an indirect positive

effect on quality management. However, it does not have a significant direct effect.

The above studies reveal mixed findings about the effect of organisational size and type on the implementation of TQM; therefore this area needs to be investigated in further detail, in future studies (Hendrick and Singhal, 2000).

2.10 Summary

TQM is one of the most widely used management approaches, coming under different names. This management philosophy is based on three fundamental principles: focus on customers and stakeholders, continuous process improvement and the participation of everyone in the organisation in the improvement initiatives.

Many models and standards (e.g. EFQM Excellence Model, MBNQA, ISO 9000 and Six Sigma) are able to facilitate companies in the implementation of TQM. Among the available frameworks, the EFQM Excellence Model is the best representative of TQM philosophy. ISO 9000 is one of the most widely used quality management standards in the world. However, the literature highlights mixed findings on the relationship between certification of this standard and business results.

The empirical literature shows contradictory findings on the association of TQM practices with organisational performance. This relationship needs to be investigated in further detail in developing countries, because the existing literature is dominated by empirical studies conducted in advanced or developed countries like the USA and the UK.

The failure of TQM programmes might be attributed to a failure to implement and manage the principles of TQM as a system, rather than fundamental flaws in the management approach. There are many factors, which have the potential to affect the implementation of TQM. These factors include leadership, cultural aspects, measurement of the performance, superficiality in the adoption of TQM practices and recognition and training of employees. Contextual factors, like type and size of company, might also have the potential to affect the implementation of TQM.

3 TEXTILE SECTOR OF PAKISTAN AND IMPLEMENTATION OF TQM

3.1 Introduction

As discussed in Section 1.3, the main objective of this study is to investigate the implementation of TQM practices in Pakistan. Thus, the data was collected from textile companies, as this is the most important manufacturing sector. This chapter will give an overview of the textile sector in Pakistan and discuss the literature specifically related to the implementation of TQM in this sector.

The global competitiveness of Pakistani textile companies is discussed in Section 3.2. Section 3.3 introduces and discusses the different types of Pakistani textile companies. The extent of quality management practices in Pakistani textile companies is reviewed in Section 3.4, and steps taken by the Pakistani government to sustain this sector and to enhance awareness of quality management practices are discussed in Section 3.5.

3.2 The Global Competitiveness of Pakistan’s Textile Sector

Globalisation is an inevitable phenomenon. It is no longer an option, but a fact whether one likes it or not. Countries like Pakistan have to manage their economies skilfully, to face the global crosscurrents. Due to the WTO regime, quota restrictions have been abolished and now trade is governed by GATT principles. Before the enforcement of the WTO regime, quotas for the developing countries restricted the textile trade. This was one of the reasons that countries like Pakistan were unable to access larger markets. However, the dismantling of the quota regime has initiated open and stiff competition in the international market (Raza, 2007).

Pakistan produces a variety of textile products, which are exported to other countries. Among these products, Pakistan is one of the leading exporters of cotton yarn. According to Textile Vision (2005), Pakistan was the biggest cotton yarn exporter in the world until 1996. However, in 2006, its share of cotton yarn export was 32.8% and cloth was just 8.1% (APTMA, 2011). Table 3.1 contains details of Pakistan’s share of textiles in world trade.

Table 3.1: Pakistan share of Textiles in World Trade (000 Metric Tons)

Year	Cotton Yarn			Cotton Cloth		
	World export	Pakistan export	Pakistan share in world export %	World export	Pakistan export	Pakistan share in world export %
2001	2090	561.3	26.9	2912	271	9.3
2002	2043	550.7	27	3274	299.2	9.1
2003	2120	503.5	23.8	2856	283	9.9
2004	1783	504	28.3	3065	282.2	9.2
2005	1783	671	37.6	3180	239.9	7.5
2006	2380	780	32.8	3235	263.3	8.1

Source: All Pakistan Textile Mills Association (APTMA, 2011)

Table 3.1 indicates that the export level of yarn is much higher compared to cloth. Ideally, the export level of cloth should be higher than that of yarn. However, the latest figures show that there are very significant improvements in the export of readymade garments and hosiery in 2010-11 (see Table 3.6 for further details). This shows that the Pakistani textile industry has started to move in a positive direction.

According to Raza (2007), the fibre quality of Pakistani cotton is better than Chinese or Indian. It is also better in dye, shine, lustre and uniformity. Sixty percent of Pakistani cotton can be categorised as medium-long staple, 37% medium staple, and 3% long staple. The bulk of world production presently ranges between medium-to-medium-long staple, so Pakistan can enter into this market with confidence. The lower count cotton is normally used in the production of towels, bed-sheets and cotton apparel. The graph in Figure 3.1 shows that in 2007, Pakistan was the third largest exporter of short staple textile products in the world. The third world is the biggest market for such types of product. This might be one of the potential areas for the Pakistani textile industry to grow in future.

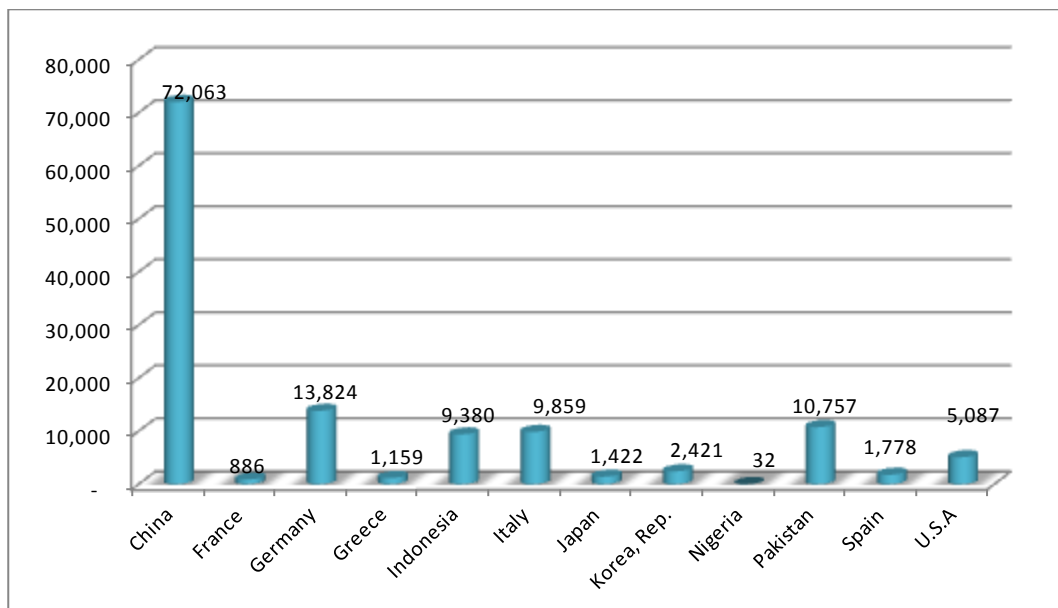
Currently, the Pakistani textile industry is facing serious challenges from China, Bangladesh and India. These countries are much more competitive in the quality and price than textile products from Pakistan (Asian Development Bank, 2009).

The Asian Development Bank conducted a survey between late 2006 and early 2007 with the help of the Indian Council for Research International Economic Relations (ICRIER). The data for this study was collected from interviews with buyers, representatives of departmental stores, giant discount chains, branded

merchandisers and buying houses and intermediaries from all over the world. They were asked to rate the textile products of Pakistan, India, Bangladesh and Sri Lanka on ten key dimensions of competitiveness. The findings of this study indicate that Pakistani textile companies have an advantage over their competitors in terms of price and scale. However, they are not competitive enough on product dimensions like product design, innovation, quality, and consistency and reliability.

Figure 3.1: World Textile and Apparel Trade: exports (Short Staple- 2007)

Value of All Textile and Apparel Exports in USD Millions

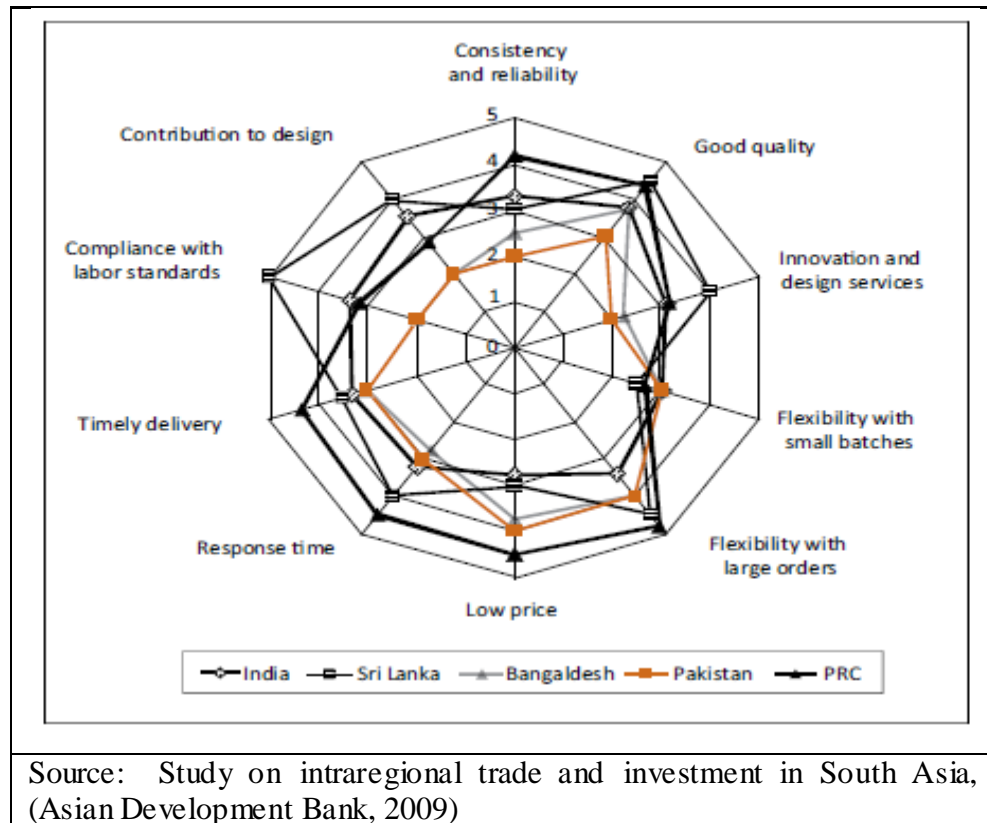


Source: All Pakistan Textile Mills Association (APTMA)

All of the respondents accepted that Pakistani textile products, especially bed linen and home furnishings, are always preferred. Pakistani textile companies have an advantage over their competitors because of having high-quality fabric, in large volumes and in a broad gauge width. Pakistan also has better printing technologies than its competitors (Asian Development Bank, 2009). The details of

the findings of this study are shown in Figure 3.2. On all of the dimensions but one (labour standards), China outperforms all other countries.

Figure 3.2: A Comparison of the Characteristics of Pakistani Textile to the other competitors in South Asia and China



Khan (2003) mentions that considering the current competitive situation the development of the quality culture and a customer-centred approach is crucial for Pakistani businesses. Similar suggestions are given in the Pakistan Economic Survey (2008-09, p.43) that improvement in the quality and reliability of products, building of image and significant change in the business philosophy is imperative for the textile industry of Pakistan.

3.3 The Textile Industry of Pakistan

According to the Pakistan Economic Survey (2010-11), textile is the largest manufacturing sector of Pakistan, contributing about 60% to total exports. It

accounts for 46% of total manufacturing and employs 38% of the total workforce in the manufacturing sector. This sector is considered the backbone of the country's economy. This sector has proven its strength by sustaining its position and growth in the post-quota era.

The global textile & clothing, trade has increased, from US\$212 billion in 1990 to US\$ 612.1 billion in 2008 (Pakistan Economic Survey, 2010-11). Table 3.2 contains the details of exports of textiles and clothing between 2006 and 2009 in the world and in Pakistan.

Table 3.2: Pakistan's Export Figures of Textiles and Clothing (US \$ Billions)

	2006	2007	2008	2009
World Textile	220.4	240.4	250.2	211.0
World Clothing	309.1	345.8	361.9	316.0
Total	529.5	586.2	613.1	527.1
Pakistan Textile	7.5	7.4	7.2	6.5
Pakistan Clothing	3.9	3.8	3.9	3.0
Total	11.4	11.2	11.1	9.5
Source: Pakistan Economic Survey, 2010-11, p. 38				

In 2009, the worth of exported Pakistani textiles was \$6.5 billion and clothing worth was \$3 billion (Pakistan Economic Survey, 2010-11). There is a decrease in export of world textile and clothing in 2009 compared to 2008, which might be due to the world economic crisis. However, it is expected that in the future, this sector will grow and Pakistan can gain a good share of the market.

Table 3.3 shows a 29.92% increase in the value of textiles in 2010-11. Similarly, there is an increase of 26.5% in exports for the same period. Synthetic textiles are also flourishing in Pakistan. There was a 52.30% increase in synthetic textiles in

2010-11 compared to 2009-10. These are all very positive signs for the Pakistani textile sector.

Table 3.3: The Change in the Export of Pakistani Textile in the Last Two Years by Product (US \$ Millions)

	2010-11 (Jul-March)	2009-10 (Jul-March)	% Change
Cotton & Cotton Textiles	9,417	7,268	29.75
Synthetic textiles	443	291	52.30
Wool & Woollen Textiles	96	104	-7.70
Total Textiles	9956	7664	29.92
Total Exports	17799	14072	26.5
Textile as %age	55.94%	54.46%	
Source: Pakistan Economic Survey (2010-11, p. 39)			

However, currently Pakistani textile exports are subjected to anti-dumping investigations, which create uncertainty and demoralize the business community. Pakistan's bed linen exports to the EU are still being levied with 13.1% anti-dumping duty (SMEDA, 2011).

Almost all textile companies in Pakistan operate under private ownership. The majority of the big companies are family owned businesses. The entire range of textile products is produced in Pakistan. Cotton cloth, cotton yarn, cotton fabric, fabric processing, home textiles, towels, hosiery, knitwear, and readymade garments are major products. These products are being produced on both the large scale and in cottage or small & medium units.

3.3.1 The Types of Pakistani Textile Companies

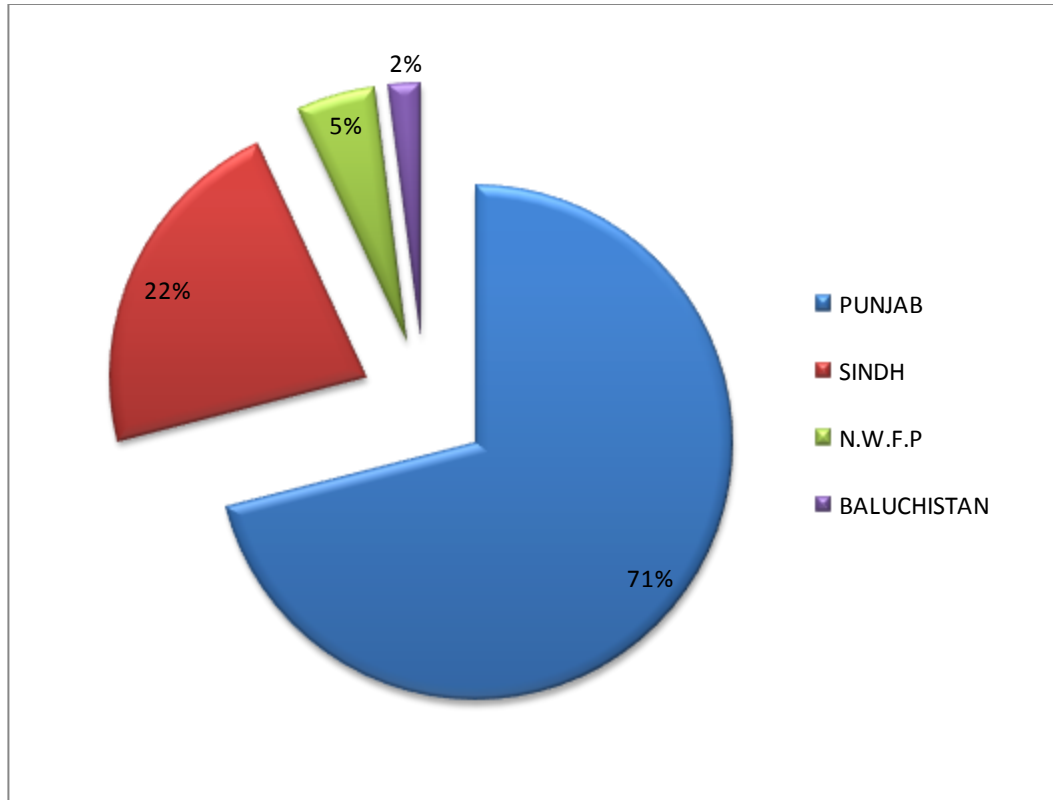
The Pakistani large-scale textile processing industry can be categorised into spinning, weaving, processing (bleaching, dyeing, printing and finishing), garment and made ups.

Spinning is a process which converts fibres into yarn. The fibres might be cotton or manmade such as polyester. Spinning is the oldest and most well established sector. It currently consists of 521 textile units (50 composite units and 471 spinning units) with 10.1 million spindles and 114,000 rotors in operation, with capacity utilization of 89% and 60% respectively during the period July 2010 to March 2011 (Pakistan Economic Survey, 2010-11). Pakistan's spinning capacity is 5% of the total world capacity and 7.6% of Asia capacity (Textile Vision, 2005).

According to SMEDA (2011), the spinning industry has shown considerable growth since the removal of the quota regime compared to its main competitors, India and China. The majority of textile units are installed in the province of Punjab. The detailed breakdown of installed spinning units is given in Figure 3.3.

Textile Vision (2005) shows that all counts of yarn are manufactured by Pakistani spinning industries however, the majority of companies manufacture coarse and medium count yarn. Only a few companies are involved in the manufacturing of fine and super fine count yarn.

Figure 3.3: The Regional Break-down of Installed Spinning Units in Pakistan



Source: All Pakistan Textile Mills Association (APTMA)

Weaving is another important sector of the Pakistani textile industry. The Pakistan Economic Survey (2010-11) states that the Pakistani weaving sector has three main sub-sectors, integrated textile mills, independent weaving units and power loom units. Table 3.4 shows the installed and effective capacity of these sub-sectors.

Table 3.4: The Weaving Capacity of Pakistani Weaving Sector

Sub-sectors		Installed	Effective
A	Integrated Textile Mills	7,170	4,770
B	Independent Weaving Units (Shuttle less looms)	28,500	28,100
C	Power Looms Sector	400,670	332,870
	Total	395,999	331,749

Source: Pakistan Economic Survey, (2010-11, p.40)

In the last two decades, shuttle-less looms and power looms have shown tremendous growth. However, the power loom sector is facing problems like poor technology, unavailability of quality yarn and the unavailability of institutional financing. The performance of the weaving sector was better in the year 2010-11 compared with 2009-10. Table 3.5 gives a comparison of export performance for the last two years.

Table 3.5: The Production and Export Performance of the Cloth Sector

Production (MSq. Mtrs.)	July-Mar 2009-10	July-Mar 2010-11	% Change
Mill Sector	762.4	764.5	0.3
Non Mill Sector	5,886.4	5,971.6	1.5
Total Cloth Exports	6,648.8	6,736.1	1.3
Quantity (Million Square Meters)	1,327.3	1,444.0	8.8
Value (Million US \$)	1,313.1	1,746.3	33.0
Source: Pakistan Economic Survey (2010-11, p.41)			

The process industry consists of bleaching, dyeing, printing and finishing. Fabric manufactured through weaving or knitting cannot be converted into garments or made-ups until it has undergone the above-mentioned processes. According to Textile Vision (2005, p. 190) the processing sector in Pakistan started to grow from 1978. Currently there are 601 textile processing units. The majority of these units are independent commercial dyeing, printing and finishing units. Only a few are the part of the integrated mill sector. About 50% of the installed capacity of the processing industry is more than fifteen years old. Textile ‘made-ups’ is another dynamic segment of the Pakistani textile industry. It includes the manufacturing of readymade garments, hosiery and knitwear, bed-linen, cotton bags, towels, tents and canvas.

Table 3.6: The Export Performance of Made-ups by Sector

	2010-11 (July–March)	2009-10 (July–March)	% Change
Hosiery Knitwear Value (Million US\$)	1726.1	1300.6	32.71
Readymade Garments Value (Million US\$)	1276.7	926.8	37.75
Towels Value (Million US\$)	580.4	495.0	17.25
Tents/Canvas Value (Million US\$)	29.3	47.9	-38.91
Bed Linen Value (Million US\$)	1557.0	1273.2	22.28
Other Made ups Value (Million US\$)	508.8	391.1	30.09
Source: Pakistan Economic Survey (2010-11, p.41)			

Table 3.6 shows the highest growth in 2010-11 was in readymade garments (37.75%) followed by hosiery knitwear (32.71%). These are very positive indicators for the Pakistani textile industry.

The Pakistan Economic Survey (2010-11) shows that the garment sector gives the highest value addition. It is comprised of small, medium and large-scale units; however, the majority of these units have less than fifty machines. SMEDA (2011) indicates that 70% of garment manufacturing units are in the unorganised or non-mill sector. Therefore, this sector has low productivity. The government of Pakistan has taken some initiatives to establish and develop the garment sector. For example, this sector can import machinery without any duty and is exempt from paying income tax (Pakistan Economic Survey, 2010-11).

The hosiery, towel and canvas industry is another important sector in Pakistani textile Made-ups. There are 12,000 knitting machines and 7,500 towel looms

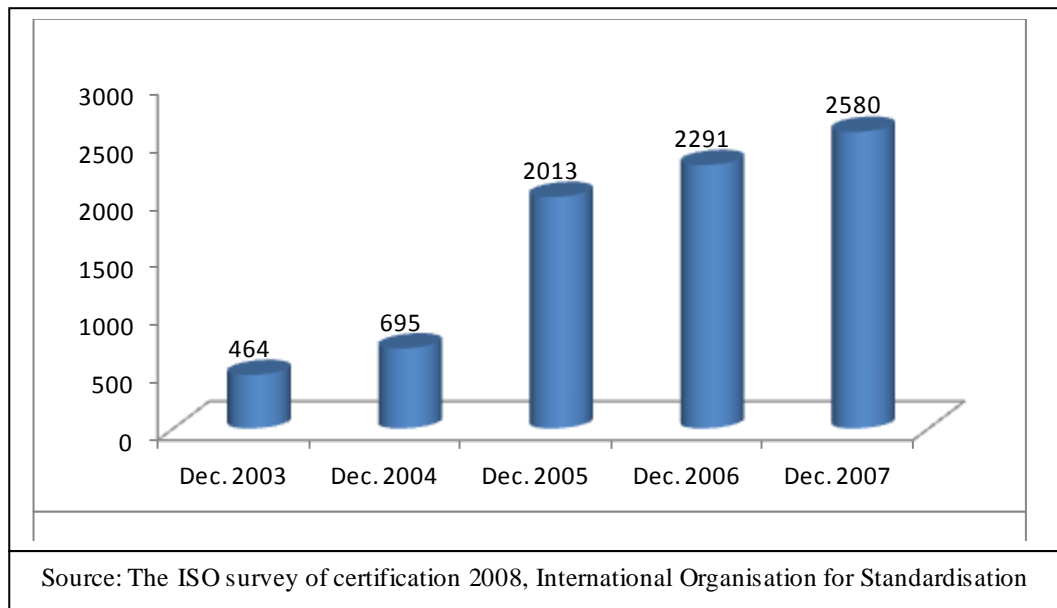
spread all over the country. The total capacity of tents or canvas is 100 million square meters (Pakistan Economic Survey, 2010-11).

3.4 The Extent of TQM Implementation in the Textile Industries of Pakistan

The review of the literature indicates that very little effort has been made to investigate the implementation of TQM in the textile sector of Pakistan. Only a few studies like Hussain, Akhtar and Butt (2009), Masakure, Henson and Cranfield (2009) and Fatima and Ahmed (2006) are available. This research gives very limited information about the level of TQM adoption in this sector. Furthermore, the existing literature does not give any comprehensive information about the use of quality standards, models, or tools and techniques in Pakistan or more specifically in the context of textile companies.

Some indirect information is available to give an indication about the implementation of the TQM philosophy in Pakistani textile companies. In an ISO survey conducted from December 2003 to December 2007, there was around a fourfold increase in ISO 9000 certified companies in Pakistan between December 2004 and December 2007. The graph in Figure 3.4 indicates the increasing trend of certified companies since December 2004.

Figure 3.4: The Annual Growth of ISO 9000 Certificates from Dec. 2003 to Dec.2007 in Pakistan



As discussed in Section 3.3, a major part of the Pakistani manufacturing industry consists of textile companies; thus, it can be inferred that ISO 9000 might be a widely used quality management system in the textile companies of Pakistan. The findings of the ISO survey are supported by Malik and Yezhuang (2006), who indicate that in October 1997, the Pakistani Government announced an incentive scheme for the certification of ISO 9000. This incentive was given in the form of a subsidy to meet the costs of implementation and certification. This initiative encouraged companies and within a few years, hundreds of Pakistani companies were certified to this quality management standard.

However, Moosa (2002) argues that the implementation of the ISO 9000 in Pakistan is over emphasised and ineffective. It might be that Pakistani textile companies get certification of ISO 9000 to satisfy their customers' generic requirements, rather than to improve the performance of their companies (Baxter and Hirschhauser, 2004). For example, Hussain, Akhtar and Butt (2009) indicate

that Pakistani companies seem interested in the implementation of quality management practices; therefore, they are investing as much money as necessary in this aspect. They find that mills with higher investment in quality management achieve better operational performance than companies that have not invested in TQM. However, they only collected data from cotton spinning mills that were members of the All Pakistan Textile Mills Association (APTMA). This sector is one of the old, well-established sectors of Pakistan, as discussed in Section 3.3.1. Therefore, the research does not give sufficient information about the other sectors.

Some research highlights the effectiveness of TQM practices in Pakistani textile companies. For example, Masakure, Henson and Cranfield (2009) indicate that export performance is positively associated with ISO 9000 certification, establishing the credibility of textile companies in the exporting environment. Similarly, Fatima and Ahmed (2006) show that quality control and quality assurance are significantly associated with the rejection rate. As both studies were conducted in the context of Pakistani textiles, the research strengthens the argument that the implementation of quality practices might improve the performance of Pakistani textile companies. However, these studies do not cover all sectors of Pakistani textile companies. For example, Fatima and Ahmed (2006) only collected data from 38 companies which were the members of the Pakistan Bed-Wear Manufacturers and Exporters Association (PBMEA).

The above-mentioned studies provide some information about the implementation of TQM practices and ISO 9000 in Pakistani textile companies. However, these studies do not give sufficient information about the nature and level of TQM

adoption. For example, they do not indicate the level of use of TQM frameworks, like the EFQM excellence model, by the textile companies. Furthermore, these studies do not indicate how well TQM practices, like customer satisfaction, employee involvement, process improvement and supplier management are implemented in the companies.

Another important aspect which has not yet been investigated adequately in the context of the Pakistani textile industry is the satisfaction of society, which is seen as one of the important stakeholders (Evans & Lindsay, 2008). In the case of textile companies there are many aspects of the companies' activities which have a direct effect on society. For example, the effluent from textile companies, especially the dyeing, bleaching and printing processes, contains hazardous chemicals, which might be dangerous for aquatic life and people living near the companies. Therefore, this type of effluent must be treated before being discharged into canals and rivers. Banuri (1999) has prepared a report on the environmental impacts of the textile industry in Pakistan, with the help of the International Institute for Sustainable Development. The findings of this report suggest that the majority of Pakistani textile companies do not have adequate arrangements to manage aspects which have an impact on the environment and society. These companies do not treat their effluent before discharging it into the external drain. Furthermore, there is a higher use of azo dyes, which are banned in other countries like Germany, France and Sweden etc. Khan, Khawaja and Khan (2001) predict that being WTO members, the textile exports of Pakistan will increase in the future, but this increase in exports will also increase environmental pollution. Therefore, how well Pakistani companies are satisfying the requirements of society needs to be investigated.

3.5 The Role of Government in Sustainability and Implementation of Quality Management Practices in Textile Industries of Pakistan

Qazi (2009) argues that the government of Pakistan seems very concerned about the development of its textile sector, and steps taken in the past few years indicate its commitment. For example, a separate Ministry of the Textile Industry was established in 2004 which is focused on the development of long-term policies to increase productivity, diversification and competitiveness in the international market. Similarly, the government announced the first ever five-year textile policy on 12th August 2009, aimed at restructuring the textile sector in Pakistan.

Other major steps were taken by the Ministry of the Textile Industry to promote and facilitate the textile industry in Pakistan; for example, some organisations were established, including: (Ministry of Textile Industry, 2011)

- The Textile Commissioners Organisation
- The Pakistan Cotton Standards Institute in Karachi
- The National Textile University in Faisalabad
- A Synthetic Fibre Development & Application Centre

The Government of Pakistan also established institutions like the Pakistan Standards and Quality Control Authority (PSQCA) and the Pakistan National Accreditation Council (PNAC) to promote quality management practices in the industrial sector. These two institutions are working hard for the development of quality initiatives in the industrial sectors of Pakistan including the textile sector (Ministry of Science and Technology Pakistan, 2011).

The PSQCA was established in 1996 (PSQCA, 2011) and the PNAC in 1998 (PNAC, 2011). Both institutions work under the Ministry of Science and Technology (Ministry of Science and Technology Pakistan, 2011). Similarly, the Higher Education Commission of Pakistan has encouraged educational institutions to promote degrees in quality management. Thus, the first ever Quality Management Institution was established at the Punjab University¹, Lahore, in 2002.

The PSQCA has also contributed to promoting quality efforts in Pakistan and encourages local industries to get certification to standards like ISO 9000 and ISO 14000. Furthermore, the PSQCA is responsible for the setting up of standards on product quality for a range of products being produced in Pakistan. It also provides coordination and cooperation with other national, regional and international organisations, associations, societies, institutions and councils, which are concerned with quality improvement initiatives (PSQCA, 2011).

The PNAC have streamlined the accreditation of conformity assessment bodies in Pakistan. Conformity assessment bodies provide certification to organisations, which can demonstrate that they have successfully implemented a system, based on national or international standards such as ISO 9000 and ISO 14000 (PNAC, 2011).

Trade associations have also been established to help the Pakistani textile industry. Among the associations, the All Pakistan Textile Mills Association (APTMA) is the most important and influential body in Pakistan, with 396

¹ The largest and oldest university in Pakistan

members. According to its charter and by-laws, APTMA was established to promote and protect the interests of its members, especially those associated with the cotton trade. This body collects and circulates statistics and other information relating to its members. It tries to keep them up to date with the latest developments and initiatives in the international market. It represents the textile sector of Pakistan at local, provincial and central level. It has done good work in the advancement and promotion of the commercial and technical education of its members. It also claims that it has helped its members to enhance trade in the international market (APTMA, 2010).

3.6 Summary

The textile sector is considered the backbone of Pakistan's economy. Pakistan has an abundance of raw cotton but is unable to capitalize fully on all of its benefits. However, Pakistani textile companies have an opportunity to obtain a decent share of the international market due to the WTO agreements. Pakistani textile companies can perform much better in many areas, but they are facing issues related to the quality and reliability of their products. In order to be competitive in the international market, the implementation of quality management practices is crucial for these companies.

Currently, Pakistani textile companies seem more interested in certification to ISO 9000; however, the companies seem less interested in excellence model like MBNQA and EFQM excellence model. The higher level of ISO 9000 certification indicates that these companies might have good quality assurance systems, but not higher levels of TQM. There is a lack of literature related to the implementation of TQM in the context of the textile sector in Pakistan. The practitioners and

policy makers do not have sufficient information about the extent of TQM implementation in Pakistan or the issues being faced by the companies during the implementation of quality initiatives. Such gaps in the literature need to be addressed. However, the government of Pakistan is trying to introduce quality management initiatives into textile companies and many institutions have been established for the help and development of this sector.

4 DEVELOPMENT OF RESEARCH QUESTIONS

4.1 Introduction

Based on the concepts and themes extracted from the literature review and the analysis of the Pakistani textile industry in Chapters Two and Three respectively, the research questions are developed in this chapter. The theoretical foundations developed in this chapter will be used in Chapter Five for the design of the research and data analysis strategy.

4.1.1 The Extent of TQM Implementation in the Textile Sector of Pakistan

The literature review indicates that empirical research on the implementation of TQM is dominated by the advanced countries (Thiagaragan, Zairi and Dale, 2001; Rao, Ragu-Nathan, and Solis1997). Very few studies have been conducted in developing countries like Pakistan. On the other hand, several empirical studies argue that the social, cultural, and economic conditions of a country might have the potential to affect TQM practices within a company (Kull and Wacker, 2010; Flynn and Saladin, 2006; Anwar and Jabnoun, 2006; Yoo, Rao and Hong, 2006; Prasad and Tata, 2003; Lagrosen, 2002; and Dahlgaard, Kristensen and Kanji, 1998). For example, Kull and Wacker (2010) found significant differences in the implementation of quality management practices among companies located in the East Asian cultures of China, Taiwan, and South Korea. Similarly, Flynn and Saladin (2006) identify that quality management practices were not equally effective in the USA, Japan, Germany, Italy and England. The cultural, social and economic conditions of Pakistan are quite different from western countries; thus,

the implementation of TQM in Pakistan might be different from that of developed nations.

However, the existing literature does not give sufficient information about the nature and adoption level of TQM practices in Pakistan, more specifically in the context of the textile sector. Indeed, some studies have been conducted in the context of the Pakistani textile sector; however, they discuss other aspects. For example, Masakure, Henson and Cranfield (2009) highlight that quality management practices affect export performance. Fatima and Ahmed (2006) also report that quality control and quality assurance have an effect on rejection rate. In addition, Hussain, Akhtar and Butt (2009) provide some empirical evidence that their sample companies seem interested in investment in the implementation of quality management practices. None of these studies provides any information about the level of implementation of the EFQM excellence model criteria, adoption of TQM frameworks and use of quality tools and techniques. Furthermore, these studies do not give any information about how well TQM practices like customer satisfaction, employee involvement, society satisfaction, process improvement and supplier management are implemented in Pakistani textile companies.

A further in depth review of the TQM literature indicates that it is dominated by studies conducted in the context of industries like chemical engineering, automotive, heavy machinery, electrical engineering and electronics and do not give sufficient information about the adoption of the TQM philosophy in the textile sector. For example, with the exception of Demirbag et al. (2006) none of the studies mentioned in Table 2.2 was conducted in the context of the textile

sector. Even Demirbag et al. (2006) provides empirical evidence about the effect of TQM practices on innovation and quality performance from Turkish SMEs and does not indicate the level of implementation of the TQM philosophy in these companies. Therefore, more empirical research is needed to highlight which TQM practices, frameworks, and tools and techniques are emphasised in the textile companies.

Keeping in mind the above mentioned gaps in the TQM literature, the first research question is:

RQ1: What is the perceived level of TQM implementation in the textile companies of Pakistan?

4.1.2 The Relationship between TQM Practices and Organisational Performance

The association and effect of TQM practices on business results is reviewed in detail in Section 2.3. It is evident from this review that empirical studies have shown contradictory findings about the relationship of TQM practices and different constructs of organisational performance. For example, some empirical studies supported a positive association between TQM practices and business results (Bou-Llusar et al. 2009; Tari, Molina and Castejon 2007; Kaynak, 2003; Douglas and Judge, 2001) whereas others indicated a weak or no association (Corredor and Goni, 2010; Macinati, 2008; Benner and Veloso, 2008; Su et al. 2008; and Ho, Duffy and Shih 2001).

Studies which have been conducted in different countries and organisational contexts provide empirical evidence that there is a strong and positive relationship

between TQM practices and business results. For example, Bou-Llusar et al. (2009) provide empirical evidence from the manufacturing and services sector of Spain that TQM practices have a strong positive association with organisational performance. Douglas and Judge (2001) conducted a study in the general hospitals of America. They combine the survey data with secondary data and conclude that there is a strong relationship between TQM practices and the competitive advantages achieved. Hendricks and Singhal (2001) collected evidence from quality award winning companies and conclude that implementation of TQM has a positive association with the organisational performance. Similarly, Easton and Jarrel (1998, p.298) conducted a longitudinal study and find that long-term performance of firms that implemented TQM improved.

However, the findings of Corredor and Goni (2010) cast doubt on the claim that the implementation of TQM invariably leads to performance improvement. They mention that only early TQM adopters experience performance gains and firms which were late adopters of TQM have no performance gains. In their opinion, TQM implementation has simply helped companies maintain their attained level of performance but not improved business results. Similarly, Macinati (2008) indicates that there is a lack of a significant statistical relationship between financial performance and quality management implementation. Su et al. (2008) highlight that the implementation of TQM practices do not have a direct effect on the business results of companies. Sousa and Voss (2002) also mention that quality management practices have a non-significant weaker association with business results.

The above-mentioned studies lead to the conclusion that the TQM relationship with different dimensions of organisational performance is inconclusive, thus further empirical research is needed to investigate this relationship in more depth. Sila and Ebrahimpour (2005, p.1144) suggested that;

Certain factors may not be related to certain performance measures in a specific country or industry or type of firm simply because they are not applicable within that context and thus are not significant predictor of performance. Therefore, these issues must be explored in more detail in future studies since it is crucial that a company's resources and efforts be allocated to only those practices that will yield best performance for the organisation, if at all.

Similarly, Forza and Filippini (1998) suggest that the relationship between TQM and organisational performance needed to be examined in other environments as well. Sousa and Voss (2002, p.106) mention that there is a need for

more detailed and solid understanding of quality management's performance effects by using finer quality performance models (including all of the relevant variables and relationships) investigating the models' relationships across different contexts.

More empirical studies in different contexts are needed, in order to gain further insights into the association between TQM practices and different dimensions of business results. The relationship between TQM practices and business results is not investigated adequately in the context of the Pakistani textile sector. Thus, the next research questions are:

RQ2: Is there any association between the TQM practices and business results in the textile companies of Pakistan?

RQ3: Which TQM practices are significant predictors of the overall perceived business results in the textile companies of Pakistan?

4.1.3 The Relationship of ISO 9001 Certification to the Implementation of TQM Practices and Organisational Performance

It is argued in some parts of the literature that implementation of ISO 9001:2008 facilitates companies in achieving quality assurance levels. Gutierrez, Torres and Molina (2010) claim that organisations can build up to higher levels of TQM from this point. The relationship of ISO 9001:2008 certification to the implementation of TQM is discussed in Section 2.5.1.1. The literature seemed inconclusive about the association between ISO 9001:2008 certification and the achievement of higher levels of TQM.

Some studies indicate that ISO 9000 has no effect on the implementation of TQM or even contradicts the teachings of TQM (Martinez-Lorente and Martinez-Costa, 2004; Zhu and Scheuermann, 1999). For example, Martinez-Lorente and Martinez-Costa (2004) state that the underlying concepts of ISO 9000 are contrary to the basic assumptions of TQM, because, for example, ISO 9000 is too bureaucratic this de-motivates employees. Similarly, TQM emphasises the development of long-term relations with suppliers whereas ISO 9000 focuses on the control of products which are being received from the suppliers.

However, Magd and Curry (2003) assert that TQM and certification to ISO 9000 have a propensity to support each other. Companies can streamline their work processes using the implementation of ISO 9000 and then TQM can help to improve the motivation of employees, efficiency of operations, and overall performance of the organisation. Rao, Ragu-Nathan and Solis (1997) have also revealed that ISO 9000 certification can help organisations in the better implementation of quality management practices and thus improve business results. They show that ISO 9000 certified companies have higher levels of implementation of different quality management practices. Similarly, Terziovski and Power (2007) highlight that ISO 9000 certification can help the organisations to develop and facilitate a quality culture.

Thus, it will be worthwhile to see whether the implementation of this standard facilitates the companies in their journey towards TQM or not. The ISO survey conducted in December 2009 indicated that the number of companies certified to ISO 9000 in the last few years is increasing in Pakistan and all over the world. Therefore, the next research question is:

RQ4: Is there any association between ISO 9001:2008 certification and the implementation of TQM practices in the textile companies of Pakistan?

A detailed discussion about the effect of ISO 9001:2008 certification on business results is in Section 2.5.1.2. The literature has shown contradictory findings about the relationship of ISO 9000 certification with business results.

The majority of the studies indicated that ISO 9000 certification leads to better business results. Masakure, Henson and Cranfield (2009) conducted research in

the textile sector of Pakistan; they claim that export performance is positively associated with certification of ISO 9000. They further highlight that certification to ISO 9000 plays a vital role in establishing credibility in the exporting environment. Terziovski and Power (2007) also report significant effects of ISO 9000 certification on business results. Martinez-Costa, Choi and Martinez (2009) identify that the companies certified by the ISO 9000:1994 and ISO 9001:2000 versions of the standard have shown significantly better scores on dimensions like unit product costs, satisfaction of customers and quality of design. Curkovic and Pagell (1999) identify that ISO 9000 certification can result in greater efficiencies, cost reduction, and improved productivity.

On the other hand, the findings of other research show that ISO 9000 certification does not have positive an association with business results. For example, Dick, Heras and Casadesus (2008) assert that they cannot find any solid evidence about the relationship of ISO 9000 certification to the business performance. Similarly, Benner and Veloso (2008) and Magd and Curry (2003) indicate that many empirical studies are unable to identify any positive association between ISO 9000 certification and organisational performance. In addition, Karapetrovic, Fa and Saizarbitoria (2010) have conducted a longitudinal empirical study in Spain and highlight that there was a continual decrease in the organisational benefits after getting the certificate. Heras, Gavin and Casadesus (2002) under line that ISO 9000 certification has no significant influence on the profitability and sales growth. Furthermore, similar findings are reported by Wayhan, Kirche and Khumawala (2002).

Jayaram, Ahire and Dreyfus (2010) have shown that the duration of TQM was associated with product quality, customer satisfaction and process quality. However, Benner and Veloso (2008) and Hendrick and Singhal (2001) provide empirical evidence that TQM duration has no effect on the achievement of business results. Similarly, Tsekouras, Dimara and Skuras (2002) show that ISO 9000 implementation does not have a significant effect on the profitability in a period of 5-6 years after adoption.

Thus, based on the findings of above studies the next research questions are:

RQ5: Is there any association between ISO 9000 certification and the achievement of business results in the textile companies of Pakistan?

RQ6: Is there any association between the duration of ISO 9000 certification and achievement of business results in the textile companies of Pakistan?

4.1.3.1 Effect of Organisational Size on the Implementation of TQM

The effect of organisational size on the implementation of TQM is discussed in detail in Section 2.9. Welsh and White (1981) claim that organisational functions in small and big companies are managed differently. Similarly, the benefits and autonomy in the work of employees in small and big companies cannot be same (Kalleberg and Buren, 1996). Different sizes of firms have different approaches in terms of their competitive behaviours. Large firms always refrain from becoming involved in unconventional competitive behaviour.

Ghobadian and Gallear (1997) indicate that size of organisation effects the nature of the strategies adopted. Temtime (2003) highlights that as firms grow they give more importance to TQM practices. They place more importance on the managerial leadership, customer satisfaction and employee empowerment. Terziovski and Samson (2000) also show that the size of the company has an effect on the implementation of TQM. On the other hand, Sila (2007), Sharma (2006), Taylor and Wright (2003), and Germain and Spears (1999) assert that firm organisational size has no effect on the implementation of TQM.

The findings of the above-mentioned studies indicate that the relationship between TQM practices and organisational size is inconclusive in the literature. Hendrick and Singhal (2001) suggest that the effect of organisational characteristics, including organisational size needs to be investigated in further detail. Therefore the next research question is:

RQ7: Is there any association between organisational size and the implementation of TQM in the textile companies of Pakistan?

4.1.3.2 Types of Textile Companies and Implementation of TQM

As discussed in Section 3.3.1., the textile industry in Pakistan can be categorized into different types; spinning, weaving, garments, composite etc. The nature of processes, level of automation and intensity of labour is different in each of these categories. For example, there is less automation in the production processes in the garment sector. The companies have to rely upon the expertise and skills of the workforce for effective process control, whereas the manufacturing processes in the weaving and spinning industries are highly mechanized and have a greater

degree of inherent process control. Keeping in view the level of automation, there are greater opportunities of process improvement in the garment industries compared to spinning and weaving.

Similarly, TQM components like employee training, motivation, recognition, and empowerment are much needed in intensively competitive environments. Thus, these practices will have a different importance in the garment sector compared to spinning or weaving. The role of quality circles, suggestion schemes and the use of cross-functional teams are likely to be higher in a labour intensive environment. For this reason Sitkin, Sutcliffe and Schroeder (1994) suggest that organisations must consider the context in which they are intending to implement TQM principles in order to get the optimum benefits. Sila and Ebrahimpour (2005) also point out that the type of firm may have some effect on the implementation of TQM. Similarly, Benson, Saraph and Schroeder (1991) also report the influence of industry type on TQM implementation. Therefore, as Hendrick and Singhal (2001) suggest, the effect of organisational characteristics, including organisational size needs to be investigated further. Thus, a research question emerges:

RQ8: Is there any association between the type of textile companies and implementation of TQM in Pakistan?

4.1.4 Issues in the Implementation of Quality Improvement Initiatives in the Textile Companies of Pakistan

The critics of TQM try to portray this management philosophy as another fad. However, many studies (Oakland and Tanner, 2007; Williams et al. 2006) report

that the majority of TQM programs failed because of the ineffective implementation of TQM principles.

Some studies indicate that superficiality in the adoption of TQM is the major issue in the failure of quality improvement initiatives (Baxter and Hirschhauser, 2004). Soltani, Meer and Williams (2005) reported superficiality in the adoption of the EFQM excellence model. Magd and Curry (2003) indicate the superficiality in the certification of the ISO 9000 quality management system. The findings of Karapetrovic, Fa and Saizarbitoria (2010) and Benner and Veloso (2008), showing the effect of ISO 9000 certification on organisational performance, further contribute to the view of Magd and Curry (2003).

Many authors highlight that top management is a major issue (Soltani and Wilkinson, 2010; Rahman and Bullock' 2005; Beer, 2003; Lemak, Mero and Reed, 2002). Others claim that the absence of an adequate performance measurement systems could be one of the reasons for the failure of TQM programmes (Baxter & Macleod, 2008; Abdel-Maksoud, Dugdale and Luther, 2005; Evans, 2004).

Similarly, many studies indicate that societal culture might have an impact on the implementation of TQM programmes (Kull and Wacker, 2010; Naor, Linderman and Schroeder 2010; Flynn and Saladin, 2006; Anwar and Jabnoun, 2006; Yoo, Rao and Hong, 2006; Prasad and Tata, 2003; Lagrosen, 2002), while others assert that the mismatch of organisational culture to TQM values is the major issue (Kujala and Lillrank, 2004; Detert, Schroeder and Mauriel, 2000). However, all of these studies provide enough evidence to support their claims.

There is a further list of issues which also have the potential to hinder the successful implementation of quality improvement initiatives like TQM. Thus, keeping in view the findings from the existing literature this study highlights the issues faced by textile companies of Pakistan during the implementation of quality improvement initiatives. Therefore, the final research question is:

RQ9: What are the major issues faced by the textile companies of Pakistan while implementing quality improvement initiatives?

All the research questions derived in this chapter are presented in Table 4.1 along with their relevant research objectives, mentioned in Section 1.3. Table 4.2 contains the research hypothesis, further developed from research questions related to ISO 9000 certification association with TQM implementation and business results. Table 4.2 also contains the detail of the dependent and independent variables in these questions. Similarly, Table 4.3 represents the research hypotheses for the research questions, related to the size and type of textile companies and their effect on the TQM implementation and achievement of business results.

4.2 Summary

The textile sector is considered to be the backbone of Pakistan's economy but the existing literature does not contain sufficient information about the adoption of TQM frameworks, use of quality tools and techniques or the implementation of the EFQM excellence model's criteria in these companies. The cultural, social and economic context of Pakistan is different from western countries. Therefore, the implementation of TQM in Pakistan might be different from that of developed

nations. In future research these gaps in the existing literature need to be addressed.

The existing literature is inconclusive about the relationship between TQM practices and business results. This relationship needs to be investigated in different contexts by using well designed frameworks.

ISO 9000 is a widely used quality management system all over the world. However, the literature reveals mixed findings about the relationship between ISO 9000 certification and business results. Furthermore, many studies contradict one another about whether ISO 9000 certification leads towards the implementation of TQM or not. Therefore, in future research the relationship of ISO 9000 certification with business results and TQM implementation needs to be investigated.

Many studies provide empirical evidence that TQM practices cannot be implemented universally. Factors like size and type of organisation might have an effect on its implementation. Future studies need to highlight the issues faced by companies during the implementation of quality improvement initiatives in the context of developing countries like Pakistan.

Table 4.1: The Relationship between Research Objectives and Research Questions

No.	Research Objective	Research Question
1	To highlight the extent of TQM implementation in the textile companies of Pakistan	RQ1: What is the perceived level of TQM implementation in the sample textile companies of Pakistan?
2	To identify the association between TQM practices and organisational performance	RQ2: Is there any association between the implementation of TQM practices and business results? RQ3: Which TQM practices are significant predictors of the overall perceived business results?
3	To identify the association of ISO 9001 certification with the implementation of TQM practices and organisational performance	RQ4: Is there any association between ISO 9001 certification and implementation of TQM practices? RQ5: Is there any association between ISO 9001 certification and achievement of business results? RQ6: Is there any association between the duration of ISO 9001 certification and implementation of TQM practices? RQ7: Is there any association between the duration of ISO 9001 certification and achievement of business results?
4	To identify the effect of size and type of textile company on the implementation of TQM practices	RQ8: Is there any association between size of textile company and implementation of TQM practices? RQ9: Is there any association between the type of textile company and implementation of TQM practices?
5	To highlight the issues and barriers faced by the textile companies of Pakistan while implementing quality improvement initiatives	RQ10: What are the major issues faced by the sample textile companies of Pakistan while implementing quality improvement initiatives?

Table 4.2: The Development of Research Hypotheses from Research Questions for ISO 9000 Certification and Implementation of TQM

Dependent Variable	Independent Variable	Research Questions	Research Hypotheses
1. Implementation of TQM Practices 2. Business Results	ISO 9001 certification	RQ4: Is there any association between ISO 9001 certification and implementation of TQM practices?	Ha4: ISO 9001 certification and the implementation of TQM practices are associated
		RQ5: Is there any association between ISO 9001 certification and achievement of business results?	Ha5: ISO 9000 certification and the achievement of business results are associated.
	Duration of ISO 9000 certification	RQ6: Is there any association between the duration of ISO 9001 certification and implementation of TQM practices?	Ha6: The duration of ISO 9001 certification and implementation of TQM practices are associated.
		RQ7: Is there any association between the duration of ISO 9000 certification and achievement of business results?	Ha7: The duration of ISO 9001 certification and the achievement of business results are associated.

Table 4.3: The Dependent and Independent Variables and Research Questions

Dependent Variable	Independent Variable	Research Questions	Research Hypotheses
1. Implementation of TQM Practices	Size of company	RQ8: Is there any association between size of textile company and implementation of TQM practices?	Ha8: The size of textile company and implementation of TQM practices are associated.
	Type of textile company	RQ9: Is there any association between the type of textile company and implementation of TQM practices?	Ha9: The type of textile company and implementation of TQM practices are associated.

5 RESEARCH DESIGN AND METHODOLOGY

5.1 Introduction

This chapter will provide links between the literature review, research questions, research design and analysis of empirical data. The first sections discuss the nature of this study, research methodologies and construction of the data collection instrument. In subsequent sections, the sampling, nature of respondents, distribution and collection of questionnaire and data management are described. The analysis of the data along with the justification of the use of different analytical techniques is discussed in the last section.

5.2 The Nature of This Research Project

Normally, research is conducted either to propose knowledge (inductive approach) or to validate knowledge (deductive approach). Both types of research are equally important (Bryman, 2008). This study adopted a deductive approach to investigate TQM implementation. While explaining the epistemological and ontological considerations, this research project fits best in the positivism and objectivism positions respectively.

However, further details of the nature of this research project can be explained using the research paradigms developed by Meredith et al. (1989, p.306). His framework has two continuums: 'rational/existential' and 'natural/artificial' dimension. The first is related to nature of truth. 'Rationalism' is at one end of the continuum, which uses pure logic and formal structure to measure the truth. At the other end is 'existential'

which has the position that knowledge can only be attained through the process of human interaction with the environment. They have further categorised ‘rational/existential’ into four generic perspectives, which are axiomatic, interpretive, logical positivist/empiricist and critical theory. All of these perspectives explain different degrees of formalization in the structure of the research. On the ‘natural/artificial’ continuum, the “natural” side of the continuum has the stance that explanation can be derived from objective and concrete data whereas the ‘artificial’ end is in favour of subjectivism. Research in the ‘artificial’ pole is always too abstracted and in the form of simplified models.

Based on above research paradigms by Meredith et al. (1989), this study falls into the category of ‘logical positivist/empiricist’ on the ‘rational/existential’ continuum. On the continuum of ‘natural/artificial’ this research project lies in “people’s perception”. The information about the implementation of TQM practices, its association with business results and the effect of organisational characteristics on the level of TQM implementation was collected through the perception of managers involved with the processes.

Based on a thorough literature review, different research questions and postulates are developed about the relationships between the implementation of TQM practices, ISO 9000 certification, contingency factors and organisational performance. These hypotheses are evaluated based on empirical data. This data was collected from textile companies in Pakistan between March 2010 and July 2010.

5.3 Selection of the Research Strategy for This Research Project

In this section, the appropriate research strategy will be selected, keeping in mind the nature of the study and the constraints associated with this project. However, before deciding on the appropriate research strategy, this section provides a brief overview of major research strategies.

The discussion about research strategies always revolves round two major strategies: quantitative and qualitative. These two strategies are based on entirely different assumptions. For example, Bryman (2008) indicates that quantitative research strategies are more inclined towards the deductive approach, whereas qualitative aim towards the inductive approach from the perspective of theory and research. He further argues that quantitative strategies assume the norms and practices of a scientific model. They follow the norms of positivism. In this approach, social reality is considered as objective and external. It emphasises the quantification of data. Similarly, Neuman (2006) argues that quantitative researchers follow a linear research path and speak a language of hypothesis. They emphasise precisely measuring variables and testing hypotheses that are linked to general causal explanations.

On the other hand, a qualitative approach is one in which the inquirer often makes knowledge claims primarily on a “constructivist perspective or advocacy/participatory perspectives or both” (Creswell, 2003, p.18). Creswell further mentions that narratives, phenomenology, ethnographies, grounded theory studies or case studies are used in this method as strategies of inquiry. Neuman (2006) also argues

that qualitative researchers often rely on interpretative or critical social science. They apply logic in practice and follow a nonlinear research path. Bryman (2008) also asserts that qualitative research strategies are too subjective. They are difficult to replicate in different scenarios. Qualitative researchers generally do not follow structured and predetermined formats, so there are problems in the generalisation of findings from qualitative research.

The above discussion indicates that quantitative and qualitative strategies both have strengths and weaknesses. By combining both strategies effectively we can avoid their weaknesses and capitalise their strengths. A strategy which combines both qualitative and quantitative research is known as mixed method research (Bryman, 2008). Creswell (2003) argues that as a distinct research method, mixed method research is comparatively new in the human and social sciences. In this method, the researcher assumes that diversified data and analyses provide the best understanding of the problem. In this method the researcher starts with a collection of the data using a broad survey and then focuses on a detailed qualitative method. However, there is no restriction on which method should be used first. However, Tashakkori and Teddye (2003) highlight that there are many unresolved issues and controversies in the use of mixed methods in the social and behavioural sciences. These issues are related to the nomenclature, basic definitions, utility, paradigm, design and logistics in conducting mixed methods.

Now the question is which is the most suitable research strategy for this study? The research questions and hypotheses for this study, given in Tables 4.1, 4.2 and 4.3

have a deductive view of theory and research. In the majority of research questions, the effect of independent variables (e.g. TQM practices, ISO 9000 certification) needs to be investigated on the dependent variable (e.g. business results). Similarly, the best predictors of business results need to be identified. Creswell (2003, p.21) suggests that if the problem is to identify the factors which can influence the results or the objective is to understand the best predictors of an outcome, then the quantitative approach should be considered as the most suitable option. It can also be used successfully for theory testing.

Furthermore, this PhD research project needs to be completed in a specific time limit and the budget for this study is not enough. Creswell (1994) suggests that if someone is facing a time constraint, low budget and doubts about the generation of useful data patterns and theory, then a quantitative method is often the best option. Thus, keeping in view the recommendations given by Bryman (2008) and Creswell (1994, 2003), the quantitative strategy might be the best choice for this research project.

5.3.1 Selection of Data Collection Instrument and Approach

The selection of data collection instrument and approach plays a vital role in quantitative research methodology. The literature indicates that the most commonly used method in a quantitative research strategy for data collection is the survey method. Survey research can help to measure multiple hypotheses about more variables (Neuman, 2006, p.276). Creswell (2003, p.124) described that structured interviews and self-completion questionnaires are the main data collection approaches used in the survey. Different quantitative researchers use different modes

of administration of surveys. However, there are some important aspects to be considered. For example, selection of sample population, timing of the data collection, whether the data should be collected from one point or multiple points in time and the availability of resources for the study. Similarly, the measurement of the key variables and sampling are also important issues in the survey research.

Survey research using the postal system is the cheapest method and the survey process can be handled by a single researcher. In this method, questionnaires can be sent to a wide geographical area, and the respondents can complete them whenever they have free time. This method also can provide anonymity to the respondents and interviewer bias can be avoided. More respondents can be approached by using questionnaires. More importantly, minimum infrastructure and staffing are needed to administer the mail survey questionnaire. However, in a self-completion questionnaire it is difficult to control the conditions. Generally, the response rate may be lower if the respondents are not educated. It is also difficult to observe the respondents reactions (Neuman 2006, pp.299, 300).

Interviews allow the researcher to see the reaction of the respondents while answering the question. The research problem can be explored in depth by using this approach. Bryman (2008) has criticised self-completion questionnaires in comparison with structured interviews. He adds that sometimes ambiguity in self-completion questionnaire creates problems for the respondents and there is no one available to clarify, which causes a delay in the response. Similarly, respondents cannot give detailed answers to the questionnaire; furthermore, sometimes the respondents may

feel bored if the questions are not relevant to them. This may decrease the response rate. There is also a great possibility that the right person may not complete a questionnaire. For example, if the questionnaire was required to be completed by the manager, but he delegates it to someone at a lower level. The self-completion questionnaire is also unable to collect additional data. Respondents whose literacy is restricted or limited will not be able to effectively understand and reply to the questions. Because of the lack of supervision in the self-completion questionnaire as compared to the face-to-face interview, respondents may skip some questions which seem to them boring or irrelevant. Missing of data is a common issue in questionnaires. There is also a lower response rate in surveys using postal questionnaires compared to interview-based studies.

Bryman (2008) and Druckman (2005) consider that self-completion questionnaires are a cheaper option and quicker to administer. Therefore, Bou-Llusar et al. (2009), Macinati (2008), Su et al (2008), Feng et al. (2006), Demirbag et al. (2006), Rahman and Bullock (2005) and Sila and Ebrahimpur (2005) use self-completion questionnaires to study the implementation of TQM practices in different countries. Further details about above these studies, such as the nature of respondents, country, sector and analysis techniques are given in Table 2.2.

After considering constraints like time, cost, population and the availability of infrastructure, a mail survey questionnaire will be adopted to collect the data from the sample textile companies in Pakistan. Indeed online or web-based survey is the cheapest method to collect the data however this approach might not be quite

effective in the context of sample textile companies. As discussed in Section 3.3, the Pakistani textile companies are facing serious infrastructural limitations. Among these limitations the availability of internet and other online resources is the major issue. Therefore, the managers in these companies do not have the sufficient access to internet. Due to these reasons it was feared that online distribution of questionnaire might not be an effective method in the specific context of the study.

The other important aspect to consider was whether the survey will be cross-sectional or longitudinal. Cross-sectional research is a less expensive and simpler option. However, the major drawback of this approach is that it does not capture change and social processes. On the other hand, longitudinal research allows the researchers to examine the features of units of research at multiple times. However, it is an expensive and complex option (Neuman, 2006).

Keeping in view the above-mentioned advantages and disadvantages of cross-sectional and longitudinal design of data collection and the constraints associated with this research project, a cross-sectional design will be the best option.

5.4 Sample Design and Sample Method

In the survey methodology, the sample design and sample method plays a vital role in determining the level of authenticity. Thus, the sample design was carefully done and the most suitable sample method for this study was selected keeping in mind all the constraints.

Here an unsuccessful part of this research will be detailed. Although the first initiative failed, a great deal was learned from the experience of the failed attempt which helped in making better decisions about the sampling frame, sample size, questionnaire design and distribution of the questionnaires in the later part of the refined research project. At the beginning of this study, a large sample size was used, which consisted of both service and manufacturing organisations. The manufacturing organisations included chemical engineering, textile and automobile industries and the service sector included educational institutions and hospitals. However, the questionnaire was too lengthy. It contained questions regarding the cultural setting along with the TQM implementation. Because of deficiencies in the questionnaire design, sampling frame and data collection strategy, the researcher was unable to get a good response rate. Subsequently, the initial project was reviewed under the kind supervision of another supervisor. The questionnaire was redesigned and the sampling frame was selected again.

5.4.1 Population

As discussed in Section 3.3, the textile industry is the backbone of the Pakistani economy and the largest industry in the manufacturing sector of Pakistan. Different trade associations and bodies are working in Pakistan to facilitate the development and growth of this industry. Among them APTMA is one of the largest trade associations. Three hundred and seventy five textile companies are members of this association. These textile companies are located in all four provinces of Pakistan and belong to all categories (e.g. spinning, weaving, garments, composite etc.). APTMA also contains some details about these companies (such as the number of employees,

plant & head office addresses, telephone numbers etc.). Thus, keeping in mind the structured nature of APTMA, the member companies are considered as the population of this study. All the initial details about the companies were taken from the APTMA members' directory.

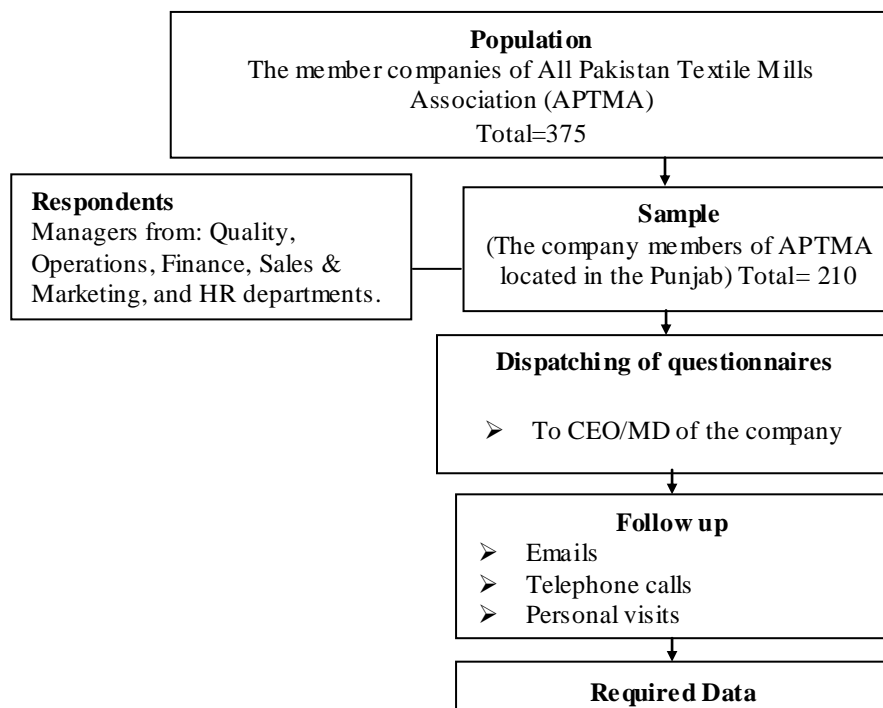
5.4.2 Sample Size

The decision about the selection of appropriate sampling methods and sample size depends on many factors. Bryman (2008) and Neuman (2006) mention that the decision about the selection of a sampling approach is dependent on cost, time and required accuracy. It is suggested by some researchers that response rate to social surveys is decreasing in many countries; thus, the sample size should be selected according to the expected percentage rate of the non-response (Berenson, Levine and Krehbiel, 2009).

The members list of APTMA is taken as the sampling frame for this study. These textile companies are located in different geographical regions of the country. Berenson, Levine and Krehbiel (2009) suggest that under such conditions, when the population of a study is located across a wide geographical region, then cluster probability sampling is the best option to get a representative sample, because it is cost effective in comparison to simple random sampling. In cluster sampling, several clusters are developed, by dividing the total units in the frame in such a way that each cluster should be representative of whole population. The clusters could be countries, cities blocks, election districts etc.

Keeping in mind the explanation of the cluster probability sampling given by Berenson, Levine and Krehbiel (2009) the APTMA member textile companies were divided into four clusters. The division was done based on the four provinces of Pakistan. Among these provinces, Punjab is the largest province. Sixty-five percent of the total population of Pakistan live in this province and it is the largest producer of cotton. Figure 3.1 shows that seventy-one percent of spinning units are located in the province of Punjab. Similarly, fifty-six percent of APTMA member textile companies are located in the Punjab. The area and population of the Punjab is three times bigger than that of the UK. Thus, it was decided that all the member organisations of APTMA located in the province of Punjab would be considered as the sample for this study. A total of 375 companies are members of APTMA. Among these member companies of APTMA 210 are located in the province of Punjab. This seems a reasonable sample size (Saunders et al. 2009, p.219).

Figure 5.1: The Sampling and Dispatch of Questionnaires



5.4.3 Respondents

The selection of respondents is a critical point in a questionnaire survey, which is based on many factors like the nature and level of the information required, and the language and terminologies used in the questionnaire. The existing literature contains both single and multiple responses from the companies. For example, the studies conducted by Hussain, Akhtar and Butt (2009), Bou-Llusor et al. (2009) and Kaynak (2003) are based on a single response whereas the studies conducted by Douglas and Judge (2001) and Rungtusanatham et al. (1998) are based on the multiple responses from a single organisation.

It is argued in the literature that different informants from the same organisation might have different opinion on the same issue due to the difference in their perceptions and knowledge (see Kumar, Stern and Anderson, 1993 for further details). Therefore in the perception based empirical research it is very hard to find the most knowledgeable person from the organisation.

Keeping in view the above-mentioned limitation of perception based data; it is decided to collect the multiple responses from a single organisation. Therefore, senior managers from multi-departments of textile companies including Quality, Operations, Finance, Sales &Marketing and Human Resources were selected as the respondents for this study. Similar respondents were selected by Feng et al. (2006), Prajogo and Sohal (2003); Ho, Duffy and Shih (2001), Ahire and Dreyfus (2000) and Flynn, Schroeder and Sakakibara (1994). Other research has collected the data from

CEOs/quality directors/quality managers (e.g. Bou-Llusar et al. 2009; Douglas and Judge, 2001; Rao, Raghunathan and Solis, 1999).

It is assumed in this study that each respondent has a unique perception about the implementation of TQM, its business results, issues faced by their company during the implementation of quality initiatives and level of the use of quality tools and techniques. Therefore, the subsequent analysis in Chapter Six is also based upon this assumption.

5.5 Design of Questionnaire

This section discusses the details of the questionnaire design for this study. Firstly, after a detailed review of the literature an existing questionnaire was selected, which was most relevant to the objectives of this research project. This questionnaire was refined according to the context of this study.

5.5.1 Selection of an Existing Questionnaire and Its Refinement

This study addresses three major areas: the extent of TQM implementation in the textile companies of Pakistan, the association between TQM practices and organisational performance, and the effect of ISO 9000 certification and contingency factors on the implementation of TQM. There are many validated instruments already available in the literature to investigate the extent of TQM implementation (e.g. Saraph, Benson and Schroeder 1989; Ahire, Golhar and Waller 1996). There are other instruments which have been used to identify the association between TQM practices and organisational performance (e.g. Bou-Llusar et al. 2009; Kaynak, 2003;

Samson and Terziovski, 1999; Choi and Eboch, 1998). Some instruments only contain items on TQM practices but do not cover organisational performance. Others cover a range of TQM practices but only a few dimensions of organisational performance, thus lack an overall picture of the organisation. Most of the instruments were validated in the context of the USA and the UK. It is therefore expected that these instruments may have some validation issues in a developing country like Pakistan. Bearing in mind the above considerations, the instrument developed by Bou-Llusar et al. (2009) was selected for further refinement and development in this study. The main reasons for the selection of this instrument were:

- This instrument is based on a well-established TQM framework: the EFQM excellence model.
- It adequately covers TQM practices and organisational performance dimensions.
- It has been validated in both manufacturing and service organisations.
- It was validated in Spain, which is not as advanced an economy as the UK and US, thus there will be less issues of validation in Pakistan.
- There are higher numbers of constructs in this instrument, thus more options to refine.

The original study conducted by Bou-Llusar et al. (2009) did not include any textiles and has a different country context. Thus, it was essential to modify this questionnaire according to the country and sector specific requirements. Morgan (2009) suggests that a focus group could be used for the refinement of a specific questionnaire for a specific population. Thus, a group of different experts including

TQM practitioners, academics and textile managers was selected from Pakistan. The quality and textile academics were selected from the National Textile University, Faisalabad and the Institute of Quality and Technology Management, University of the Punjab Lahore, Pakistan. The textile managers were selected from Nishat Textile Lahore, The Crescent Textile Faisalabad and Style Textile Lahore.

The original questionnaire of Bou-Llusar et al. (2009) was sent to the focus group members, along with the details of the study and the actions they needed to perform. A comprehensive set of guidelines was sent to facilitate their review of the questionnaire. The details and suitability of this questionnaire in the context of textile companies of Pakistan were also discussed with some of the members of the focus group on the telephone. Feedback was received from fifteen group members. These included academics and practitioners from textile and quality management. The list of their names and designations is attached as Appendix 'D'. The majority of them commented on the length and structure of the questionnaire. They suggested simplifying the language and the terms used in the original questionnaire.

Table 5.1: Research Methodologies used by Different Authors

Author/s	Number of constructs	Respondents	Number of responses/ companies	Excellence Model	Country (ies)	Methodology
Eskilden & Dahlgaard (2000)	Six (64 items)	Employees/ managers	10,000	EFQM	European	Structural Equation Modelling, Confirmatory factor analysis (LISREL) and Cronbach's alpha
Calvo-Mora, Leal and Roldan (2006)	Five (Enablers)	Professors	346/111 Public university centres	EFQM	Spain	SEM especially Partial Least Square Technique
Dijkstra (1997)	Five enablers with 20 aspects	Employees	704/3000 (profit making organisations)	Dutch adaptation of EFQM	Netherlands	Random sampling, Monkken scale: degrees of difficulty (Popularity)
Bou-Llusar et al.(2009)	Nine	Managers	446	EFQM	Spain	Structural Equation Modelling (SEM) and Cronbach's alpha
Wilson and Collier (2000)	Seven		226/800 manufacturing organisations	MBNQA	USA	Structural Equation Modelling (SEM) and Cronbach's alpha

Based on the recommendations made by the expert group, suggestions of supervisor and the researcher's knowledge of the Pakistani textile industry, the original questionnaire was modified. The items in the refined questionnaire were reduced by 50%. Simplified English was used in the questionnaire, as English is not the first language in Pakistan.

5.5.2 Development of the Likert Scale

The measurement of attitude is a very important aspect of survey research. The measurement of attitude in the questionnaire survey is mostly criticised by the proponents of qualitative methodology. However, Saunders et al. (2009) and Bryman (2008) suggest that the use of the Likert scale is the most common method in the survey research to measure the intensity of the feelings about the area under consideration.

In this technique, a series of statements are developed, focusing on a common theme or issue. Each respondent has to reply by showing his or her level of agreement with the statements. Here Bryman (2008) indicates that the items developed must be in the form of statements rather than questions.

The format of a Likert-scale varies between two extremes 'strongly agree' to 'strongly disagree'. There should be a middle point which is known as 'neutral'. Saunders et al. (2009) mention that different point scales could be used to identify the level of agreement of the respondent; it might be 5-point, 7-point and so on. However, Bryman (2008) suggests that a 5-point scale is a commonly used format going from 'strongly agree' to 'strongly disagree'. In comparison to large point

scales, a 5-point scale might help the respondents to organise their perceptions quickly and with better precision. He also suggests that it is useful to change the paraphrasing of the statements so that some items imply a positive view of the phenomenon of interest and others a negative one. Furthermore, these items should be related to the same issue and need to be interrelated with each other as well (Bryman, 2008).

Taking into consideration the above-mentioned suggestions given by Bryman (2008), a 5-point Likert-scale was used for the major part of the questionnaire. The details of the Likert scale along with examples from the questionnaire are given in Section 5.5.4.

5.5.3 Questionnaire Language

The selection of appropriate language plays an important role in ensuring that the respondents have understood the questions asked in the questionnaire. English is the language used in this questionnaire. The respondents for this study are managers of textile companies. The greater part of managers in these companies has bachelor degrees in Business /Engineering and other disciplines. The method of communication and teaching at this level in Pakistan is English, thus it was assumed that all the managers would have the ability to understand the terms and language used in this questionnaire. However, while developing the questionnaire, the language was kept as simple as possible and the technical terms are explained in an understandable manner.

5.5.4 The Overview of the Final Questionnaire

The final questionnaire comprises four sections. The first section contains questions about the characteristics of the organisations and the respondents. Sections II and III are based on the criteria of the EFQM excellence model and focus on the implementation of TQM and the achievement of business results. Section IV contains questions about the implementation of different quality improvement initiatives, along with the use of quality tools and techniques.

In sections II and III, the majority of the items are taken from Bou-Llugar et al. (2009). Section II contains questions regarding the EFQM excellence model's Enablers, leadership, people, partnership and resources, strategy, and process. In this section, the respondents were requested to answer the questions by ticking in the appropriate boxes which most closely represented their observations about the way management practices were carried out in their company. Section III covers the results criteria of the EFQM excellence model. In this section, the respondents were requested to answer the questions while keeping in their mind the performance of their organisation in the last calendar year. For Section III and IV, a 5-point Likert scale was used which varies from '5' for 'strongly agree' to '1' for 'strongly disagree'. Table 5.2 shows the scale and type of questions asked in sections II and III.

Table 5.2: Examples of questions from Section II and III

Scale: Strongly Agree=5 Agree=4 Undecided=3 Disagree=2 Strongly Disagree =1					
Questions	Rating				
Managers present themselves as role models for employees	5	4	3	2	1
Teamwork is a common practice within the organisation	5	4	3	2	1
Profit level has increased	5	4	3	2	1
Defects/errors in the finished products have decreased	5	4	3	2	1

Section IV contains questions regarding the implementation of different quality management systems, the use of quality tools and techniques and the issues faced by the companies in the implementation of these quality improvement initiatives. Question One and Two are about the implementation of quality management systems. Question Three is about the issues and barriers which the organisations faced during the implementation of these quality improvement initiatives, whereas Question Four asks about the extent of familiarity and level of implementation of different quality tools and techniques within the company.

Table 5.3: Examples of Questions about Issues/Barriers faced by Textile Companies during the Implementation of Quality Improvement Initiatives

Scale: Was the most serious issue =4 Was a major issue =3 Was a minor issue =2 Was not an issue =1				
Questions Rating				
Lack of top management commitment	4	3	2	1
Organisational emphasis on short-term profits rather than long-term gains	4	3	2	1

Table 5.3 and 5.4 contain examples of the questions asked in Section IV of the questionnaire. In these questions the respondents do not need to show their agreement or disagreement with the statement, but have to choose from the specific options given.

Table 5.4: The Use of Quality Tools and Techniques

Scale : Not familiar with it =4 Familiar with it =3 Occasionally use it =2				
Use it extensively =1				
Tools and Techniques	Rating			
Statistical Process Control (SPC)	4	3	2	1
Pareto analysis	4	3	2	1

Question Three in Section IV was designed after identifying the significant issues from the literature. Similarly, the tools and techniques mentioned in Question Four of the same sections were identified from the literature. The complete final questionnaire used for this research project is attached as Appendix A.

5.6 Pilot Study

A pilot study was conducted to identify ambiguities, errors, and confusing questions. According to Flynn et al. (1990), a pilot study helps to highlight the issues and problems in the questionnaire prior to its final execution. As described in Section 5.5.1, a group of experts consisting of TQM practitioners, academics and textile managers from Pakistan was selected. After obtaining their feedback on the original questionnaire developed by Bou-Llusar et al. (2009), a final questionnaire was prepared. This time more managers from the textile sector were added to the group. The final questionnaire was sent to the thirty people. Again all the respondents were requested to comment on the construction, wording, and level of English, any technical terms used and the length of the questionnaire. Feedback was collected via email and telephone. Twenty-one people responded this time. Using the feedback, a final version of the questionnaire was prepared.

As discussed in Section 5.4, the first phase of this research project was not successful because of several factors like poor questionnaire design, the wrong sampling frame and an inadequate data collection strategy. Subsequently, after reviewing the failed project, the study was limited to the textile companies of Pakistan. The help of APTMA and the National Textile University, Faisalabad was requested in the data collection phase. Both organisations agreed; with the help of these organisations a comprehensive strategy was planned to enhance the response rate.

5.7 The Questionnaire Distribution and Data Collection

The final questionnaire was sent to the target respondents by post. The list of their addresses was obtained from the APTMA. Five questionnaires were sent to each organisation, along with a covering letter, consent form and project information sheet. The covering letter was addressed to the CEO/MD of the company. An envelope was also enclosed which contained the return address and the respondent was requested to send the completed questionnaires to the address given on the envelope.

A comprehensive strategy was used to enhance the response rate. Each company was contacted through email or the telephone after the dispatch of the questionnaires. The follow up process was continued for four weeks.

With the help of National Textile University (NTU), Faisalabad and APTMA, the research was able to get a reasonable response rate. The graduates of NTU in the sampled organisations were identified, with the help of the NTU alumni list. NTU Faisalabad is the only textile university in Pakistan and the only university which offered degree programmes in the area of textile engineering and management. The

Vice Chancellor of NTU and the researcher contacted the graduates of NTU and requested them to follow the questionnaires sent to their respective companies. This strategy proved quite effective. The NTU graduates facilitated the data collection. They personally followed the questionnaires in their organisations and sent them back to the researcher.

5.8 Data Management

After collecting the completed questionnaires, a unique code (PQ1, PQ2, etc) was given to each questionnaire. The questions in Section I and Section IV containing categorical and nominal variables were coded. All the data were entered into ‘SPSS 18’ (Statistical Package for Social Science). This software was also used to evaluate the reliability and validity of the questionnaire and to analyse the data in Chapter 6.

5.9 Data Analysis

In this section, the details of the data analysis conducted in Chapter Six are discussed. Keeping in view the nature of the research questions and the variables in each question, different analysis techniques were used. Statistical techniques like frequency tables, descriptive statistics, correlation coefficients, multiple regression and chi-Square tests were used to analyse the data.

5.9.1 The Reliability and Validity of the Questionnaire

Creswell (2003) suggests that before starting any analysis, the reliability and validity of the research instrument should be evaluated. According to Neuman (2006, p.188) “reliability means dependability or consistency” and validity suggests truthfulness. It

refers to how well an idea “fits” with the actual reality. If a researcher uses constructs, which do not have a sufficient fit between theory and the reality of the world, then the questionnaire would have poor validity. He further advises that it is very difficult to achieve perfect reliability; however, it can be increased by using a clear conceptualization of concepts, precise measurements, multiple indicators and pilot tests. The use of a pre-test or a pilot version of a measure can help to improve the reliability of any construct. It is not necessarily correct that if a construct is reliable then it will be valid as well. A measure can be reliable but invalid.

Bryman (2008, p.150) states that there are some important concepts which need to be addressed while considering whether a measure is reliable or not. These concepts are stability, internal reliability and inter-observer consistency. He also mentions that to check the internal reliability of any instrument, Cronbach's alpha could be used. The value of Cronbach's alpha reflects the level of internal reliability of the instrument. This value varies between 1 and 0. A value of 1 indicates perfect internal reliability whereas 0 means no internal reliability. A value of 0.8 is generally considered as the acceptable level for internal reliability, although some writers work with slightly lower values. Pallant (2007) recommends that a value of alpha above 0.8 is preferable. However, values above 0.7 are also acceptable. Further details of the reliability and validity of the questionnaire are discussed in Section 6.2.

The research questions developed in Chapter Four have different types of variables. Therefore, the next section discusses in detail which statistical tool is used for which specific research question.

5.9.2 The Extent of TQM Implementation

The first research question is about the determination of the perceived level of TQM in the textile sector of Pakistan. Three different indicators were used to investigate the extent of TQM implementation in the textile companies.

The first indicator was the extent of the EFQM excellence model criteria (Enablers and Results) implementation, the second was the use of quality tools and techniques and the third was the implementation of different quality management systems and frameworks like ISO 9001:2008, the EFQM excellence model and Six Sigma.

Information about all three indicators was taken from the respondents. Questions relevant to these three indicators were asked in Sections II and IV of the questionnaire. Simple descriptive statistics, histograms and bar charts were used to determine the extent of implementation of EFQM excellence model criteria. The use of quality tools and techniques was evaluated using frequency tables and implementation of different quality management systems and models was highlighted by using bar charts. The details of the use of analysis tools for the different indicators are given in Table 5.5 below.

Predictive Analysis Software (PASW) 18, formerly known as Statistical SPSS 17 is comprehensive software which contains all of the above-mentioned tools. Furthermore, it is much more user-friendly than SPSS used to be (Pallant, 2010). Due to the widespread use and reliability of this software, the researcher uses PASW 18 for the analysis of all the data.

Table 5.5: Analysis Technique for the Investigation of Extent of TQM Practices Implementation

Indicator	Statistical Tools
Extent of the implementation of EFQM excellence model criteria (Enablers and Results)	Frequency Table, Descriptive Statistics, Charts
Use of quality tools and techniques	Frequency Table, Bar Charts
Implementation of quality management systems and frameworks	Bar Charts Pie charts.

5.9.3 Identification of the Relationship between TQM Practices and Business Results

Two different research questions were developed to investigate the relationship between TQM practices and the dimensions of organisational performance. In research question RQ2 (see Table 4.1, p.113 for further details) the association between TQM practices and various dimensions of organisational performance is determined, whereas in the other research question (RQ3), the individual effect of TQM practices is evaluated on the construct of ‘business results’, which is developed from the individual constructs of organisational performance given in the EFQM results criteria. In order to investigate these questions, EFQM excellence enabler criteria (leadership, strategy, people, partnership and resources, and process) are used as a proxy for TQM practices, as suggested by Bou-Llusar et al. (2009), and the results criteria (customer results, people results, society results, financial results, non-financial results and key results) as the framework for measurement of the organisational performance. Information about all of the Enabler and Results constructs is taken from Section II. In RQ2, the association of TQM practices

(leadership, strategy, people, partnership and resources, and process) is determined with the business results (customers' results, people results, society results, financial results, non-financial results and key results).

The above-mentioned constructs have been measured as continuous variables, thus the Pearson product-moment correlation coefficient would be the most suitable technique to evaluate the relationship between the individual TQM practices and different dimensions of business results (Bryman, 2008). The standardised covariance is known as Pearson's correlation coefficient 'r'. According to Pallant (2010), the value of correlation coefficient 'r' must lie between 1 and -1. A coefficient of +1 indicates that the two variables are perfectly and positively correlated, therefore, as one variable increases, the other increases by a proportionate amount. Similarly, a coefficient of -1 indicates a perfect negative relationship, which shows that if one variable decreases the other decreases by the same proportionate amount. A coefficient of zero indicates that there is no relationship between the two variables. The value of coefficient indicates the strength the relationship. A value of ± 0.1 represents a small relationship, ± 0.3 is a medium relationship, and ± 0.5 is a large relationship (Field, 2005, p.111). However, Kinnear & Gray (2010, p.399) suggest that it is better to establish whether a linear relationship exists between the variables or not, before using the Pearson Correlation Coefficient. Pallant (2007, p.121) proposes that generating a scatter plot would enable a check for violation of the assumptions of linearity and homoscedasticity. Thus, scatter plots were developed before the determination of Pearson Correlation Coefficient to check the above-mentioned violations.

The third research question (RQ3) in Table 4.1 is about the investigation of the effect of individual TQM practices (leadership, people, strategy, partnership and resources, and process) on the overall 'business results' construct. The five TQM practices are considered to be the independent variables, whereas the overall 'business result' is regarded as the dependent variable. The overall business result construct is developed from the individual constructs of the organisational performance mentioned in the EFQM excellence model's results criteria. The information about all of the independent and dependent variables is taken from Section II and Section III of the questionnaire.

Neuman (2006, p.370), suggests that multiple regressions are used to see how different independent variables can affect the dependent variable. Similarly, Kinnear & Gray (p.399, 2010), Argyrous (2008) and Field (2005) advise that when an outcome is predicted from several predictor variables then multiple regressions should be used. Thus, to determine the effect of TQM practices (leadership, strategy, people, partnership and resources, and process) on a single construct of 'business result', multiple regression analysis will be used.

However, Pallant (2010) and Field (2005) indicate that while using multiple regression analysis there are certain assumptions to be made about the data. The results are not reliable if any of the assumptions are violated. The assumptions concern sample size, singularity and multicollinearity, normality, outliers, linearity, homoscedasticity and the independence of residuals.

This analysis technique cannot be used with a small sample size. A formula to calculate the sample size is given by Tabachnick & Fidell (2007, p.123):

$$\text{Sample Size} > 50 + 8m$$

Where “m”=number of independent variables

In this study, there are five independent variables; therefore a minimum 90 cases were needed for reliable results, whereas the research obtained has 301 cases. Multicollinearity exists when the independent variables are highly correlated ($r = .9$ and above). Singularity occurs when one independent variable is actually a combination of other independent variables. Furthermore, the normality, linearity, and homoscedasticity can be evaluated from the residuals scatter plots.

The data is considered normal if the residuals are normally distributed about the predicted dependent variable. Linearity can be assessed by the relationship of residuals to the predicted dependent variable; a straight line indicates high linearity. Similarly, if the residuals are the same for all the predicted scores then homoscedasticity is present (Pallant, 2010).

5.9.4 The Association of ISO 9001:2008 Certification with the Implementation of TQM and Business Results

Research questions from RQ4 to RQ7 (see Table 4.1, p.113 for further details) were developed to investigate the association between ISO 9000 certification and the implementation of TQM practices and business results.

Information about ISO 9000 certification is collected from the respondents in Section IV of the questionnaire in the form of ‘yes’ or ‘no’ answers, and thus this variable is

categorised as a nominal variable. Similarly, information about the length of ISO 9000 certification is also collected from the same section of the questionnaire. The respondent had to choose one of the options from the three choices available: 'less than 3 years', '3 to 6 years' and 'above 6 years'. It was discussed in detail in Section 2.5.1 that the third party (certification body) audits the organisational quality management system against the criteria of ISO 9001:2008. If the certification body is satisfied from the implementation, then they award an ISO 9001:2008 certificate to the company for the duration of three years. Within that time the certification body again audit the system, after a specific duration (normally one year). If they find any major violation of the standard's requirements then they can cancel the certificate. Companies with more than three years of certification indicate that they have successfully completed all the surveillance audits. Thus, the three lengths of certification indicate different levels of maturity of ISO 9000.

The variable 'TQM' is extracted from the five enabler constructs (leadership, strategy, people, partnership and resources, and process) and 'business results' from five results constructs (customers' results, people results, society results, and key results) of the EFQM excellence model and mentioned in Section II & III of the questionnaire. These two variables are also transformed into a nominal scale.

Argyrous (2008) proposes that in case of categorical data, when one is interested in overall frequency distribution of cases across the whole range of categories, rather than just looking for the central tendency, cross tables can be used and the chi-square test can capture the difference between observed and expected frequencies. He adds

that this test can tell whether there is any association. However, it does not reveal the nature of the relationship. Similar suggestions about chi-square test are given by other researchers like Kinnear & Gray (2010), Pallant (2010), and Field (2005). Thus, keeping in view the nature of variables in these research questions the chi-square test for independence and cross tabs will be used to investigate the association between these variables.

5.9.5 The Association of Contingency Factors with the Implementation of TQM

Based on the literature review, two contingency factors, size and type of textile company are much emphasised. Research questions RQ8 to RQ11 (see Table 4.1, p.113 for further details) were developed to determine the association of these contingency factors with the implementation of TQM and achievement of business results.

Information about these two contingency variables was collected from Section I of the questionnaire. The 'size' and 'type' of the textile companies are classified as the categorical variables. Thus, the chi-square test for independence and crosstabs will be used to investigate the association between contingency factors and implementation of TQM and achievement of business results.

5.9.6 Issues and Obstacles Faced by the Textile Companies of Pakistan during the Implementation of Quality Improvement Initiatives

The last research question of this study is the identification of issues and obstacles faced by the textile companies of Pakistan during the implementation of quality

improvement initiatives. A list of different potential issues was developed after the literature review. The respondents in Section IV of the questionnaire were requested to rate them according to their perception of the level of severity of each issue. A frequency table and graphs were used to analyse the data.

5.10 Summary

This chapter presented the methodology used in this research project. This study adopted a deductive approach and best fits in the positivism and objectivism positions, while explaining the epistemological and ontological considerations. Thus, quantitative methodology was selected for this research project.

The self-completion questionnaire survey method was used to collect the data. This data collection method was selected in view of constraints like cost, time, and the nature of the study. The perception based data about the implementation of the TQM philosophy was collected from the managers of Pakistani textile companies. The self-completion questionnaire was prepared based on the criteria of the EFQM excellence model. A pilot testing of the questionnaire was conducted. Individuals from various backgrounds (academics, TQM experts and textile managers) participated in the design and pilot testing of the questionnaire.

A total of one thousand and fifty questionnaires were sent to two hundred and ten textile companies which were members of APTMA and located in the province of Punjab. The Punjab is the largest province of Pakistan and the majority of APTMA member textile companies are located in this province.

Different statistical tools and techniques like descriptive statistics, correlations, multiple regression, crosstabs and chi-square were used to analyse the data. The selection of any statistical tool and technique for specific research questions was based on the nature of the variables in each research question. The data was analysed by using SPSS 17, one of the most widely used analytical software tools in social and management sciences.

6 DATA ANALYSIS AND FINDINGS

6.1 Introduction

This chapter contains a statistical and graphical analysis of the data collected from the sample textile companies. The findings are presented according to the research objectives and research questions given in Chapter Four (see Table 4.1, 4.2 and 4.3 pp. 113, 114 and 115 for more details). Detailed discussion on these findings, with reference to the literature, will be given in Chapter Seven.

The evaluation of the adequacy of the data collection instrument is the fundamental aspect of any analysis; thus, before starting the data analyses the reliability and validity of the research instrument are described. Subsequently, the profile of the respondents and sampled companies is reviewed.

6.2 Reliability and Validity of the Questionnaire

In this section, the reliability and validity of the questionnaire are evaluated, based on the data collected. Detailed discussion about the concepts of reliability and validity can be found in Chapter Five (see Section 5.9.1, p.138 for more details). The adequate reliability and validity analysis provides the confidence to the audience that the findings are reliable and are based on the accurate measures of the underlying constructs. It is very important when dealing with the measures of non-observable constructs (Flynn, Schroeder and Sakakibara, 1994).

The details of the questionnaire design are discussed in Chapter Five, Section 5.5. The constructs in questionnaire's Section-II and III were developed based upon the

Enabler and Results criteria of EFQM Excellence Model. Different items were developed under each construct.

As discussed in Section 5.9.1, the reliability might be referred as the internal consistency of the items, which used to develop a scale. Therefore, to evaluate the internal consistency of the constructs, an item inter-correlation matrix was developed for each construct. All items which had negative correlation with other items of the construct were deleted. Therefore, the item V1, V3 and V4 were deleted from the construct of 'Leadership' whereas V36 was deleted from people results due to the negative correlation with the other items of the same construct. V36 had the negative inter-item correlation (-0.102) with V34 and V35.

Later on, the value of Cronbach's Alpha was determined for each construct. Generally, 0.7 is considered as the acceptable Cronbach's Alpha value for any construct however, Nunnally (1978) indicated that Cronbach's Alpha value of 0.6 is also acceptable if the scales are new.

Table 6.1 indicates the values of Cronbach's alpha for the individual constructs and the overall questionnaire. It is evident from Table 6.1 that all the values of Cronbach's Alpha are more than 0.7, except for customer results (0.6) and people results (0.316).

All the constructs with Cronbach's alpha value equivalent or more than 0.6 are accepted. Pallant (2010) suggest that in case of constructs which have a low number of items (normally less than 10 items) it is difficult to get decent values of

Cronbach's alpha. In such a situation, it is better to use the inter-item correlation for the items. Normally, 0.2 to 0.4 is considered as the optimal range for the inter-item correlation. Briggs and Cheek (1986) also support this assumption.

Table 6.1: A reliability Analysis of Section II and III of the Questionnaire

Constructs	No. of Items²	Cronbach's Alpha
Leadership	4 (V6, V5, V2, V18)	0.769
Strategy	6(V7, V8, V9, V10, V11, V12)	0.712
People	5 (V13, V14, V15, V16, V17)	0.80
Part.& Res.	4 (V19, V21, V22, V23)	0.714
Process	7 (V24, V25, V26, V27, V28, V29, V30)	0.855
Customer Results	3 (V31, V32, V33)	0.60
People Results	2 (V34, V35)	0.316
Society Results	3 (V45, V46, V47)	0.752
Key Results	8 (V37, V38, V39, V41, V42, V43, V44, V40r)	0.729
Overall reliability of the questionnaire		0.937

Table 6.2 indicates that the two items (V34 and V35) in construct of people results have an item to total correlation of 0.197, which is almost equal to 0.2. Considering the recommendation of Briggs and Cheek (1986), the items V34 and V35 are retained for the construct of people results.

Table 6.2: The Item to Total Correlation for the Construct of People Results

	Item to total correlation for item 1	Item to total correlation for item 2	Item to total correlation for item 3
People Results (3 items)	V34= 0.197	V35= 0.197	V36= -0.102

² The items in Section II & III of the questionnaire are represented by "V1, V2 and so on. These items could be traced from the questionnaire, attached as Appendix A. The notation of "Vr" is used when the rating for that item is reversed.

The term “validity” refers to the issue of whether an indicator (or set of indicators) that is devised to gauge a concept really measures that concept. However, although reliability and validity are analytically distinguishable, the two terms are related because “validity presumes reliability” (Bryman, 2008, pp.151, 153). There are different methods to establish the validity of a questionnaire, such as face validity, construct validity, convergent validity and discriminant validity, but Bryman (2008) suggests that face or content validity is the minimum criteria and essentially an intuitive process which needs to be established by the researcher.

According to Haynes, Richard and Kubany (1995, p.238) content or face validity “is the degree to which elements of an assessment instrument are relevant to and representative of the targeted construct for a particular assessment purpose.” Bryman (2008) recommends that the face validity of the questionnaire can be determined by asking people who have had the experience or who are experts in the field whether the measure seems to be getting at the concept that is the focus of the attention. These people might be asked to act as judges, to determine whether the measure reflects the concept concerned.

In order to establish face validity, a group of different experts from Pakistan, consisting of TQM experts, practitioners, academic and textile managers was selected (see Section 5.5.1, pp.128, for further details). Along with other features the group also reviewed whether all the items or indicators in the questionnaire were relevant to measure their respective constructs or not. All of the lessons learnt from the first unsuccessful attempt of data collection and the suggestions of the focus group (see

Section 5.4, p.123 for further details) were considered in the further modification and development of the original questionnaire by Bou-Llusar et al. (2009). As the original questionnaire was validated in the context of Spain and in both manufacturing and service organisations, this process ensured the adequacy of the content of the questionnaire in the context of textile companies in Pakistan.

Many studies, including Bou-Llusar et al. (2009), Dijkstra (1997), Eskildsen and Dahlgaard (2000), Eskildsen et al.(2001), and Calvo-Mora, Leal and Roldan(2005) have empirically evaluated the internal structure of the EFQM excellence model and highlighted that the sub-criterion of each dimension of Enablers and Results is a reliable source to develop items for the relevant constructs. Thus, all the items in this questionnaire are developed in view of the criteria of the EFQM excellence model. The majority of items in this questionnaire are taken from the instrument developed by Bou-Llusar et al. (2009), which has already been validated in manufacturing and services companies. The above evidence provides sufficient reassurance that the questionnaire is a valid instrument.

6.3 Sample Profile

A total of 1,050 questionnaires were sent to 210 companies, which were members of APTMA and located in the province of Punjab. Five questionnaires were sent to each organisation and the respondents were the senior level managers from different departments in the companies. A total of 75 questionnaires from 15 companies were returned as undelivered and 306 completed questionnaires were returned from 105 companies. Thus, the response rate was 50.5% company wise and 31.8% respondent

wise. Five questionnaires were excluded from the final analyses because a major part of the data was missing from these questionnaires. The analysis of the data was conducted in August 2010.

As discussed in Chapter Five, the perception based data is collected for this study. In Section 5.4.3 it is mentioned that multiple responses are collected from a single organisation. However, as argued by Kumar, Stern and Anderson (1993) that different informants from the same organisation might have different opinion on the same issue due to the difference in their perceptions and knowledge therefore each respondent is considered as an independent case for the further analysis.

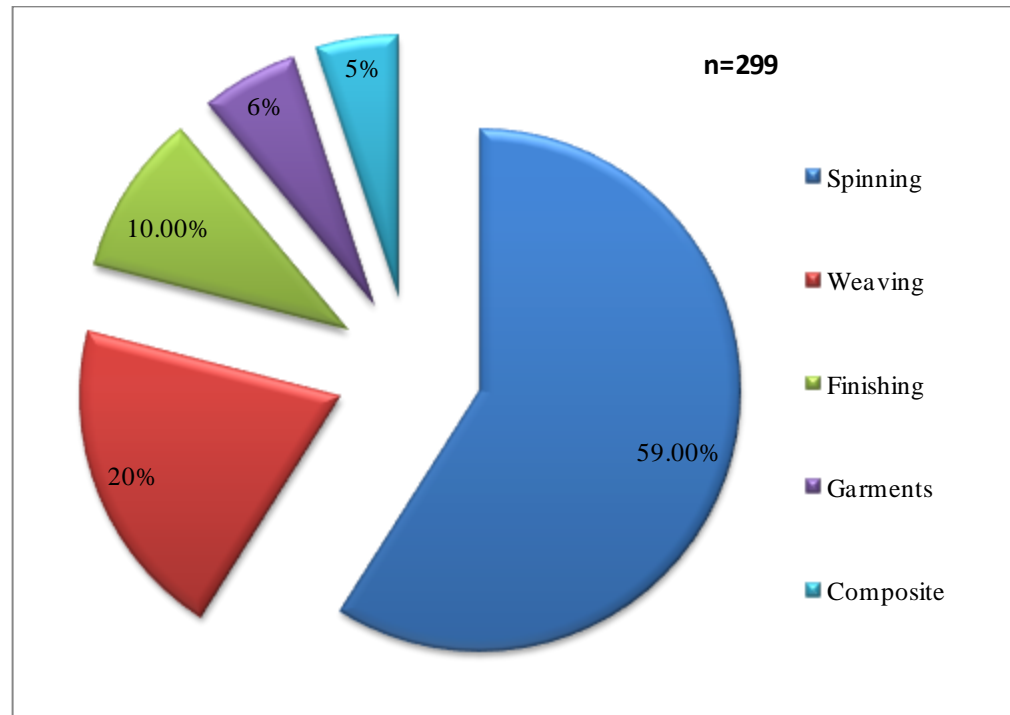
Table 6.3: Profile of the Sample

Type of the sample textile companies n=299		Size of company n= 299		Manager and employee awareness of TQM n=298		Job designation of the respondents n=301	
	%		%		%		%
Spinning	59	Small (100-500)	44	Excellent	5	Production Manager	37
Weaving	20	Medium (500-1000)	42	Very good	31	Quality Assurance Managers	27
Finishing	10	Large (Above 1000)	14	Good	61	Financial Managers	5
Garments	6			Poor	2	Human Resource Managers	8
Composite	5			Know nothing	1	Sales Managers	9
						Any other	13

Table 6.3 indicates that a majority (61%) of the respondents think that employees and managers of the sample companies have good awareness of TQM, 31% think very good, and 5% claim excellent knowledge of TQM. There were only 2% of respondents answering poor and 1% saying that they know nothing about TQM. The

overall results show that the respondents perceive that both employees and managers of the companies have awareness of TQM.

Figure 6.1: The Types of Sample Textile Companies



The graph in Figure 6.1 show that the maximum responses were collected from spinning companies (59%) followed by weaving (20%), finishing (10%), garments (6%) and composite companies (5%). The responses were according to the textile composition in Pakistan. As discussed in Chapter Three, the majority of the companies in Pakistan are spinning companies; therefore, the majority of responses came from this sector.

Table 6.3 and Figure 6.2 indicate that the majority of respondents were production managers (37%) followed by quality assurance manager (27%), sales managers (9%),

human resource managers (8%), financial managers (5%) and others (13%). The mixed responses from different departments show that the data will not be biased because of only having responses from one department, such as Production or Quality Assurance.

Figure 6.2: Job Designations of the Respondents

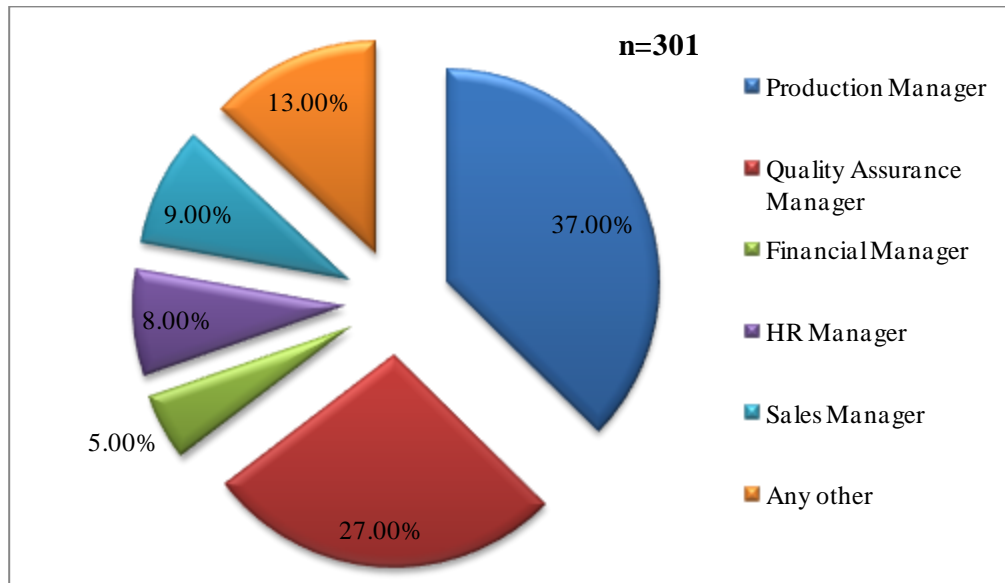
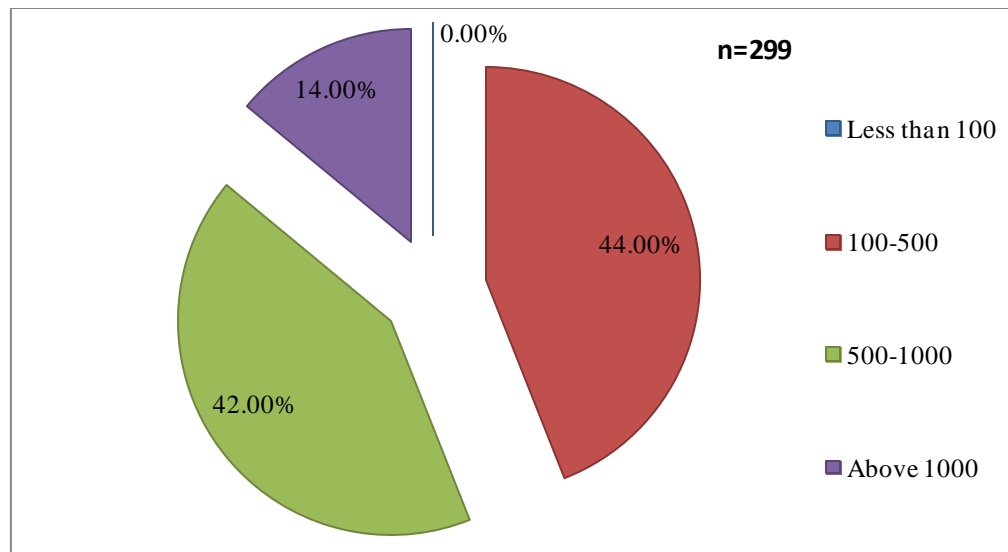


Table 6.3 and Figure 6.3 show the percentage of the companies with respect to their size from where the questionnaires were received. From Figure 6.3, 44% of responses came from the companies who had employees between 100 and 500, 42% of responses came from companies who had employees between 500 and 1,000 and only 14% questionnaires were received from companies who had more than 1,000 employees. There were no responses from any companies with less than 100 employees.

The above findings indicate that the majority of respondents (55.8%) belong to the sample spinning mills followed by weaving (20%). Almost all the respondents belong

to medium to large size textile companies, as all responses were received from the companies having more than one hundred (100) employees.

Figure 6.3: The Size of Companies from where the Responses were Received



A review of the existing research shows that there are commonalities with the profile of this study. For example, Hussain, Akhtar and Butt (2009) also conducted their study on spinning mills of Pakistan which were members of APTMA. However, they have not included other types of textile companies like weaving, garments etc. They have also collected the perception based data. However, they collected single response from each company, whereas this research collected more than one response from each company. Similarly, the sample used in Fatima and Ahmed (2006) only contains the bed wear sector of the Pakistani textile sector.

Despite differences in country and sector context, the profiles of the studies given in Table 2.2 (p.22), summarising previous work, have many commonalities with the sample used in this study. For example, Sila and Ebrahimpur (2005), Rahman and Bullock (2005) and Ahire and Dreyfus (2000) also researched manufacturing

companies. These companies were not textile companies but the nature of the organisational processes in manufacturing companies has many similarities. For example, all manufacturing companies produce tangible products by using different raw materials. These raw materials are transformed into finished products by using different machines, equipments and tools. The control of production processes is required to produce products according to the required specifications.

The above discussion indicates that the profile of the sample of current study is not much different in comparison to the existing studies therefore the results of current study might be compared with the findings of existing studies. Therefore, in Chapter Seven, all the findings of this study are discussed in the light of the findings of existing studies.

6.4 Findings from the Data Analysis

This section discusses the analysis of the data and highlights the findings in order of the relevant research question.

6.4.1 The Level of TQM Implementation in the Sample Textile Companies of Pakistan

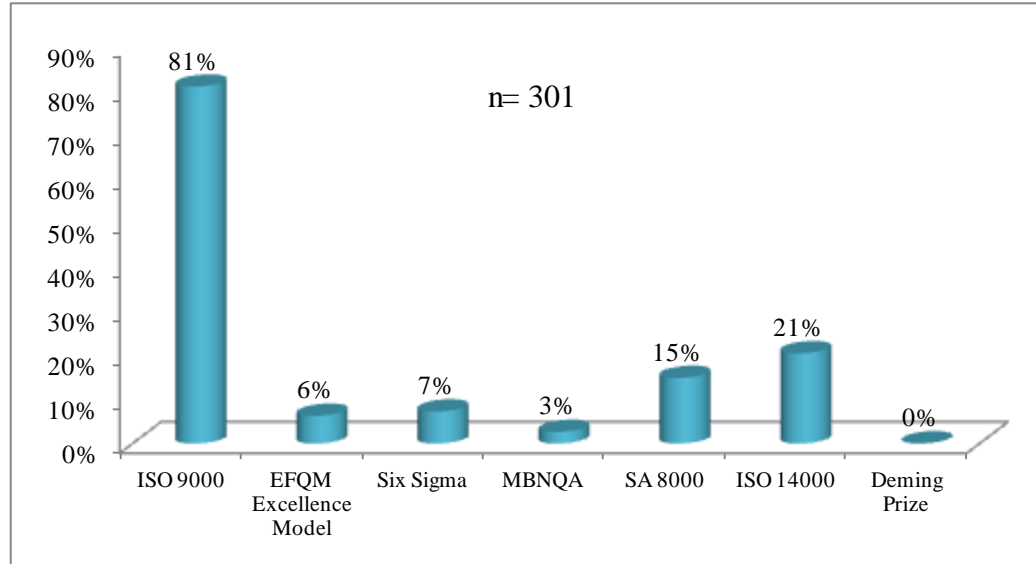
As discussed in Section 5.9.2, three different indicators were used in order to investigate the level of TQM implementation in the textile companies of Pakistan. Firstly, the implementation of different quality management systems and frameworks was investigated. Secondly, the use of quality tools and techniques was identified and thirdly the extent of implementation of EFQM excellence model criteria (Enablers

and Results) was determined. In the next sub-sections, the analysis of the data for each indicator is shown.

6.4.1.1 The Extent of Implementation of Quality Management Systems and Models

As mentioned above, investigation of the implementation of different quality management systems and models is the first indicator used to identify the level of TQM implementation in the sampled textile companies. Respondents from all the companies were asked whether they had implemented or were trying to implement any quality management systems and models.

Figure 6.4: The Extent of Implementation of Different Management Systems and Standards

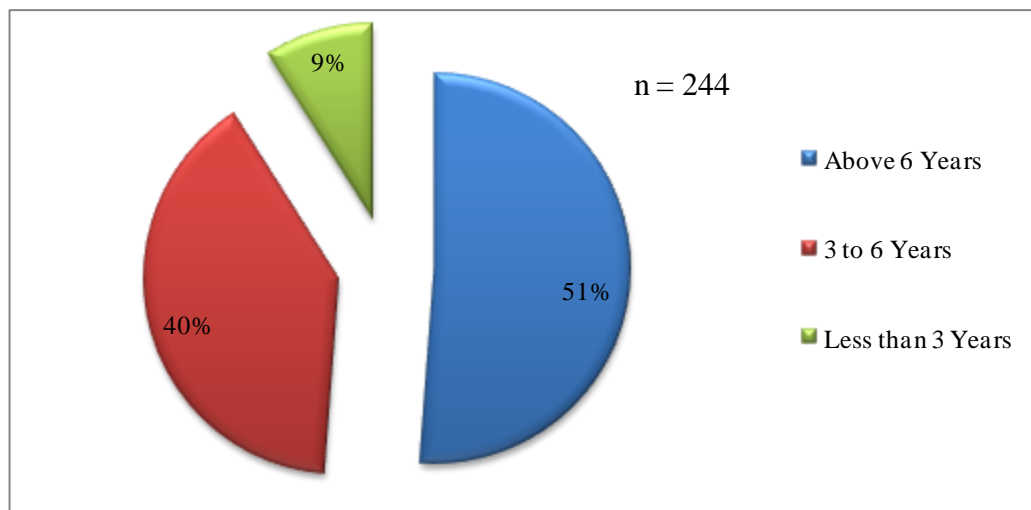


The graph in Figure 6.4 indicates the level of the implementation of different management systems and models in the sampled textile companies. This table shows that eighty one percent (81%) of the respondents have replied that their companies

have implemented or tried to implement ISO 9001, twenty one percent (21%) ISO 14000, fifteen percent (15%) SA 8000 (Social Accountability standard), seven percent (7%) Six Sigma, six percent (6%) the EFQM excellence model and three percent (3%) MBNQA.

In the same question, respondents were asked to mention the duration of the ISO 9001 certification, if their company was certified to this standard. The graph in Figure 6.5 indicates the different durations of ISO 9001 certification. The majority of respondents (51%) indicated that their companies had held the certification for more than six years, 40% from three to six years, but only 9% replied that their companies were certified in the last three years.

Figure 6.5: The Length of ISO 9000 Certification in the Sample Textile Companies

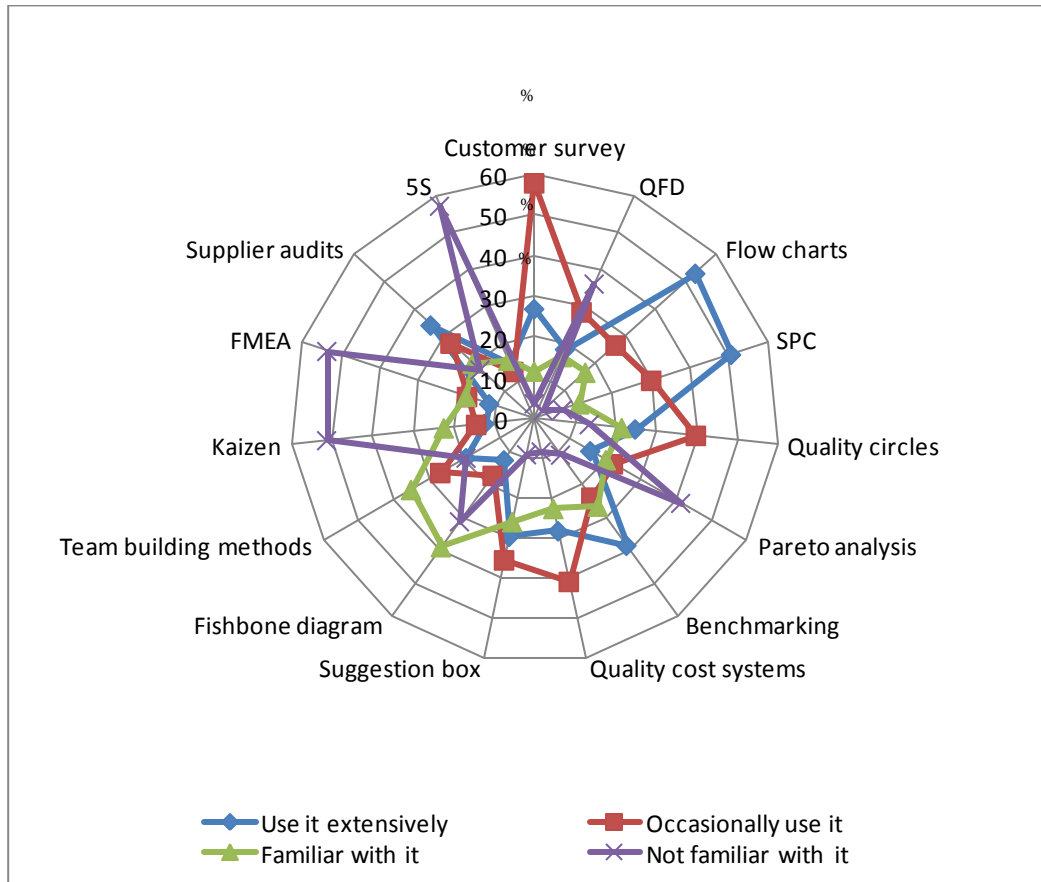


These results show that ninety one percent (91%) of the respondents indicated that their companies had held certification of ISO 9001 for more than three years. A much lower percentage of respondents mentioned that their companies were interested in the implementation of excellence or other advanced frameworks of improvement. After ISO 9001, the sample companies seem interested in the implementation of the environmental management standard (ISO 14000) and the social accountability standard (SA 8000). According to the perception of respondents, other models and frameworks such as MBNQA, the EFQM excellence model and Six Sigma were given the least importance by the sampled textile companies. The high implementation of ISO 9001 indicates that the sampled companies are aware of the importance of quality however, they are not going beyond the level of quality assurance to manage their processes. These results on the implementation of TQM models and frameworks in the sample companies are discussed in further detail, with reference to the literature, in Chapter Seven, Section 7.2.2.

6.4.1.2 The Implementation of Quality Tools and Techniques

The second indicator used for the evaluation of the extent of TQM implementation in the sample textile companies of Pakistan was the use of quality tools and techniques. The question regarding the use of quality tools and techniques was asked in Section IV.

Figure 6.6: The Level of Use of Quality Tools and Techniques in the Textile Companies of Pakistan



The respondents were requested to mark the appropriate box on the use of these tools and techniques within their companies. The results of the data analysis are depicted in Figure 6.6 and Table 6.4. The majority of respondents indicated that the sampled textile companies are not even familiar with some of the quality management tools and techniques.

Table 6.4: The use of the Quality Tools and Techniques in the Textile Industries of Pakistan

	Use it extensively	Occasionally use it	Familiar with it	Not familiar with it
	% age	% age	% age	% age
Customer Surveys	27	58	12	4
QFD	19	29	17	36
Flow charts	53	27	17	3
SPC	51	30	12	7
Quality Circles	25	40	22	14
Pareto Analysis	16	22	20	42
Benchmarking	39	24	27	11
Quality Cost Systems	28	41	23	8
Suggestion Box	30	36	26	9
Fishbone Diagram	13	17	39	31
Team building methods	19	27	35	19
Kaizen	12	14	22	51
FMEA	11	17	18	54
Supplier Audits	34	28	20	18
5S	15	13	16	57

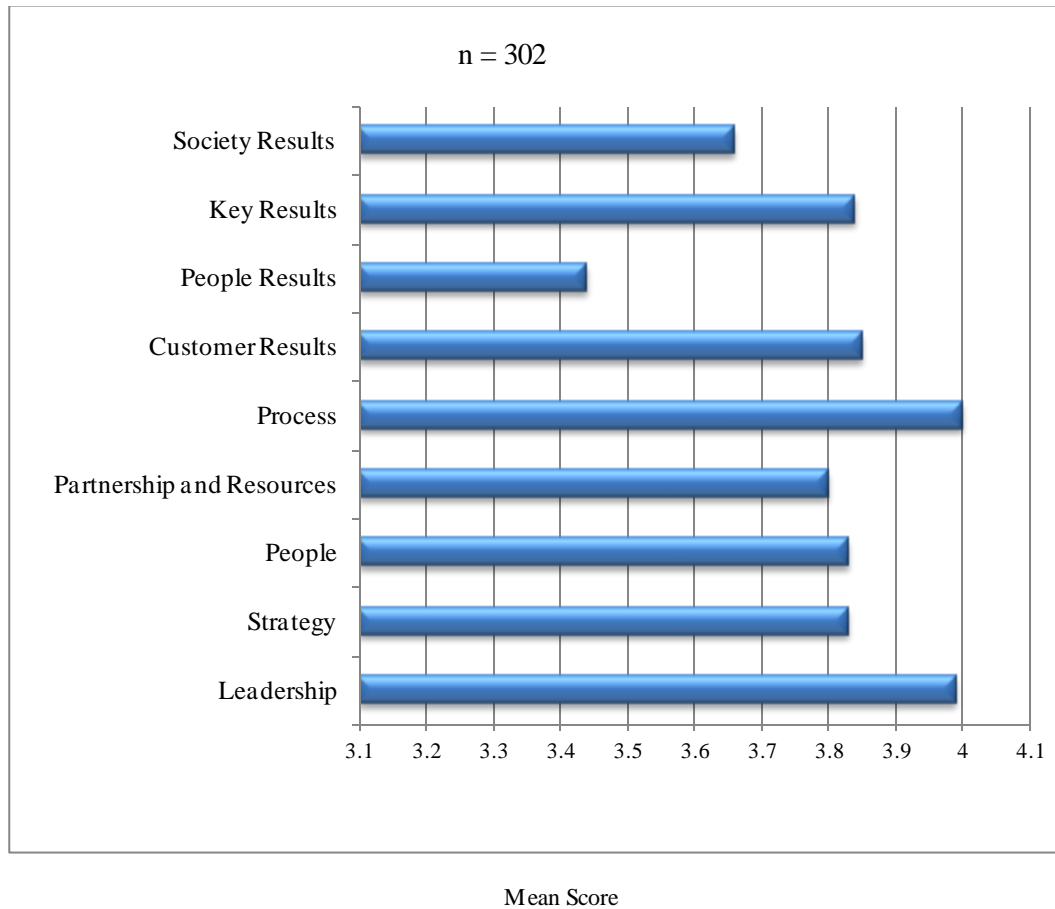
The results from Figure 6.6 and Table 6.4 indicate that 57% of respondents indicated that people in their organisation were not familiar with '5S', 54% with 'FMEA', 51% with 'Kaizen', and 42% with Pareto analysis. Only flow charts, SPC tools, suppliers' audits and benchmarking are claimed to be used extensively. Among these tools and techniques, flow charts (53%) and statistical process control (51%) are reported to be used extensively. People in some sampled companies seem to be familiar with quality techniques like fishbone diagrams and teambuilding techniques, but are not using them. Tools and techniques like customer surveys, quality circles, quality cost systems and suggestion boxes were said to only be used occasionally.

The analysis of the data revealed that according to the perception of respondents the sample textile companies do not use all the quality tools and techniques adequately. These companies seem interested in the use of process control tools and techniques like SPC and Flow charts. However, they do not seem interested in the use of Kaizen, Fishbone diagram, QFD and Pareto Analysis. Furthermore, employee involvement techniques like quality circles and suggestion box are used occasionally but not extensively. These results are discussed in further details with reference to the literature in Section 7.2.1.

6.4.1.3 The Implementation of EFQM Excellence Model's Enablers and Results Criteria

Based on the criteria of the EFQM excellence model different items were developed in the questionnaire. All nine criteria were directly measured in the questionnaire. Table 6.5 and the graph in Figure 6.7 depict the level of implementation based on the mean values of these constructs.

Figure 6.7: The Level of the Implementation of EFQM Excellence Model Criteria (Mean Score)



The Likert scale from '1' to '5' was used to measure the perception of managers about the implementation of these practices within their companies. In this scale '5' was referred to strongly agree and '1' to strongly disagree. The review of the Table 6.5 and the graph in Figure 6.7 highlight that the mean values of the constructs are not equal. The process has the maximum mean value (4.00), followed by leadership (3.99), and customer results (3.85). On the other hand, people results (3.44) and society results (3.66) have the lowest mean values.

Table 6.5: The Level of the Implementation of EFQM Excellence Model's Criteria

	n	Minimum	Maximum	Mean	Std. Deviation
Process	301	1	5	4.00	.613
Leadership	301	2	5	3.99	.646
Customer Results	301	2	5	3.85	.609
Key Results	301	2	5	3.84	.586
Strategy	301	2	5	3.83	.566
People	301	2	5	3.83	.703
Partnership and Resources	301	2	5	3.80	.686
Society Results	301	1	5	3.66	.714
People Results	301	2	5	3.44	.723

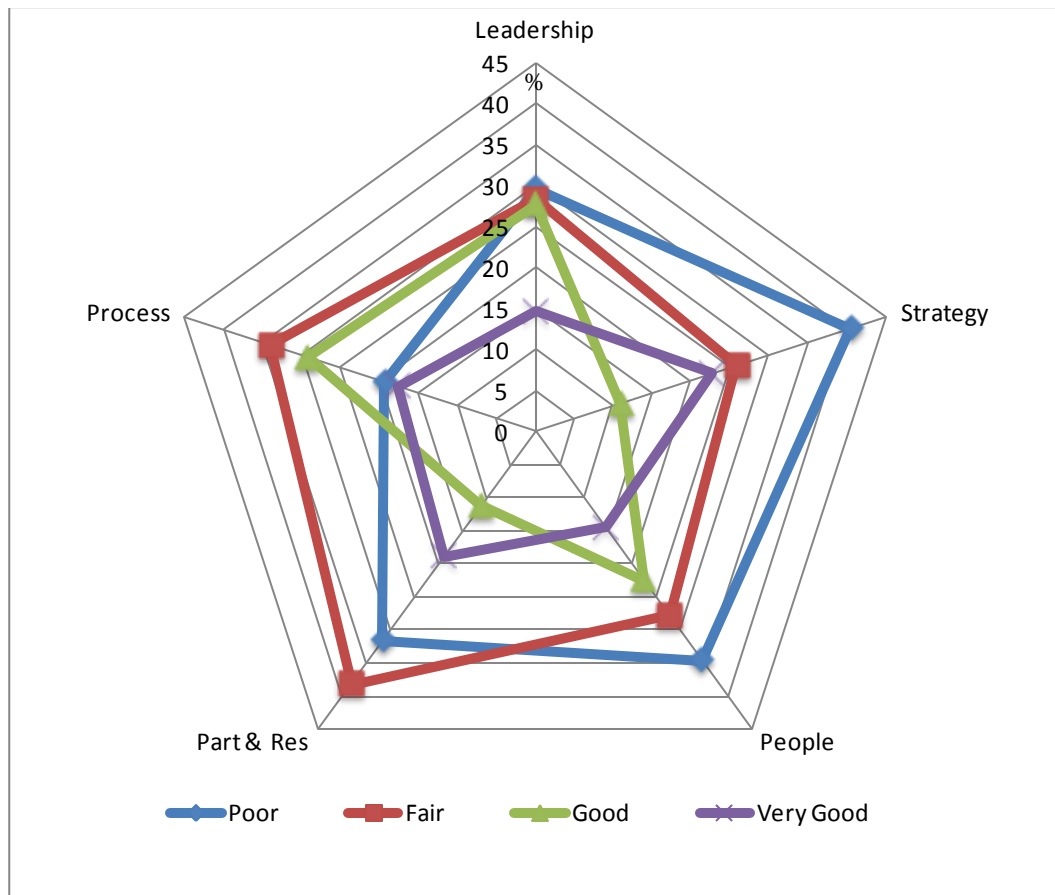
In order to get the further detailed view of the implementation of EFQM excellence model constructs, these enablers and results constructs have been transformed into the categories of 'Poor', 'Fair', 'Good', and 'Very Good' except customer and society results. These two constructs cannot be transformed into four categories because of the granularity of the data. These results are depicted in the Table 6.6.

Table 6.6: The Level of the Implementation of Different Constructs of EFQM Excellence Model

Constructs	Level of implementation			
	Poor (%)	Fair (%)	Good (%)	Very Good (%)
Leadership	30	28	28	15
Strategy	41	26	11	23
People	35	28	23	15
Partnership & Resources	32	38	11	19
Process	19	34	29	18
Employee Results	44	17	29	10
Key Performance Results	26	39	16	20
Level of implementation				
	Poor (%)	Fair (%)	Good (%)	
Customer Results*	19	55	26	
Society Results*	27	56	17	
*These constructs cannot be converted into four categories because of the granulation in the data.				

Figure 6.8 shows the graphical representation of the implementation of Enabler constructs. According to the graph in Figure 6.8, the constructs of strategy and people are thought to be poorly implemented by the sample. The majority of respondents perceive that the implementation of partnership and resources lies on the level of fair and poor. The level of ‘good’ and ‘very good’ is far behind. Among all of these Enabler constructs, the process is considered as a much focused on area. The majority of managers perceive that it is at the level of “fair” and “good”. The level of leadership implementation is almost evenly distributed among poor, fair and good. If the scores of poor and fair are joined together than it is much higher as compared to the combined scores of good and very good.

Figure 6.8: The Level of Implementation of TQM Practices (EFQM Enabler Criteria)



In comparison to the Results criteria, Enabler criteria are more emphasised. In the Enabler criteria, the strategy, people, and partnership and resources seem poorly implemented. However, the implementation of process and leadership is better in comparison to the other Enabler constructs. Similarly, in the results criteria, people and society results are not very emphasised in comparison to the customer and key performance results.

In summary the EFQM excellence model constructs are not thought to be implemented systematically in the sample textile companies. The majority of

respondents perceive that the implementation of constructs in the Enabler criteria is at the level of 'poor' or 'fair'. In the Enabler criteria the constructs of partnership and resources, people, and strategy are not given much importance as process and leadership. Process is a highly emphasised construct. In the Result criteria the sample companies have given least importance to the achievement of people and society results compared to the non-financial, financial and customer results. These results are discussed in further detail, with reference to the literature in Section 7.2.3.

6.4.2 Relationship of TQM Practices with Business Results

In Section 2.3, the relationship of TQM practices with business results was discussed in detail. Two research questions, RQ2 and RQ3 were developed on the basis of the literature to study the association and effect of TQM practices on the business results (see Table 4.1, p. 113 for further detail).

In this section, the association between the different constructs of TQM is identified with the various dimensions of business results. The relationship between TQM practices (EFQM Enabler's criteria) and constructs of business results (EFQM Results criteria) is investigated by using the Pearson product-moment correlation coefficient. The results of this analysis are given in Table 6.7.

The results show that all the TQM practices are positively and significantly related to the different dimensions of business results. Overall TQM practices and overall business results are also positively associated. However, there is a variation in the strengths of all of these relationships. According to the suggestions given by Kinnear

& Gray (2010), Pallant (2010) Bryman (2008) and Field (2005), following guidelines to investigate the strength of the relationship between two variables can be used.

Small $r = 0.10$ to 0.29 , Medium $r = 0.30$ to 0.49 , Large $r = 0.50$ to 1.0

According to these guidelines, leadership has a strong positive and significant relationship with overall business results ($r = .565$, $p = .000$) and key performance results ($r = .579$, $p = .000$), however it has a medium significant relationship with all other dimensions of business results except people results ($r = .128$, $p = .128$), which is weak and insignificant.

Process has a strong positive and significant relationship with overall business results ($r = .671$, $p = .000$), key performance results ($r = .621$, $p = .000$), non-financial results ($r = .508$, $p = .000$), customer results ($r = .521$, $p = .000$), and financial results ($r = .528$, $p = .000$). However it has significant and positive medium relationship with society results ($r = .336$, $p = .000$) and people results ($r = .244$, $p = .000$).

Among all of these TQM practices, the process construct has the highest ($r = .671$, $p = .000$) positive relationship with the overall business results followed by partnership & resources ($r = .640$, $p = .000$), and strategy ($r = .627$, $p = .000$), whereas the people construct has the medium positive but significant association ($r = .490$, $p = .000$) with the overall business results.

The overall results about the relationship between perceived implementation of TQM practices and different dimensions of perceived business results are summarised in the Table 6.8.

Table 6.7: The Relationship Between TQM Practices & Business Results

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Leadership	1												
2. Strategy	.658**	1											
	.000												
3. People	.596**	.651**	1										
	.000	.000											
4. Partnership and Resources	.484**	.557**	.578**	1									
	.000	.000	.000										
5. Process	.721**	.673**	.566**	.565**	1								
	.000	.000	.000	.000									
6. Customer Results	.456**	.480**	.361**	.595**	.521**	1							
	.000	.000	.000	.000	.000								
7. People Results	.128*	.254**	.206**	.012	.244**	.076	1						
	.026	.000	.000	.838	.000	.189		1					
	.000	.000	.000	.000	.000	.000	.362	.000					
8. Society Results	.257**	.319**	.122*	.409**	.336**	.374**	.146*	.229**	.409**	1			
	.000	.000	.035	.000	.000	.000	.011	.000	.000				
9. Key Results	.579***	.575**	.530***	.641***	.621***	.621***	.009	.787***	.868***	.395***	1		
	.000	.000	.000	.000	.000	.000	.878	.000	.000	.000			
10. TQM	.834**	.845**	.829**	.779**	.846**	.583**	.200**	.550**	.629**	.346**	.713**	1	
	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000		
11. Business Results	.565**	.627**	.490**	.640**	.671**	.747**	.402**	.638**	.719**	.687**	.821**	.722**	1
	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	

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

Table 6.8: The Summary of the Relationship of TQM Practices to the Business Results

TQM practices	Business Results						Overall Business Results
	Customer Results	Peoples Results	Financial Results	Non Financial Results	Society Results	Key Perf. Results	
Leadership	** + Medium	* + Small	** + Medium	** + Medium	** + Small	** + Large	** + Large
Strategy	** + Medium	** + Small	** + Medium	** + Medium	** + Medium	** + Large	** + Large
People	** + Medium	** + Small	** + Medium	** + Medium	** + Small	** + Large	** + Medium
Partnership and Resources	** + Large	<i>Insignificant No relationship</i>	** + Medium	** + Large	** + Medium	** + Large	** + Large
Process	** + Large	** + Small	** + Large	** + Large	** + Medium	** + Large	** + Large
TQM	** + Large	** + Small	** + Large	** + Large	** + Medium	** + Large	** + Large
**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed). Legend: + = Positive							

These results show that all the TQM practices are positively and significantly related to the different dimensions of business results except the people results, which has no relationship with partnership or resources. However, this specific relationship is not significant. The results from Table 6.8, also indicates that all the TQM practices have a large positive and significant relationship with the construct ‘overall business results’, except surprisingly the people dimension, which has a medium relationship. Similarly, all TQM practices have a large positive and significant relationship with key results. However, these constructs only have a small relationship with people results. These results are discussed in further details, with reference to the literature, in Section 7.3.

The above mentioned results do not necessarily indicate causality between TQM practices and business results. However, these results indicate the association. The next section investigates the causal effect of different TQM practices on the

overall construct of business results. The perception as to which TQM practice is the best predictor of business results was also investigated.

6.4.3 The Effect of TQM Practices on Business Results

In Section 2.3, the relationship and causal effect of TQM practices on business results is discussed. Research question RQ3 (see Table 4.1, p.113 for further detail) was developed to study the individual effect of TQM practices on the overall construct of the business results. The details of the analysis technique and constructs development are given in Section 5.10.3. Based on that discussion, multiple regression analysis is used to analyse the data. However, before starting the actual analysis of the data, the assumptions which need to be satisfied for multiple regression analysis will be discussed, as suggested by Pallant (2010). These assumptions included the checking of the multicollinearity and normality of the data.

In Figure 6.9, the Normal P-P Plot indicates that the points lie in a reasonably straight diagonal line from bottom left to right. This indicates that there is no major deviation from the norm. In the scatter plot of the standardised residuals, the residuals are in a roughly rectangular distribution; with most of the scores concentrated in the centre, along the zero. This indicates that there is linearity in the data. The scatter plot shows that there are no noticeable outliers.

Figure 6.9: The Normal P-P Plot of Regression Standardised Residual

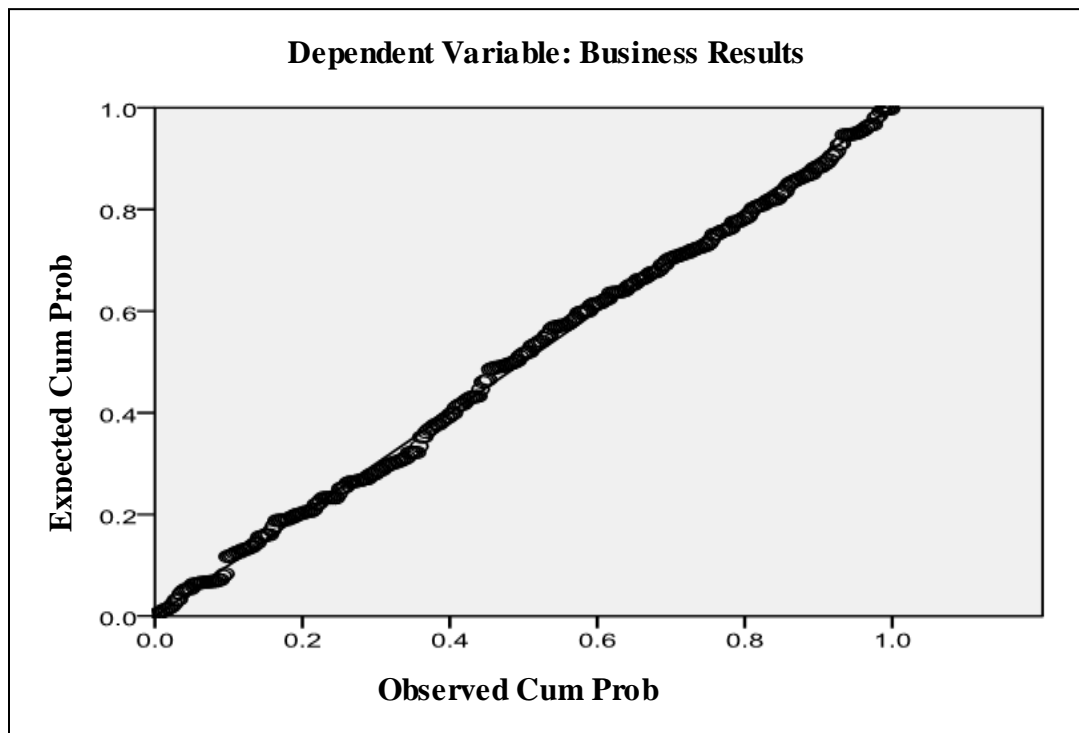
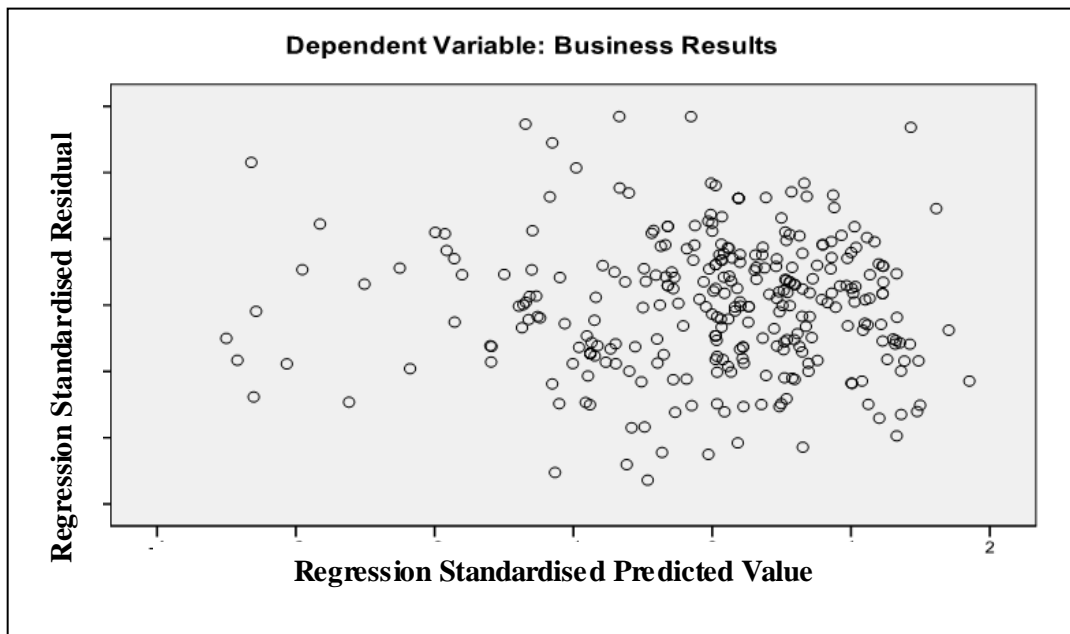


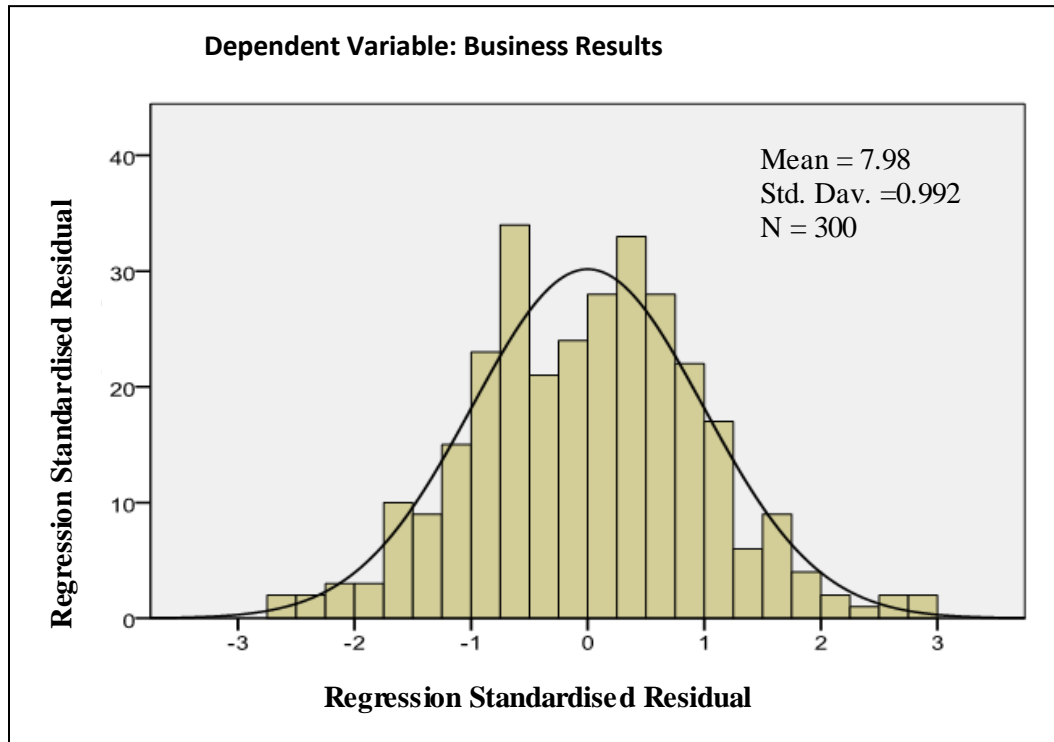
Figure 6.10: Scatter-plot between Regression Standardised Predicted Value and Regression Standardised Residual



To check the multicollinearity, the correlations between the variables in the model are depicted in the Table 6.9. As all the independent variables have a positive

relationship with the dependent variable and this relationship is greater than 0.3 and less than 0.9 thus all the independent variables are retained.

Figure 6.11: The Histogram for the Regression Standardised Residual



In Table 6.9 under the heading of ‘coefficients’ and in the ‘collinearity statistics’ column (the values for ‘tolerance’ are more than 0.1) indicates that multiple correlations with other variables are low. In addition, the values of the Variance Inflation Factor (VIF) are less than 10, thus according to Pallant (2010) there is no multicollinearity. The assumption of multicollinearity is not violated.

Table 6.9: The Results of Multiple Regression Analysis on the Effect of TQM Practices on the Business Results

Model Summary							
		R	R Square	Adjusted R Square	Std. Error of the Estimate		
		.759 ^a	.576	.569	.27940		
a. Predictors: (Constant), Process, People, Partnership and Resources, Strategy, Leadership b. Dependent Variable: Business Results							
Coefficients							
Model		Unstandardised Coefficients		Standardised Coefficients	Sig.	Collinearity Statistics	
		B	Std. Error	Beta		Tolerance	VIF
1	(Constant)	1.377	.122		.000		
	Leadership	.042	.039	.063	.290	.407	2.458
	Strategy	.171	.045	.227	.000	.408	2.451
	People	-.046	.033	-.075	.171	.478	2.094
	Part & Res.	.214	.031	.345	.000	.569	1.758
	Process	.222	.042	.320	.000	.384	2.601
ANOVA							
Model		Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	31.219	5	6.244	79.981	.000 ^a	
	Residual	22.951	294	.078			
	Total	54.171	299				

The value of R-Square, in the ‘model summary’ table, highlights that the variance is explained by the model (leadership, people, strategy, partnership and resources, and process) in the dependent variable business results. This value is .576, which indicates that 57.6% of the variance in business results is explained by these five independent variables. This is a respectable result. The value of ‘Sig.’ in the table labelled ‘ANOVA’ is equal to 0.000, which indicates that this model is statistically significant at $p = .000$.

The table labelled ‘coefficients’ indicates that the value of standardized coefficient “Beta” for partnership and resources is .345 (34.5%) followed by process .320 (32%) and strategy .227 (22.7%). These values are significant at $p=.000$. These results indicate that according to the perception of managers the construct of ‘partnership and resources’ has the maximum ability to explain the business results. However, the constructs of people and leadership have no significant contribution to the prediction of business results. These results are discussed in further details, with reference to the literature, in Section 7.3.

6.4.4 The Association of ISO 9001 Certification with the Implementation of TQM and Achievement of Business Results in the Textile Sector of Pakistan

In Section 2.5.1.1 a detailed literature review was conducted about ISO 9001 and its relationship with implementation of TQM and the achievement of business results. Based on the literature review, different research questions were developed in Section 4.1.3 about the relationship of ISO 9001 certification to the implementation of TQM and the achievement of business results. Furthermore, based on these research questions, the alternative hypotheses are developed. All the research questions, along with their respective hypotheses are given in Chapter 4 (see Table 4.2, p.114 for further details).

A detailed discussion about the nature of variables and use of statistical methods for the analysis of the data related to the research questions is done in Chapter 5 (see Section 5.9.4, p.144 for further details). However, the variable of “TQM” is created from the constructs of leadership, strategy, people, partnership and resources, and process. The variable of business results is developed from the

constructs of customer results, employee results, financial results, non-financial results, and society results. These two dependent variables are further transformed into category variables of “good”, “fair” and “poor”.

The information regarding the contextual factors is directly obtained from the respondents in Section IV of the questionnaire. Taking into consideration the nature of the variables and suggestions by Kinnear & Gray (2010), Pallant (2010), Argyrous (2008) and Field (2005) cross tabulation and Chi-Square tests were used to analyse the data.

Table 6.10 indicates that 74% of the respondents from the non-ISO 9001 certified textile companies reported poor of TQM and only 9% reported good implementation. On the other hand, 36% of the respondents from ISO 9001 certified companies reported good implementation of TQM and only 30% reported the poor TQM implementation.

The first thing the researcher should check is whether there is violation of one of the assumptions of Chi-Square concerning the minimum expected cell frequency. Kinnear & Gray (2010), Pallant (2007) and Argyrous (2005) state that at least 80% of cells must have a frequency of 5 or more. Similarly, they mention that the value of ‘Sig’ should be less than 0.05 for significant results.

Table 6.10: The Association of ISO 9001:2008 Certification with the Implementation of TQM

	The level of Business Results	Certification to ISO 9001		Total	
		Yes	No		
Total Quality Management	Poor	Count	84	17	101
		% within TQM	83%	17%	100.0%
		% within ISO 9001 Certified companies	30%	74%	34%
	Fair	Count	95	4	99
		% within TQM	96%	4%	100%
		% within ISO 9001 Certified companies	34%	17%	33%
	Good	Count	99	2	101
		% within TQM	98.0%	2.0%	100.0%
		% within ISO 9001 Certified companies	35.6%	8.7%	33.6%

The results of the Chi-Square test are shown in Table 6.11. The endnote of Table 6.11 indicates that none of the cells has an expected count of less than 5, which means that 100% cells have an expected count of more than 5. Thus, according to Pallant (2010), the basic assumption for the chi-square test for independence is satisfied.

Table 6.11: The Results of Chi-Square Test on the Association between ISO 9001 Certification and TQM Practices

	Value	df	Significance level (Asymp. Sig.)
Pearson chi-Square	18.493a	2	.000
Likelihood Ratio	17.788	2	.000
Linear-by-Linear Association	15.731	1	.000
N of Valid Cases	301		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 7.56.

The overall results from Table 6.11 indicate that according to the perception of managers the difference in implementing TQM across ISO 9001 certified and

non-certified textile companies is statistically significant ($\chi^2 = 18.493, p = 0.000, df = 2$), thus an association exists between the implementation of TQM and certification to ISO 9001. Hypothesis *Ha4* is accepted.

Similarly, Table 6.12 indicates that 57% of respondents from non-ISO 9001 certified textile companies responded that these companies achieved poor business results. Only 9% of respondents from non-ISO 9001 certified companies indicated that their companies were able to achieve good results whereas 35% were able to achieve fair business results. On the other hand, 35% of the respondents from ISO 9001 certified companies reported that their companies achieved good results in the last year, which is a much higher percentage.

Table 6.12: The Results of the Association between ISO 9001 Certification to the Implementation of TQM

	Level Achievement of Business Results		Certification to ISO 9001	
			Yes	No
Business Results	Poor	Count	91	13
		% within Business Results	88%	13%
		% within ISO 9001 Certified companies	33%	57%
		% of Total	30%	4%
	Fair	Count	91	8
		% within Business Results	92%	8%
		% within ISO 9001 Certified companies	33%	35%
		% of Total	30%	3%
	Good	Count	96	2
		% within Business Results	98%	2%
		% within ISO 9001 Certified companies	35%	9%
		% of Total	32%	1%

The results of the Chi-Square test for the association of ISO 9001 certification with business results are shown in Table 6.13. The endnote to Table 6.13 indicates

that none of the cells has an expected count of less than 5, which means that 100% cells have an expected count more than 5. Thus, the basic assumption for Chi-Square for independence is satisfied.

The overall results from Table 6.13 indicate that the difference in achieving business results across ISO 9001 certified and non-certified textile companies is statistically significant ($\chi^2 = 7.861, p = 0.020, df = 2$), thus there is an association between the achievement of business results and certification to ISO 9001. Therefore, hypothesis *Ha5* is accepted.

Table 6.13: The Results of Chi-Square on the Relationship between ISO 9001 Certification and Business Results

	Value	df	Significance level (Asymp. Sig.)
Pearson chi-Square	7.861 ^a	2	.020
Likelihood Ratio	9.010	2	.011
Linear-by-Linear Association	7.774	1	.005
N of Valid Cases	301		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 7.49.

In the next paragraphs, the association of the duration of ISO 9001 certification with the implementation of TQM and achievement of business results will be investigated.

Table 6.14 indicates that there is a significant difference between the implementation of TQM across the different durations of ISO 9001 certification.

The respondents perceive that companies with longer duration of ISO 9001 certification have better implementation of TQM practices compared to those with a shorter duration. For example, 39% of respondents from textile companies which have had ISO 9001 certification for three to six years, and 38% from textile companies which have had ISO 9001 certification for over six years reported a

good implementation of TQM. However, only 12% respondents from the companies which have had ISO 9001 certification for less than three years reported good TQM practices. Similarly, 39% of respondents from companies having ISO 9001 certification less than three years reported poor implementation of TQM.

Table 6.14: The Association between TQM Implementation and Duration of ISO 9001 Certification

Level of TQM implementation		Duration of the implementation of quality management system ISO 9001			Total
		Less than Three Years	From 3 to 6 Years	Above Six Years	
Poor	Count	10	28	46	84
	% within TQM	12%	33%	55%	100%
	% within Duration of ISO 9001 certification	39%	25%	32%	30%
	% of Total	4%	10%	16%	30%
Fair	Count	13	40	43	96
	% within TQM	14%	42%	45%	100%
	% within Duration of ISO 9001 certification	50%	36%	30%	34%
	% of Total	5%	14%	15%	34%
Good	Count	3	43	54	100
	% within TQM	3%	43%	54%	100%
	% within Duration of ISO 9001 certification	12%	39%	38%	36%
	% of Total	1%	15%	19%	36%

The results of Chi-Square analysis for the association of TQM implementation with ISO 9001 certification are shown in Table 6.15. The endnote of this table indicates that none of the cells has an expected count of less than 5 that mean that 100% cells have an expected count more than 5. Thus, the basic assumption for Chi-Square for independence is satisfied.

Table 6.15: The Results of Chi-Square Test on the Relationship between the Implementation of TQM Practices and the Duration of ISO 9001 Certification

	Value	df	Significance level (Asymp. Sig.)
Pearson Chi-Square	9.108 ^a	4	.05
Likelihood Ratio	10.423	4	.034
Linear-by-Linear Association	.877	1	.349
N of Valid Cases	280		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 7.80.

The overall results from Table 6.15 indicate that the difference in implementing TQM across different duration of ISO 9001 certification is slightly statistically significant ($\chi^2=9.108$, $p=0.05$, $df=4$). Therefore, implementation of TQM practices are associated with the duration of ISO 9001 certification. Hypothesis *Ha6* is accepted.

The results of the Chi-Square test for the association of business results with the duration of ISO 9001 certification are shown in Table 6.16. The endnote indicates that none of the cells has an expected count of less than 5, which means that 100% of cells have the expected count more than 5. Thus, the basic assumption for Chi-Square for independence is satisfied.

The overall results from Table 6.16 indicate that the value of Pearson Chi-Square is 2.383 at significance level of 0.666. As the p-value is more than 0.05, the results are not significant. It is concluded that there is no relationship between the achievement of business results and duration of ISO 9001 certification. Thus, hypothesis *Ha7* is rejected.

Table 6.16: The Results of Chi-Square Test on the Relationship between Business Results and Duration of ISO 9001 Certification

	Value	Df	Significance level (Asymp. Sig.)
Pearson Chi-Square	2.383 ^a	4	.666
Likelihood Ratio	2.483	4	.648
Linear-by-Linear Association	1.930	1	.165
N of Valid Cases	280		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 8.45.

The results related to the relationship of ISO 9001 certification and its duration with the implementation of TQM practices and business results are summarised in Table 6.17 in accordance to the research hypotheses developed in Chapter 4 (see Table 4.2, p.114).

The overall results from Table 6.16 indicate that the value of Pearson chi-square is 2.383 at significance level of 0.666. As the p-value is more than 0.05, the results are not significant. It is concluded that there is no relationship between the achievement of business results and duration of ISO 9001 certification. Thus, hypothesis Ha7 is rejected.

Table 6.17: Summary of the Findings on the Association of ISO 9001 Certification and its Duration with the Implementation of TQM and Business Results

Factor	Hypothesis	Pearson Chi-Square	Significance level (p-value)	Status of Hypothesis
ISO 9001 certification	<i>Ha4</i> : ISO 9001 certification and the implementation of TQM practices are associated	18.493	0.000	Accepted
	<i>Ha5</i> : ISO 9001 certification and the achievement of business results are associated.	7.861	0.020	Accepted
Duration of ISO 9001 certification	<i>Ha6</i> : The duration of ISO 9001 certification and implementation of TQM practices are associated.	9.861	0.05	Accepted
	<i>Ha7</i> : The duration of ISO 9001 certification and the achievement of business results are associated.	2.383	0.666	Rejected

The results in Table 6.17 reveal that ISO 9001 certification is significantly associated with the implementation of TQM practices and the achievement of business results. Similarly, the duration of ISO 9001 certification is also associated with the implementation of TQM practices in the sample. However, the duration of ISO 9001 certification is not associated with the achievement of business results. The results mentioned in Table 6.17 do not necessarily indicate

causality however simply indicate association of ISO 9001 certification and its duration with implementation of TQM and business results.

These results are discussed in further detail, with reference to the literature, in Section 7.4.

6.4.5 The Association of Size and Type of Company with the Implementation of TQM Practices

The relationship of size and type of company is discussed in Chapter 2 (see Section 2.9, p.77 for more details). On the basis of the literature review, different research questions and hypotheses were developed (see Table 4.3, p.115 for more detail).

From Table 4.3, the variable ‘TQM practices’ is based on the Enablers criteria of the EFQM excellence model where as ‘business results’ is based on the Results criteria of the EFQM excellence model. The information about size and type of organisations is directly obtained from the respondents (see Section I of the questionnaire attached as Appendix A). The variables ‘TQM practices’ and ‘business results’ are transformed into categorical variables from continuous variables. These two variables are collapsed onto three categories ‘good’, ‘fair’ and ‘poor’.

Taking into consideration the nature of variables and suggestions by Kinnear & Gray (2010), Pallant (2010), Argyrous (2008) and Field (2005), cross tabulation and Chi-Square analysis were used to analyse the data.

Table 6.18 contains the results of the Chi-Square test on the relationship of TQM implementation and the size of the textile company.

Table 6.18: The Results of Chi-Square Test on the Relationship between TQM and Size of the Textile Company

	Value	Df	Significance level (Asymp. Sig.)
Pearson Chi-Square	6.030 ^a	4	.197
Likelihood Ratio	6.314	4	.177
Linear-by-Linear Association	5.256	1	.022
N of Valid Cases	299		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 13.44.

The endnote of this table shows that none of the cells has expected count less than 5. Thus, the basic assumption for the Chi-square for independence is satisfied. The results indicate that the difference in TQM implementation across the different size of textile companies is not statistically significant ($\chi^2 = 6.030$, $p = 0.197$, $df = 4$), thus according to the perception of respondents there is no relationship between the implementation of TQM and the size of the company. Hypothesis H_{a8} is rejected.

Table 6.19: The Relationship between Implementation of TQM Practices and Types of Textile Company

Level Implementation of TQM practices		Types of textile company					Total
		Spinning	Weaving	Finishing	Garments	Composite	
Poor	Count	53	19	11	14	3	100
	% within TQM	53%	19%	11%	14%	3%	100%
	% within Type textile company	30%	32%	36%	78%	20%	33%
Fair	Count	59	18	12	3	6	98
	% within TQM	60%	18%	12%	3%	6%	100%
	% within Type textile company	34%	30%	39%	17%	40%	33%
Good	Count	63	23	8	1	6	101
	% within TQM	63%	23%	8%	1%	6%	100%
	% within Type textile company	36%	38%	26%	6%	40%	34%

Table 6.19 indicates that according to the perception of the respondents the level of implementation of TQM practices varies across the different types of the textile companies. For example, 78% of the respondents from garments companies reported poor implementation of TQM practices whereas only 20% of respondents from composite textile companies reported the same results. Similarly, just 6% respondents from the garment companies reported good implementation whereas 40% of the respondents from composite textile companies reported good implementation of TQM.

The results of the Chi-Square test on the relationship of company type and implementation of TQM practices are shown in Table 6.20. The endnote of the table shows that 93.3% cells have an expected count more than 5; therefore the basic assumption for the Chi-Square test is satisfied. Further results from this table indicate that the difference in implementing TQM practices across different types of textile companies is statistically significant ($\chi^2 = 19.815$, $p = 0.011$, $df = 8$), thus according to the perception of the respondents there is an association exists between the implementation of TQM practices and type of textile company. Hypothesis *Ha9* is accepted.

Table 6.20: The Results of Chi-Square Test About the Relationship Between Types of Textile Companies and Implementation of TQM practices

	Value	Df	Significance level (Asymp. Sig.)
Pearson Chi-Square	19.815 ^a	8	.011
Likelihood Ratio	19.677	8	.012
Linear-by-Linear Association	3.291	1	.070
N of Valid Cases	299		

a. 1 cells (6.7%) have expected count less than 5. The minimum expected count is 4.92.

The results of the analyses about the relationship of size and type of sample textile companies with the implementation of TQM practices and achievement of business results are summarised in Table 6.21.

The above-mentioned results are summarised in Table 6.21. According to these results, the respondents perceive that the size of textile companies does not have any association with the implementation of TQM practices, whereas the type of sample textile companies is associated with the implementation of TQM practices. These results are discussed in further detail, with reference to the literature, in Section 7.5.

Table 6.21: The Findings of the Data Analysis on the Association of Organisational Characteristics to the Implementation of TQM and Business Results

Contextual Factor	Hypothesis	Pearson chi-Square	Asymp Sig level	Status of Hypothesis
Size of company	<i>Ha8</i> : The size of textile company and implementation of TQM practices are associated.	6.030a	0.197	Rejected
Type of company	<i>Ha9</i> : The type of textile company and implementation of TQM practices are associated.	19.815	0.011	Accepted

6.5 Barriers Faced By Pakistani Textile Companies in the Implementation of Quality Improvement Initiatives

In Section 2.6.2, the barriers and obstacles which have the potential to affect the implementation of TQM were reviewed. Based on this literature review, eleven

barriers were identified and included in the questionnaire. The managers were requested to assess the perceived level of difficulty of each barrier their organisation faced during the implementation of quality improvement initiatives. The respondents had to use a fixed scale (see Table 5.3, p.135 for more details). '1' for 'no issue', '2' for 'minor issue', '3' for 'major issue', and '4' for 'most serious issue'. Simple frequency tables and charts were used to analyse the data.

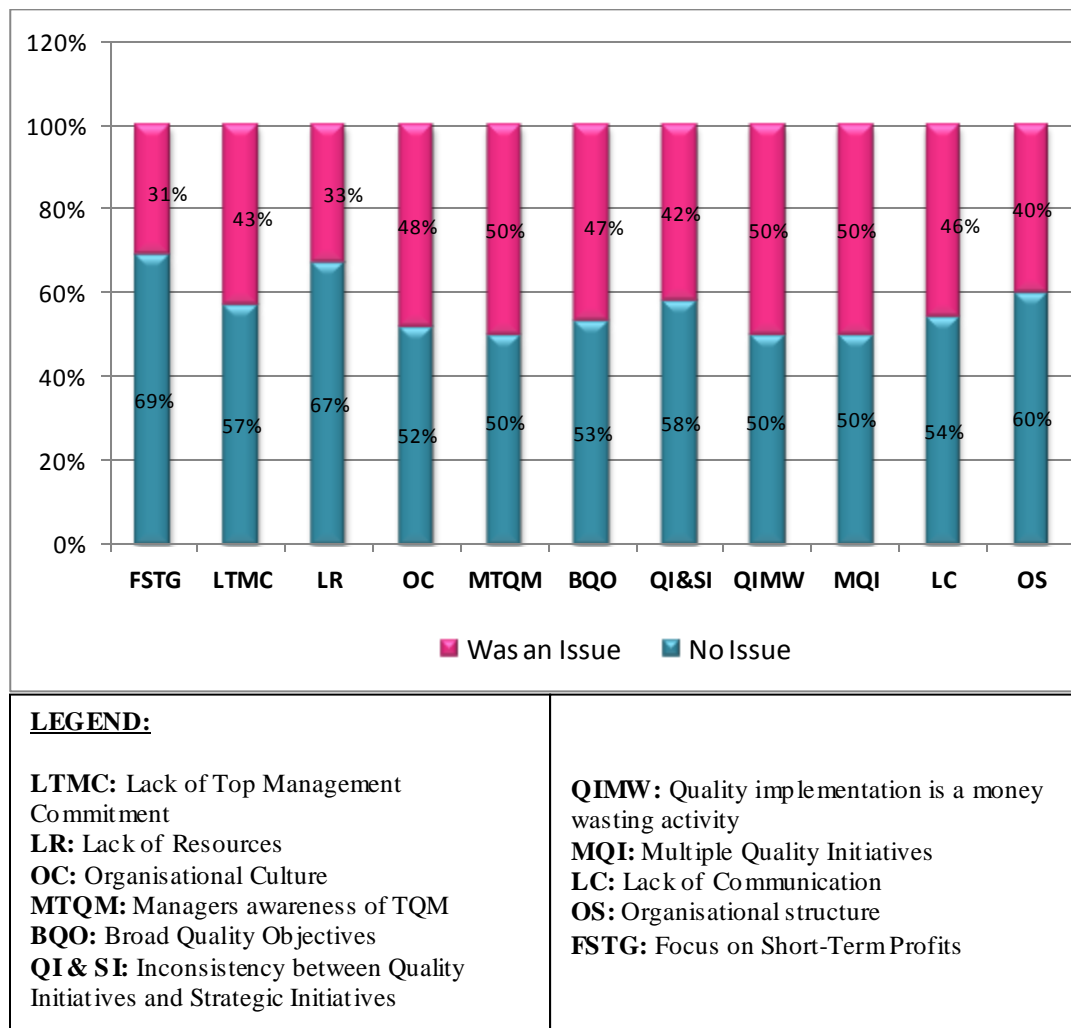
Table 6.22: The Level of Obstacles faced by the Textile Companies of Pakistan while Implementing Quality Improvement Initiatives

No.	Barriers	No Issue	Was an Issue		
			Minor Issue	Major Issue	Serious Issue
1	Focus on Short-Term Profits	69%	31%		
			19%	9%	3%
2	Lack of Top Management Commitment	57%	43%		
			34%	5%	4%
3	Lack of Resources	67%	33%		
			21%	11%	1%
4	Organisational Culture	52%	48%		
			39%	8%	1%
5	Managers Awareness of TQM	50%	50%		
			41%	7%	2%
6	Broad Quality Objectives	53%	47%		
			38%	7%	2%
7	Inconsistency between Quality Initiatives and Strategic Initiatives	58%	42%		
			34%	7%	1%
8	Quality Implementation is a Money Wasting Activity	50%	50%		
			39%	9%	2%
9	Multiple Quality Initiatives	50%	50%		
			40%	8%	2%
10	Lack of Communication	54%	46%		
			37%	8%	1%
11	Organisational Structure	60%	40%		
			29%	8%	3%

Table 6.22 indicates whether the managers in the sample companies consider the barrier as an issue or not. Furthermore, it shows the strength of the issues, i.e. whether it is a major, minor or serious issue. This table also shows that the respondents had different perceptions about the strength of these issues. The majority of respondents, who categorised these factors as an issue, considered

them to be minor. In the category of ‘major issues’, lack of resources (11%), focus on short-term profits (9%) and perception about quality as a money wasting activity (9%) were considered the top major issues. There were a very low percentage of respondents who perceived these issues as serious.

Figure 6.12: Issues and Barriers faced by Sample Companies while Implementing Quality Improvement Initiatives



The graph in Figure 6.12 also shows whether the respondents consider the barriers as an issue or not. Almost half of the respondents perceive that all of these factors were an issue in the implementation of quality management initiatives in the

sample textile companies. Only ‘focus on short-term profits’ and ‘lack of resources’ (33%) have lower percentages in the category of ‘was an issue’.

The above analysis indicates that there are a large percentage of respondents who perceive that there are many barriers facing the sample companies during the implementation of quality improvement initiatives. The most significant of these are the lack of managers’ awareness of TQM, their perception that quality improvement initiatives are money wasting activities, implementation of multiple quality improvement initiatives, organisational culture and lack of communication.

However, the majority of these managers consider them as minor issues. Among the eleven barriers, the managers perceive that lack of top management commitment, followed by focus on short term profits and unsupportive organisational structures to be the most serious issues during the implementation of quality improvement initiatives in the sample textile companies. These results are discussed in further detail, with reference to the literature, in Section 7.6.

6.6 Summary

This chapter discussed the statistical analysis of the data along with the findings. Different statistical techniques like frequency tables, descriptive statistics, correlation coefficients, multiple regression and chi-square tests were used to analyse the data. The selection of the appropriate statistical techniques was based on the nature of the research question and the data.

The response rate was satisfactory from the sampled textile companies. Maximum responses were received from the spinning textile companies followed

by the weaving companies. Similarly, maximum responses were received from production managers followed by quality assurance managers. No responses were received from textile companies with less than 100 employees

The analyses of the data revealed that the majority of respondents perceive that the sample textile companies are certified to ISO 9001. There were a very low percentage of respondents who responded that their companies had implemented the excellence models (e.g. the EFQM excellence model, MBNQA) or other advanced frameworks of TQM like Six Sigma. The respondents indicated that after ISO 9001 these companies seem interested in the implementation of the environmental management standard (ISO 14001:2004) and the social accountability standard (SA 8000). Similarly, the quality management tools and techniques were not used adequately. The majority of the respondents further indicated that the sample textile companies are using process improvement related tools like flow charts and SPC extensively. According to the respondents these companies seem least interested in the use of product design and continuous improvement tools like QFD, Kaizen, and Pareto analysis.

The majority of respondents perceive that the EFQM excellence model criteria were not implemented effectively in the sample textile companies. The implementation of Enabler criteria is at the level of 'poor' or 'fair'. In their opinion the constructs of the Enabler criteria like partnership and resources, people, and strategy are not given much importance compared to process and leadership. However, process is a highly emphasised construct in the Enabler criteria. On the other hand, respondents indicated that in the Results criteria the

sample companies gave least importance to the achievement of people and society results in comparison to the non-financial, financial and customer results.

The perceived implementation of TQM practices is significantly and positively associated with the dimensions of perceived business results. TQM practices (leadership, people, strategy, partnership and resources, and process) can predict up to 57.6% business results. However, among the TQM constructs, partnership and resources are the best predictors of business results.

Certification to ISO 9001 is significantly related to the implementation of TQM practices and achievement of business results. However, no relationship exists between the achievement of business results and duration of ISO 9001 certification.

The size of the textile companies is not associated with the implementation of TQM; however, the achievement of business results varies along with the size of the textile company. Similarly, the implementation of TQM and achievement of business results varies across different types of textile companies. The respondents perceive that lack of top management commitment, followed by focus on short term profits and unsupportive organisational structures are the most serious issues during the implementation of quality improvement initiatives in the textile companies of Pakistan.

7 DISCUSSION ON THE FINDINGS OF THE STUDY WITH RELEVANCE TO THE LITERATURE

7.1 Introduction

In this chapter, the findings of the study are discussed with relevance to the literature, in order of the research objectives given in Table 4.1. The extent of TQM implementation in the sample textile companies is evaluated in Section 7.2, in the light of the findings of the study. The relationship between TQM practices and business results is discussed in Section 7.3. Similarly, the relationship between ISO 9001 certification and the implementation of TQM and the business results is evaluated in Section 7.4. The effect of size and type of sample textile company on the implementation of TQM practices is discussed in Section 7.5. The issues faced by the sample textile companies during the implementation of quality improvement initiatives are discussed in the last section of this chapter.

7.2 The Extent of TQM Implementation in the Sample Companies

The major issue facing research into TQM philosophy is inconsistency in the use of terms for this management approach, as shown by the varied definitions in both literature and practice (see Section 2.2, p.12 for further details). Thus, the selection of appropriate indicators to study the extent of TQM implementation was not an easy task.

As discussed earlier in Section 2.2, TQM is a complete system consisting of values, practices and techniques (Tari, 2005; Hellsten and Klefsjo, 2000; Dean and Bowen, 1994). Therefore, a comprehensive set of three indicators was taken for the investigation of the level of TQM implementation. These three indicators

include the use of quality tools and techniques, adoption of TQM frameworks and implementation of EFQM excellence model criteria. The empirical evidence, collected by using these three indicators, is evaluated against the fundamental principles of TQM in Section 7.2.4. This evaluation will help to estimate the extent of TQM implementation in the sample companies.

The findings will now be discussed against the three indicators, in the light of existing literature. Firstly, it is discussed whether the literature supports the findings against the three indicators. Subsequently, the findings from these three indicators will be discussed with reference to the core principles of TQM. This will highlight the extent of TQM implementation in the sample textile companies according to the perception of their managers.

7.2.1 The Use of Quality Tools and Techniques

The first indicator was the use of quality tools and techniques. It was discussed in detail in Section 2.8 that the use of quality tools and techniques ensures the effective implementation of TQM principles. A number of researchers such as Tari and Sabater (2004), Ahmed and Hassan (2003) and Bunney and Dale (1997) have shown that there is a positive correlation between the use of quality tools and techniques and level of TQM. Similarly, Hellsten and Klefsjo (2000) describe that the effective use of quality tools and techniques helps in the implementation of relative TQM constructs. Therefore, it is assumed that the level of the use of quality tools and techniques will indicate the extent of TQM implementation.

The findings of this study indicate that the respondents perceive that there is a variation in the use and understanding of different quality tools and techniques in

their companies. The majority of respondents indicated that their companies focus on only a few of the tools and techniques and neglect or do not have adequate awareness about others. For example, process management tools and techniques such as flow-charts and SPC are used extensively, whereas their companies are not using or do not have adequate knowledge of QFD, Kaizen, 5S, FMEA, and Pareto analysis.

Similar results are reported by many earlier studies. For example, Tari and Sabater (2004) conducted research in Spain with a sample of both service and manufacturing organisations. They used both interviews and a questionnaire survey. The findings of their study support the extensive use of flow charts and SPC in the sample companies. These two tools were highly emphasised in their sample as well. They also indicate that the majority of the companies in their sample were not even familiar with techniques like FMEA and Pareto analysis. These findings exactly complement the results of the current study. It is interesting to note that these two studies are conducted in two different countries and company contexts; however, they still have similar results. However, there is another commonality in the sample of both studies, that the majority of sample companies are certified to ISO 9001.

Sousa et al. (2005) investigate the implementation of quality tools and techniques in SMEs in Portugal. The findings of their study also complement the results of the current study. For example, they indicate that process flow charts are highly emphasised and 'cause and effect' diagrams were least used in their sample. This finding conforms to the results of the current study. Similarly, the findings of Ahmed and Hassan (2003) indicate that the use of flow charts was highly

emphasised compared to FMEA. These results also complement the findings of the current study.

Alsaleh (2007) conduct research in the food industry in Saudi Arabia. The findings of his study also confirm the results of the current study. For example, he also highlights that the majority of the food companies in Saudi Arabia are using control charts, histograms and run charts to manage the organisational processes. He also shows that Pareto analysis and cause and effect diagrams are least emphasised in these companies. Again, the finding confirms the results of the current study.

Herbert, Curry and Angel (2003) partially support the results of the current study. For example they find that the companies in their sample were also using flow charts extensively, but they did not give much importance to the use of SPC. The use of SPC is contrary to the findings of the current study. A close look at both studies indicates that Herbert, Curry and Angel (2003) have conducted their study in service organisations, including banks and hospitals; therefore, the nature of the processes in these organisations is quite different from the sample companies in the current study. Thia et al. (2005) indicate that factors like the nature of the organisation, industries, culture account, usefulness, user-friendliness, time, cost, and flexibility play a vital role in the use of quality tools and technique. Thus, the above-mentioned differences in the findings of these two studies might also be due to the factors suggested by Thia et al. (2005).

After the results, the issue is to discover the reasons why the majority of respondents replied that their companies are not using tools and techniques such

as QFD, Kaizen and 5S. The literature review (see Section 2.8, p. 70 for further details) discusses that different factors might affect the use of quality tools and techniques. For example, Govers (2001) argues that for the successful implementation of QFD, companies have to develop a quality culture and need to control the production processes by using basic quality control tools. Al-Mashari, Zairi and Ginn (2005) emphasise the implementation of fundamental blocks of TQM before the implementation of QFD. Furthermore, Ablanedo-Rosas et al. (2010) mention that for the effective implementation of 5S, companies should invest in training of top management and employees. The findings of this study indicate that according to the perception of respondents the sample companies do not have a sufficient quality culture (see Section 7.2.4, p. 203 for further details), adequate training of employees (see Table 6.22, p.190 for further details) or implementation of fundamental blocks of TQM, thus the findings of the current study confirm the results of earlier studies.

The above discussion indicates that the findings of this study are supported by many studies in the existing TQM literature. The above discussion indicates that companies across the world also emphasise process management tools and techniques, whereas the use of quality tools and techniques for design, planning, and continuous improvement are not given much importance.

7.2.2 Adoption of TQM Frameworks and Other Standards

The other indicator for the identification of TQM implementation was the adoption of TQM frameworks and other standards in the sample textile companies. The majority (81%) of respondents indicated that their companies are certified to ISO 9001:2008. On the other hand, a very low percentage (3-6%) of

respondents highlighted that their companies had implemented excellence models like the EFQM excellence model or MBNQA.

The finding that ISO 9000 is widely used in the sample companies is supported by other studies. For example, the significant increase in the number of ISO 9001 certified companies in Pakistan is supported by surveys conducted by ISO from December 2003 to December 2007. According to these surveys there is a fourfold increase in ISO 9001 certified companies in Pakistan between December 2004 and December 2007 (See Figure 3.4, p.92 for further details).

The higher level of ISO 9001 certification in the sample companies might be due to the efforts made by the government of Pakistan in the last few years. The government has encouraged companies to get ISO 9001 certification (Malik and Yezhuang, 2006).

Another possible explanation of the higher level of ISO 9001 certification in the sample might be related to the export of manufactured goods. According to the WTO (2011), 76% of total exports from Pakistan consist of manufactured goods. The textile industry contributes about 60% to Pakistan's total exports (Pakistan Economic Survey 2010-11). The majority of Pakistani textile products are exported to the European Union and the United States (WTO, 2011). As these nations are very concerned about quality, certification of ISO 9001 might increase the competitiveness of the exporting companies in these parts of the world.

The higher certification of ISO 9001 is an encouraging indication, as at least the sample textile companies have a documented basic quality management system. Gutierrez, Torres and Molina (2010) indicate that starting from simple quality

control to TQM, the implementation of ISO 9000 is considered to be mid-way. The implementation of advanced TQM models like the EFQM excellence model, MBNQA, and Six Sigma requires a lot of improvement in the majority of quality management elements. The negligible adoption of TQM frameworks such as the EFQM excellence model, MBNQA and Six Sigma by the sample companies indicates that these companies might not yet have moved beyond the mid-way point towards TQM. This aspect is discussed in further detail in Section 7.2.4.

Gryna et al. (2007, p.51) also claim that “ISO 9000 series should be viewed as the minimum elements of a quality system”. Thus, it can be concluded that the majority of the sample companies have satisfied the minimum requirement of the quality management system. They are on the road to TQM but they still have to implement advanced TQM models like the EFQM excellence model, MBNQA, and Six Sigma, in order to move higher up the TQM ladder.

7.2.3 Implementation of EFQM Excellence Model Criteria

The third indicator was the implementation of the EFQM excellence model Enablers and Results criteria. The findings of this study indicate that the respondents consider that their companies do not given equal importance to all of the constructs of EFQM excellence model criteria. According to the respondents their companies seem more interested in process and leadership. However, people results and society results were given least importance.

These findings are supported by many studies, for example, Eskildsen, Kristensen and Juhl (2001) reinforce the findings of this study, that all the constructs of the EFQM excellence model are not equally emphasised. They also show that

'processes' and 'leadership' are the most highly emphasised constructs, whereas the society results are given least importance by the Danish companies. These findings exactly support the results of the current study. Similarly, Hafeez, Malik and Abdel-Meguid (2006) provide empirical evidence from European companies that their sample companies do not give equal importance to the constructs of TQM. The construct of people was poorly implemented and the companies did not give much importance to people and society results, in comparison to financial results. Haffer and Kristensen (2008) also support the findings of this study by providing empirical evidence from Polish companies that the people construct of the EFQM excellence model was poorly implemented. Al-Harkan (2007) reports similar results from Saudi Arabia. He indicates that human resource related practices were not adequately implemented in Saudi industries.

These results illustrate that the sample companies are similar to the majority of other companies in the world, especially related to the higher emphasis on process and lower emphasis on people and society results. The detailed discussion on these results with reference to the fundamental principles of TQM is conducted in Section 7.2.4. The possible reasons for a lower emphasis on people and society results are also discussed in detail in Section 7.2.4.1.

In next section the empirical evidence collected by using the above mentioned three indicators are discussed against the fundamental principles of TQM. This evaluation will highlight the extent of TQM in the sample companies.

7.2.4 The Implementation of TQM Principles in the Sample Companies

It was concluded in the literature review that the focus on customers and stakeholders, participation and teamwork by everyone in the organisation and a process focus, supported by continuous improvement and learning are the fundamental principles of the TQM philosophy (see Section 2.2, p. 12 for further details).

The next section discusses how well the above-mentioned principles of TQM are implemented in the sample companies. The implementation of these principles is evaluated with reference to the empirical evidence collected by using the three indicators discussed in Sections 7.2.1, 7.2.2 and 7.2.3.

7.2.4.1 Focus on Customer and Stakeholders

The focus on customer and stakeholder satisfaction is the core principle of TQM. Almost all the research agrees on the centrality of customer and stakeholder satisfaction in the TQM philosophy (Martinez-Costa, Choi and Martinez 2009; Fotopoulos and Psomas, 2009; Lopez-Mielgo, Montes-Peon and Vazquez-Ordas 2009; Bou-Llusar et al. 2009; Zu, 2009; Li et al. 2008; Karuppusami and Gandhinathan, 2006; Tari, 2005 and Sila and Ebrahimpour, 2003, Dean and Bowen, 1994). The TQM philosophy emphasises satisfying the needs, wants, perceptions and preferences of customers and other stakeholders, such as employees and society.

The satisfaction of the employees and the involvement of suppliers were considered important by the majority of the research (see Section 2.2 for further details). However, the satisfaction of society is not adequately emphasised in the

TQM literature. The development of excellence models like the EFQM excellence model has highlighted that excellent organisations always satisfy society, along with customers and other stakeholders. Thus, the literature related to the EFQM excellence model considers satisfaction of society as one of the important aspects of TQM philosophy (Bou-Llusar et al. 2009). Similarly, Evans and Lindsay (2008) agree that society is a very important stakeholder, which needs to be satisfied for the effective implementation of TQM.

The next paragraph will evaluate how well the sample companies satisfy their customers and other stakeholders, using the results obtained against each indicator.

The first indicator was the use of quality systems and standards. The results indicate that the sample companies have given lower importance to environmental (ISO 14000) and social accountability standards (SA 8000) (see Figure 6.4, p.159 for further details). ISO 14000 is an environmental standard which provides guidelines for companies on how to manage the severe effects of organisational activities on the environment. The certification of this standard shows the organisational commitment to saving the environment, which indirectly satisfies society. SA 8000 is a social accountability standard which gives importance to the satisfaction of employees. Certification to this standard indicates that the company is interested in the welfare of employees and wants to give them their due rights. As very few respondents indicated that their companies are certified to SA 8000 and ISO 14000. This indicates that the sample companies have not shown a clear commitment to the satisfaction of employees or society.

Among the systems and standards the sample companies seem highly interested in the adoption of ISO 9001:2008; however, does this indicate that the sample companies are satisfying their customers, employees and society? The in-depth review of ISO 9001:2008 in Section 2.5.1 indicates that this standard gives a great deal of importance to the satisfaction of customer requirements. For example, this standard specifically indicates that companies should be aware of the customer requirements related to products (Clause 7.2.1 of ISO 9001:2008), they should have sufficient capabilities to meet these requirements (Clause 7.2.2 of ISO 9001:2008) and top management has to ensure that the requirements of customers are identified and met (Clause 5.2 of ISO 9001:2008). Similarly, this standard makes it mandatory for organisations to develop sufficient communication systems with customers to get product information, enquiries, contract, order handling, feedback and complaints (Clause 7.2.3 of ISO 9001:2008). This shows that this standard has very clear guidelines about the satisfaction of customers.

However, this standard does not give sufficient guidelines for the satisfaction of employees and society. The only requirement of the standard is that the employees should be competent and trained enough to perform their jobs (Clause 6.2.2 of ISO 9001:2008). There is not a single clause in ISO 9001:2008 which addresses the requirements of society.

The above discussion indicates that due to the higher level of ISO 9001:2008 certification, the sample companies might be able to satisfy their customers. However, they might not satisfy the requirements of their employees and society.

The results from the implementation of EFQM excellence model criteria show that the respondents indicated that criteria related to employees, suppliers and

society (people, people results, society results and partnership and resources) are poorly implemented in the sample companies. Similarly, the results against criteria related to the customer (strategy and customer results) were also poorly implemented. However, they have higher scores than the people and society results (see Figure 6.7, p. 165 for further details). The results from this indicator support the results from the first indicator (higher certification to ISO 9001:2008) that the sample companies might satisfy their customers, but they are not satisfying their employees, suppliers or society.

The third indicator was the use of quality tools and techniques. Among the tools and techniques, the use of QFD and customer surveys can give some information about activities related to customer satisfaction of. However, the use of QFD does not give any information about the satisfaction of society or employees. The results of this study indicate that the majority of respondents indicated that their companies are not even familiar with QFD. Very low percentage of respondents mentioned that their companies are using it extensively (see Figure 6.6, p.162). A close look at the sample shows that the majority of responses came from spinning and weaving sectors. The companies in this sector consist of large processing machines and equipment. The products produced in these companies do not frequently change. Thus, it might be possible that QFD is not suitable for such types of companies. Furthermore, as discussed in Section 7.2.1, QFD cannot be implemented effectively without the availability of a quality culture (Govers, 2001) and the fundamental blocks of TQM (Al-Mashari, Zairi and Ginn, 2005). However, the higher percentage of the use of customer surveys indicates that the sample companies are quite keen to know the requirements of their customers. However, only on the basis of customer surveys, it might not be reasonable to

conclude that the sample companies are satisfying their customers. However, it indicates that these companies seem interested in the satisfaction of their customers.

The evidence from all three indicators show that the sample companies seem focused on the satisfaction of their customers. However, there is sufficient evidence to highlight that these companies are not satisfying their stakeholders especially their employees and society. These results are supported by many other studies, such as Eskildsen, Kristensen and Juhl (2001); Hafeez, Malik and Abdel-Meguid (2006), Haffer and Kristensen (2008) and Al-Harkan (2007).

The possible explanation of a lower emphasis on people results might be due to the labour conditions in Pakistan. Ghayur (1996) indicated that the labour market conditions in Pakistan were getting worst day by day. There are severe unemployment issues. Those who are able to gain employment are exposed to poor and hazardous working conditions. The “employment income is barely enough to meet half of the subsistence requirements of a quarter of the employed” (p.801). These issues are even worse today, which supports the finding of this study.

Another possible explanation of this lower score might be the contractual labour system in the majority of textile companies in Pakistan. Awan, Bhatti and Bukhari (2007) maintain that the lower scores on human resource related practices might be due to the informal contractual labour (Theke`dar) in the textile companies of Pakistan. This contractual labour does not have sufficient direct contact with the top management of the companies. Thus, the top management might not be able

to communicate with them properly about new initiatives being implemented in these companies.

The lower score on society results might be due to the weak enforcement of environmental legislation in Pakistan. Nadeem and Hameed (2008) agree with this argument. They describe Pakistan as having legislation on environmental protection; however, it is poorly implemented. The Pakistani government has established an Environmental Protection Agency (EPA), but this agency has a very limited institutional capacity. There is a shortage of qualified manpower and monitoring equipment. Thus, Pakistani companies do not bother to comply with the National Environmental Quality Standards (NEQS).

The findings of Banuri (1999) also support the results of the current study, related to the satisfaction of society. He indicates that the majority of Pakistani textile companies do not have adequate arrangements to manage the aspects which have an impact on environment and society. These companies do not treat their effluent before discharging it into the drain. The effluent contains high concentrations of hazardous chemicals, including azo dyes, which are very harmful for human beings and are banned in countries like Germany, France and Sweden.

7.2.4.2 Process Focus and Continuous Management

Process focus and continuous improvement are the most important principles in TQM (Martinez-Costa, Choi and Martinez 2009; Fotopoulos and Psomas, 2009; Lopez-Mielgo, Bou-Llusar et al. 2009; Zu, 2009; Li et al. 2008; Karuppusami and Gandhinathan, 2006; Tari, 2005 and Sila and Ebrahimpour, 2003, Dean and Bowen, 1994). All the TQM frameworks place a lot of emphasis on these

principles. Deming (1986) indicates that it is very important to control the organisational processes, in order to minimise variation, which ultimately reduces production losses and improves the quality of products.

Continuous improvement refers to the incremental changes and breakthrough improvements in the quality of products, reduction of errors, enhancement of productivity and improvement in responsiveness and cycle time (Evans and Lindsay, 2008).

In order to assess how well the sample companies are focusing on the organisational processes and continuous improvement, the results from each indicator will be discussed, in order to estimate the extent of process focus and continual improvement in the sample companies.

From the use of TQM frameworks, the majority of respondents indicated that their companies have higher certifications of ISO 9001:2008 (see Figure 6.4, p. 159 for further details). According to the respondents their companies do not seem interested in the implementation of other TQM frameworks like the EFQM excellence model, Six Sigma and MBNQA. However, can it be concluded, on the basis of higher certification to ISO 9001:2008 that these companies have sufficient focus on the processes and improving continuously?

Section 2.5.1 discusses in detail that ISO 9001:2008 places great emphasis on the process. This standard is based on the 'process approach' in the development of quality management system (see Figure 2.3, p. 34 for further details). Companies interested in getting ISO 9001:2008 certification need to develop quality plans, procedures and work instructions, to ensure the control of organisational

processes (see Figure 2.4, p. 35 for further details). This standard has comprehensively addressed the aspect of process control. For example, Clause 7.1 of ISO 9001:2008 indicates the need for development of processes for the realisation of products. Certified companies have to provide records showing compliance with this clause (ISO 9001:2008, Clause 7.1 d). Similarly, the standard emphasises the development of processes for customers (ISO 9001:2008, Clause 7.2), purchasing (ISO 9001:2008, Clause 7.4.1) and monitoring of products (ISO 9001:2008, Clause 8.2.4). Companies certified to this standard need to show compliance with all of the above-mentioned clauses.

Some earlier studies, like Jang and Lin (2008) and Sroufe and Curkovic (2008) indicate that certification to ISO 9001:2000 helps to improve process management. Therefore the higher percentage of ISO 9001:2008 certification indicates that the sample companies might have sufficient focus on processes management.

The next question is how well can it be estimated that the ISO 9001 certified companies are improving continuously? The in depth review of this standard indicates that continual improvement is given much importance (ISO 9001:2008, Clause 8.5.1). This standard emphasises that certifying organisations have to demonstrate that they are continuously improving the effectiveness of quality management systems by using quality policy, quality objectives, audit results, analysis of data, corrective and preventive actions and management review. Similarly, the process approach model (see Figure 2.3, p. 34 for further details) indicates that effective implementation of all the clauses related to management

responsibility, resource management, product realisation, measurement, analysis and improvement lead to continual improvement.

ISO 9001:2008 has given great importance to continual improvement. However, the criteria for the evaluation of continual improvement are quite subjective. Therefore it is very difficult to conclude that a company certified to ISO 9001:2008 is improving continuously. Thus, the higher level of ISO 9001:2008 certifications in the sample companies indicates that these organisations might focus on continual improvement.

An evaluation of how well the EFQM excellence model criteria indicate the process focus and continuous improvement in the sample companies will now be given. The EFQM excellence model has placed a lot of importance on process management. Among the constructs of EFQM excellence model criteria, the construct of 'processes, products and services' covers aspects related to process management and continuous improvement (see Figure 2.8, p.48 for further details). As very few of the respondents indicated that their companies implemented the EFQM excellence model therefore it is not expected that they have fully adopted this criteria.

The construct of 'processes, products and services' was developed in the questionnaire, which was derived from the main points of the EFQM excellence model criteria (see Appendix A). The results of the survey indicate that the construct of 'processes, products and services' has the highest scores (see Table 6.5, p. 166). This strengthened the finding that the sample companies have sufficient focus on process management and continual improvement.

From the quality tools and techniques, SPC is used to control variation within the organisational processes (Goetch & Davis, 1994). Similarly, flow charts are also used to design the processes and to see their interactions (Evans and Lindsay, 2008). Kaizen, Fishbone diagram, supplier audits and FMEA are used as continual improvement techniques (Tari and Sabater, 2004). The results of the analyses indicate that according to the respondents their companies are highly interested in the use of SPC and flow charts, which shows that their focus is on process management. However, the lower use of Kaizen and Fishbone diagrams indicates that the sample companies are not focusing adequately on the continuous improvement of their processes and products.

In summary, the results from all three indicators show that the sample companies seem to have good focus on the management of their processes. However, they might not be as good in the continuous improvement of their processes and products.

7.2.4.3 Participation and Teamwork

The involvement of employees in the organisational improvement activities and working in teams is one of the important and fundamental principles of TQM (Fotopoulos and Psomas, 2009; Zu, 2009; Li et al. 2008; Karuppusami and Gandhinathan, 2006; Tari, 2005 and Sila and Ebrahimpour, 2003; Dean and Bowen, 1994). All the leading research in quality management emphasises the involvement of employees (Deming, 2000, 1986; Crosby, 1984). Evans & Lindsay (2008, p.20) assert that “in any organisation, the person who best understand his or her job and how to improve both the product and the process is the one performing it”.

The question of how well the sample companies are focusing on the participation of employees and teamwork and how well this element is implemented is now discussed based on the results obtained from all three indicators.

From the use of TQM frameworks, the results indicate that the majority of respondents indicated that their companies are certified to ISO 9001, whereas other excellence models are not given much importance (See Figure 6.4, p. 163 for further details). However, does the higher certification indicate higher participation and teamwork in the sample companies?

The in-depth review of ISO 9001:2008 in Chapter Two indicates that this standard does not give much importance to participation and teamwork. There is only one clause in ISO 9001:2008 which discusses human resources (see Clause 6.2 of ISO 9001:2008 for further detail). This clause only emphasises the competence, awareness and training of the employees (see Clause 6.2.2 of ISO 9001:2008). This standard only requires that the top management should communicate the quality policy to everyone within the organisation and make sure that it is understood (see Clause 5.3d of ISO 9001:2008 for further details). Thus, the higher percentage of certification to ISO 9001:2008 does not indicate that the sample textile companies are following the practices of participation and teamwork.

From quality tools and techniques, the 'quality circles', 'suggestion box' and 'team building methods' were highly relevant to the participation and teamwork. The results of this study indicate that the respondents reported that their companies are using the quality circles, suggestion box and teambuilding methods

sufficiently (see Figure 6.6, p.162 for further details). This shows that the sample companies might turn their efforts to participation and teamwork principles.

From the criteria of the EFQM excellence model, the constructs of ‘people’, ‘people results’ and ‘partnership and resources’ are the most relevant criteria, with participation and teamwork. The results point to a very small percentage of the respondents indicated that their companies tried to implement the EFQM excellence model. Therefore, it is not expected that the sample companies have implemented these criteria effectively. However, the questionnaire asked some direct questions on these constructs, related to the participation of employees, suppliers and teamwork (see Section II in the questionnaire attached as Appendix A). The results of the questionnaire survey indicate that the constructs of ‘people’, ‘people results’ and ‘partnership and resources’ of EFQM excellence model are poorly implemented in the sample companies. These results highlight that the principle of participation and teamwork might not be implemented adequately in the sample textile companies.

In summary the empirical evidence from all three indicators shows that the sample companies have given medium emphasis to employee participation and teamwork.

Section 7.2 highlights the details of the use of quality tools and techniques, the adoption of TQM frameworks, implementation of EFQM excellence criteria and principles of TQM in the sample textile companies. The research will now discuss at what level the sample textile companies might be ranked, with reference to the implementation of the TQM philosophy.

Section 2.6 discusses the framework of Dale et al. (2007) for the determination of the level of TQM implementation in any organisation. They tested the descriptions under each level in Europe, Hong Kong and South Africa. The sample textile companies will be mapped onto this framework, on the basis of information obtained in this study. According to the framework, level one companies are usually limited to obtaining certification to ISO 9001, the use of few quality tools and techniques, relying upon detection rather than a preventive approach, and quality improvement is seen as an added cost, given less priority in terms of resource allocation and investing lower amounts on education and training of the employees.

On the basis of the discussion in Section 7.2.4, the sample textile companies might be ranked at level one (uncommitted) according to the framework of Dale et al. (2007). The sample companies exhibit all the characteristics of being at level one. For example, this study indicates that the majority of respondents indicated that their companies are certified to ISO 9001:2008 and very few indicated that their companies are concerned in the use of excellence models like MBNQA and EFQM excellence model (see Figure 6.4, p.159). They only use a few quality management tools and techniques while neglecting others (see Figure 6.6, p. 162). These companies have some focus on customer satisfaction and process management but are not sufficiently satisfying their employees, suppliers or society (see Section 7.2.4.1 and Section 7.2.4.2 for further details). They also have lower levels of participation and teamwork (see Section 7.2.4.3 for further details). In addition, the respondents indicated that their companies consider quality improvement as a money wasting activity, thus give it less priority in terms of resource allocation (see Table 6.22, p. 190). Therefore, companies with

this profile might be ranked at level one (uncommitted) according to the framework of Dale et al. (2007).

7.3 The Relationship between TQM Practices and Business Results

The relationship of TQM practices with the business results is discussed in the light of existing literature in Section 2.3. The review of the literature revealed mixed results. However, the findings of the current study indicate that according to the perception of respondents almost all the TQM practices are positively and significantly associated with the business results (see Table 6.7, p.171 and Table 6.8, p.172 for further details). However, not all the TQM practices are good predictors of business results (see Table 6.9, p.176 for further details).

Many earlier studies support the findings of this study. For example, this study agrees with Kaynak (2003), although the two studies were conducted in different countries and industrial contexts. In her study Kaynak (2003) provides empirical evidence from firms located in the 48 contiguous states of the USA. She indicates that TQM practices have a positive relationship with the business results. The current study supports her results, specifically the positive effect of leadership, employee training, supplier management and process management on the business results. She also used a questionnaire survey for the collection of data. However, the data analysis techniques were different. The design of the questionnaire in these two studies was also a little different. For example, she identified the TQM constructs from the literature instead of using the EFQM Excellence framework, whereas the questionnaire design for the current study was based on the EFQM excellence model's criteria.

Similarly, this study supports the findings of Tari, Molina and Castejon (2007) especially the positive association of leadership, human resource management, supplier management, customer focus and process management with the business results. However, their finding about the effect of people management on quality outcomes is contrary to the finding in the current study. This variation might be due to the difference in context of the two studies. For example, they conducted their study in the manufacturing and service organisations of Spain whereas the current study was conducted in the textile companies of Pakistan. They have collected data from ISO 9001 certified companies only, whereas in the current study the data was collected from both ISO 9001 certified and non-certified textile companies. Furthermore, in their study only single respondents (in charge of the quality department) responded whereas in the current study, multiple responses were collected from the managers of departments in each company.

The current study also supports the findings of Bou-Llusar et al. (2009) that the overall construct of TQM has a significant positive association with the business results. Indeed, there were some contextual and analytical differences existing in both studies. For example, Bou-Llusar et al. (2009) conducted their study in the context of both the manufacturing and service organisations of Spain which is quite different from the context of the current study. They also used different statistical analyses for the data compared to the current study, such as the structural equation modelling. However, both studies used the same EFQM excellence model as the TQM framework for the investigation of the relationship between TQM and business results.

This study also supports the findings of Choi and Eboch (1998) especially the positive association of process quality, human resource and strategic planning with customer satisfaction. Choi and Eboch (1998) provide empirical evidence from companies like fabricated metal producers, industrial machinery and equipment, transportation and electronics parts manufacturing companies which were located in Ohio, USA.

In addition, this research also confirms the results in of Easton and Jarrel (1998) that TQM practices have a positive effect on business results. In contrast to the current study they collected performance related data from publically available financial reports and using structured interviews with 108 firms who had seriously attempted to implement TQM systems. Similarly, this study supports the arguments of Hendricks and Singhal (1996) that quality award winning organisations perform better compared to non-TQM firms. Both studies basically indicate that TQM practices have a positive association with the achievement of business results.

The findings here also agree with Samson and Terziovski (1999), especially the significant and positive association of leadership, people management, customer focus and process management with the organisational performance. However, there are a few contradictions in the findings of both studies. For example, Samson and Terziovski (1999) show that people management is the best predictor of business results and process management has no predictability of business results (this result is not significant). These two findings are in contrast to the results of the current study. This variation in the results could be explained on the basis of a few differences in the context and methodology of both studies. For

example, Samson and Terziovski (1999) conducted their study in manufacturing companies in Australia and New Zealand. They included companies which have more than twenty people, whereas the majority of companies in the current study had more than one hundred employees. There were also more than fifteen respondents included from each cell, whereas in this study only five managers from each company gave responses. Furthermore, they collected data from a large sample compared to the current study. Both studies used different TQM frameworks; they used MBNQA criteria whereas this research used the constructs of EFQM excellence model criteria.

The finding of the current study that process management has a positive effect on business results supports similar finding of Sila and Ebrahimpour (2005). The finding of this study that people management has no effect on business results also supports the findings of Rahman and Bullock (2005). Similarly, the finding of Rahman and Bullock (2005) that leadership has a weak effect on business results is also confirmed by this study. However, they indicate that soft TQM elements (e.g. people and leadership) can affect performance indirectly through hard TQM elements (e.g. process management). The indirect effect of these constructs was not investigated in this study. Rahman and Bullock (2005) has an entirely different context in comparison with this research. As they collected data from manufacturing companies based in Australia and New Zealand.

The possible explanation of the small or zero effect of people management could be the indirect effect of such constructs on the business results. Many of the earlier studies like Tari, Molina and Castejon (2007) provide evidence that people

management affects the business results through process management. However, the indirect association of these constructs is not investigated in the current study.

The above discussion shows that the findings of this research project support the results of many previous studies. However the result of some work (Mancinati, 2008, Su et al. 2008) is different from the results obtained here. For example, Mancinati (2008) highlights that there is a lack of significant statistical relationship between financial performance and quality management implementation. A close look at both studies indicates that Mancinati (2008) conducted his study in the health care providers of Italy which have an entirely different context in comparison with the sample in the current study. Health care providers could be categorised as the service sector, which provide services to the local community, whereas the textile companies of Pakistan have entirely different processes. These companies produce products to export all over the world. Thus, there is no comparison between the samples of these two studies.

This study supports some of the findings of Su et al. (2008) for example, no direct effect of people and leadership construct on business results, but other results are contrary. An in-depth look at their research framework shows that these two studies are quite different from each other. For example, the business performance construct in Su et al. is derived from just three items. These items are sales, market share and market share increase. Whereas the construct of business results in the current study is derived from comprehensive measures like customer, people, society and key-performance results. All of these constructs were derived from the Result criteria of the EFQM excellence model. Similarly, items they have included in the construct of quality performance, this research includes in the

key-performance construct. Furthermore, Su et al. conducted their study in China and did not include the textile industry in their sample, whereas the current study only includes textile companies from Pakistan in its sample.

The above discussion leads to the conclusion that TQM practices have a positive effect on business results. The findings of this study also support the argument that all TQM practices do not have an equal effect on business results. In this study this aspect was explored in further detail. The findings indicate that only the constructs of ‘partnership and resources’ and process have a direct positive effect on business results (See Table 6.9, p.176 for further details) whereas people and leadership do not. The positive effect of process, strategy, and collaborative activities support the findings of many earlier studies (Rahman and Bullock, 2005; Samson and Terziovski, 1999; Dow, Samson and Ford, 1999 and Ho, Duffy and Shih, 2001). The issue is whether people and leadership have an effect on business results, whereas leadership is highly emphasised in the EFQM Excellence Model.

This aspect is well explained by Bou-Llusar et al. (2009). They argue that in the Enabler criteria of the EFQM Excellence Model, processes and ‘partnership and resources’ might be categorised as technical dimensions, whereas people and leadership are categorised as social. Both dimensions support each other during the implementation in the form of a latent factor which might be called TQM. Thus, the Enablers’ excellence has a strong positive effect on the Results excellence. A similar explanation is given by Rahman and Bullock (2005). They also indicate that process has a direct effect on the organisational performance,

whereas people and leadership affect the performance indirectly through other constructs like process management.

The higher predictability of business results by effective process management is also supported by Deming (1986). He argues that effective control of production processes minimises variation, which ultimately reduces the rework and cost of quality. The less waste and lower cost of quality directly contributes to the profits of the organisation.

7.4 The Association of ISO 9001 Certification with the Implementation of TQM and Achievement of Business Results

ISO 9001 is a widely used quality management standard. Millions of manufacturing and service organisations in the world are certified to this standard (ISO Survey, 2009). It is generally believed that implementation of this standard helps organisations to achieve an improved performance and a higher level of TQM implementation. The next sections will discuss the findings of this research related to the effect of ISO 9001 certification on TQM implementation and business results separately.

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

A detailed literature review investigates earlier studies on the relationship of ISO 9001 certification with TQM practices (Section 2.5.1.1). This review reveals mixed findings. Some of the studies indicate that ISO 9001 certification has a positive association with TQM implementation (Magd and Curry, 2003; Rao,

Ragu-Nathan and Solis 1997) whereas others argue that there is no such association (Martinez-Lorente and Martinez-Costa, 2004; Zhu and Scheuermann, 1999).

The findings of this study indicated that TQM implementation is associated with the certification of ISO 9001 and the length of certification to this standard. According to the respondents, the companies certified to this quality management standard can implement TQM effectively compared to the non-certified companies. Furthermore, the companies having a longer length of certification of ISO 9001 can implement TQM more effectively.

Many studies have support these findings. For example, Srivastav (2010) provides empirical evidence from the manufacturing companies of India that ISO 9000 implementation enhances the collaborative culture reduces the stress level and improves problem solving through team work. Jang and Lin (2008) support the findings of this study by providing empirical evidence that ISO 9001 certification supports the implementation of process management. They indicate that the operational performance of the companies improved after getting the certification. Sroufe and Curkovic (2008) also show that certification to ISO 9001:2000 improves processes and helps to minimise production losses. The findings of Terziovski and Power (2007) confirm the findings of the current study by providing empirical evidence that certification to ISO 9001:2000 facilitates the organisations in the development of a quality culture.

Rao, Ragu-Nathan and Solis (1997) also confirm the findings of the current study by giving empirical evidence that the companies which were certified to ISO 9001:1994 had higher levels of quality leadership, human resource development,

strategic quality planning, supplier relationship, quality assurance, and customer orientation. All of these findings agree with the findings of the current study.

All of this work indicates that certification to the old versions of ISO 9000, like ISO 9000:1994 and ISO 9001:2000, facilitate the implementation of TQM practices. ISO 9001:2008 is the latest version of the ISO 9000 series and has better compatibility with the TQM philosophy (ISO, 2011), therefore, it was expected that this version would be more helpful in the implementation of TQM practices. The findings of this study are in accordance with the literature.

Some research does not support the findings of the current study. For example, Sila (2007) states that there was no difference in the performance and systems of the ISO 9001 certified and non-certified companies. A detailed investigation of Sila's sample shows that the non-certified companies which were included were already involved in the implementation of a range of quality improvement initiatives like Kaizen, 5S, lean manufacturing, constraint management, Juran training, as well as other quality improvement initiatives, without formal names. All of the above mentioned initiatives are based on some of the principles of TQM. On the other hand, in the case of the present study, the majority of sampled textile companies were not using any other quality improvement initiatives except ISO 9001. Therefore, in the two studies, the non-ISO 9001 certified companies had a different level of introduction to the TQM principles.

The finding of Martinez-Lorente and Martinez-Costa (2004) seem contrary to the findings of the current study. They put forward evidence that ISO 9001 certification contradicts the implementation of the TQM philosophy when these two approaches are implemented together. In the current study this aspect was not

studied explicitly. Thus, the research is unable to make a real comparison of the two studies. However, it might be inferred from other findings in this study that the sample companies in the current study were not implementing the TQM philosophy along with the certification of ISO 9001:2008. This finding was discussed in detail in Section 7.2 which shows that only a few companies in the sample had implemented other TQM frameworks, like excellence models and Six Sigma.

Another aspect of Martinez-Lorente and Martinez-Costa (2004) is not comparable with the current study; the majority of companies in their sample were certified to ISO 9000:1994 whereas the companies in the current sample are certified to ISO 9001:2008. Furthermore, these two studies were conducted in two different countries and company sectors. Martinez-Lorente and Martinez-Costa (2004) conducted their study in the manufacturing and service organisations of Spain while the current study was conducted using only Pakistani textile companies.

The majority of studies which contradict the findings of the present study were conducted with reference to previous versions of ISO 9000. The newer versions, like ISO 9001:2008, are much more compatible with the TQM compared to the old versions.

In accordance with TQM philosophy, ISO 9001:2008 places great emphasis on customer satisfaction. It is mandatory for organisations intending to get certification of this standard to determine the requirements of customers related to the products. Organisations have to establish communication with customers and get their feedback including complaints (see Clause 7.2 of ISO 9001:2008 for

further information). This standard also gives a lot importance to process management and continuous improvement (see Clause 8.1 of ISO 9001:2008 for further details).

The review of the contents of the latest version of ISO 9001 shows that all the principles of this standard are based on TQM philosophy. However, the execution of this standard might hinder the organisations journey towards the implementation of TQM. Heavy paper work and less involvement of junior employees in the development of the documentation might be major issues which create problems in accepting this standard as a TQM framework.

It is the general impression that this standard is bureaucratic in nature and that organisations have to put unnecessary emphasis on documentation, which makes the processes less efficient. The researcher does not believe in this argument. This standard only requires six mandatory documented procedures which are:

- Control of documents (see Clause 4.2.3 of ISO 9001:2008)
- Control of records (see Clause 4.2.4 of ISO 9001:2008)
- Internal audit (see Clause 8.2.2 of ISO 9001:2008)
- Control of nonconforming product (see Clause 8.3 of ISO 9001:2008)
- Corrective action (see Clause 8.5.2 of ISO 9001:2008)
- Preventive action (see Clause 8.5.3 of ISO 9001:2008).

Apart from the above procedures, this standard does not require any other written measures. However, this standard requires evidence that some activities are being performed within an organisation. These records are specifically evaluated during

the audit of the quality management systems. The records of the activities that are mandatory are mentioned in Table 2.4 (p.38).

Those organisations that have not yet established the fundamental systems and procedures to perform different functions might consider such requirements as burdensome; however, these are the normal documents that every organisation is required to establish for the smooth running of activities. Therefore, Magd and Curry (2003) assert that early implementation of ISO 9000 can provide stability and consistency in an organisation's work. Subsequently, the implementation of TQM philosophy can enhance an organisation's overall performance.

Feng, Terziovski and Samson (2008) indicate that for a successful implementation of ISO 9001 certification organisations require higher levels of employee training, planning and commitment at all levels. Masakure, Henson and Cranfield (2009) consider that adoption of certification to ISO 9001 is a function of firm, market, sector, product characteristics and regulatory pressures. In absence of regulatory compulsions and contractual requirements, the organisations need to be convinced that their existing systems are not adequate enough to achieve the desired organisational goals. Therefore, performance benefits from ISO 9001 certification vary, depending on the level of commitment and motivation towards the implementation of ISO 9000.

The next section will discuss the results of the research project regarding the effect of ISO 9001 certification on business results.

7.4.2 The Effect of ISO 9001 Certification on Business Results

A detailed literature review was conducted in Section 2.5.1.2 to investigate the relationship between ISO 9001 certification and organisational performance. The review of the literature highlighted mixed findings. Some studies support a positive association between ISO 9001 certification and business results, while others provide empirical evidence that such a relationship does not exist.

This study investigated the association of ISO 9001 certification and its duration with business results. The association of duration of ISO 9001 certification has not been investigated in depth in the existing literature. This study underlines that ISO 9001 certification is associated with organisational performance. The ISO 9001 certified companies had better business results compared to non-certified companies. However, no association was identified between the duration of certification to ISO 9001 and business results (see Table 6.17, p.185 for further details).

Many studies corroborate the findings of this study. For example, Karapetrovic, Fa and Saizarbitoria (2010) conducted a longitudinal survey in 1998, 2002 and 2006. They collected data from companies based in Catalonia. Their findings bear out the results of the current research. They indicate that these companies achieved a significant increase in customer satisfaction, along with a decrease in defects and customer complaints.

Masakure, Henson and Cranfield (2009) offer empirical evidence from the textile, leather, agro-food and fisheries sectors of Pakistan. They collected data over the period 2000 to 2004. They propose that ISO 9001 certification has a positive effect on organisational performance in terms of export sales. They stress that

certification to this standard plays a vital role in establishing organisational credibility in the international market. In the current study the researcher has not specifically investigated the relationship of ISO 9001 certification with export sales; however, the variable of business results includes the overall increase in the company sales. Therefore, the findings of Masakure, Henson and Cranfield (2009) support the results of current study to some extent.

Lin and Jang (2008) show empirical evidence from Taiwanese companies that certification to ISO 9001 helps in the improvement of organisational performance. They propose that the constructs of the ISO 9001 standard like top management commitment, quality planning, continuous improvement and operational performance have a direct effect on business results. They argue that all of these constructs are comprehensively addressed in the ISO 9001 standard.

In addition, Feng, Terziovski and Samson (2008) confirm the findings of this study by providing empirical evidence from manufacturing and service organisations in Australia and New Zealand. They reveal that ISO 9001 certification has a significant positive effect on customer satisfaction, product quality and productivity. However, they indicate that ISO 9001 certification has a lower impact on profitability, sales growth and market share. Similarly, many other studies support that ISO 9001 certification is associated with business results (Srivastav, 2010; Sun, 2000 and Curkovic and Pagell, 1999). These findings provide empirical evidence to the claim that ISO 9001 certification can improve organisational performance.

However, there are many studies whose findings are contradictory to the results of the current study. For example Heras, Gavin and Casadesus (2002) indicate that

there was no improvement in the organisational performance after getting ISO 9001 certification. Wayhan, Kirche and Khumawala (2002) have more specifically highlighted that there was no significant relationship between ISO 9001 certification and the financial performance of the companies. Similar results were reported by Han, Chen and Ebrahimpour (2007).

A detailed review of studies whose findings differ from the present research indicates that there are many differences in the methodology and approach adopted to investigate this relationship. For example, Heras, Gavin and Casadesus (2002) have taken an entirely different definition of organisational performance compared to the present study. They only consider the actual sales and profitability as indicators of performance whereas this research uses a comprehensive definition of organisational performance by considering the customer, people, society, financial and non-financial results together in one construct. Similarly Wayhan, Kirche and Khumawala (2002) have only taken financial results as the indicator for the organisational performance. Thus, the findings of those studies are not comparable with the current study.

The other possible reason for this variation in the findings could be the difference in the context of these studies. None of these studies are conducted in the textile sector or in the context of Pakistan. For example Han, Chen and Ebrahimpour (2007) conducted their study in the electronics, chemical and electrical equipment and components companies of the United States. Heras, Gavin and Casadesus (2002) did research in Spain and the data was collected from both manufacturing and service industries.

The finding that length of ISO 9001 certification is not associated with the business results is supported by many studies. For example, Benner and Veloso (2008) provide empirical evidence that the potential for getting benefits from the certification of ISO 9001 disappears with the passage of time. They argue that the performance advantages which accrue for earlier adopters are competed away over time for later adopters within a similar industry. As the majority of companies from the same sector get ISO 9001 certification, the potential for benefits disappears. Hendrick and Singhal (2001) show almost similar findings, that there was no difference in the performance of early and late adopters of TQM philosophy. They used the winning of quality award as the proxy for the effective implementation of TQM. Karapetrovic, Fa and Saizarbitoria (2010) highlight in their longitudinal study that there was a continuous decrease in the benefits of ISO 9001 registration.

However, Jayaram, Ahire and Dreyfus (2010) do not support the results of the current study. They indicate that the duration of the implementation of TQM is associated with the achievement of outcomes. Jayaram, Ahire and Dreyfus (2010) are different in many ways from the current study. For example, the length of TQM duration was not based on the certification of ISO 9001. They measured the duration of TQM by asking a simple question about when the companies started following TQM practices. The question was somewhat seems vague and the respondents might have answered in different ways, whereas in the current study duration was measured in terms of the number of years of certification to ISO 9001. Furthermore, they only considered three constructs (process quality, product quality, and customer satisfaction) as the measures of the organisational performance while in the current study comprehensive measures of the business

results were taken based on the EFQM excellence criteria. Jayaram, Ahire and Dreyfus (2010) also has a different context for the sample as it was conducted in the USA and the companies in the sample consisted of a variety of companies including chemical, electronic, primary metals, commercial machinery etc. Their sample hardly includes any textile companies. The nature of their sample is entirely different compared to the current study.

There might be many possible explanations for the finding of the current study, that there was no significant difference in the business results of early and late adopters of ISO 9001. The first explanation is that the competitive advantage of the early adopters of ISO 9001 in the sample companies might be competed away with the passage of time by later adopters (Benner and Veloso, 2008). As the majority of textile companies in the sample export their products in the international market. The certification to ISO 9001 gives credibility to the companies in the market and helps in enhancing their image as a company committed to quality (Masakure, Henson and Cranfield, 2009). However, with the arrival of new certified companies (no matter when they get the certification) in a similar industry it might be difficult to get enough benefits.

Another explanation of these results might be the superficiality in the implementation of ISO 9001. The companies certified to ISO 9001 might be interested in satisfying the contractual requirements and building a good image in the eyes of their customers, rather than improving their processes with the help of this management system. Thus, they try to maintain the certification of this standard by fulfilling the minimum requirements of the certification process. Such companies do not consider the auditing process as an opportunity for

improvement. They take it as a formality to maintain their certificate. Because of the non-serious attitude of the top management, the shop floor workers do not take the standard's requirement seriously, which suppresses their learning curve (Martinez-Lorente and Martinez-Costa, 2004).

7.5 Effect of Size and Type of Company on the Implementation of TQM Practices

A detailed discussion about the effect of size and type of company on the implementation of TQM was conducted in Section 2.9. The literature review revealed mixed findings. It is argued in the literature that smaller and larger companies vary on the basis of layers of management, number of departments, level of specialisation of skills, functions, formalisation, centralisation and bureaucracy (Daft, 1995). Therefore, the implementation of TQM practices like top management commitment, involvement of employees, training and development of employees, process management, continuous improvement, development of long-term relationship with suppliers and customer focus is not an easy task. It requires fundamental changes in the management philosophy, information provided to workers, performance measurement and reward system (Hendricks and Singhal, 2000).

However, the findings of this study indicate that size of sample textile companies is not associated with the implementation of TQM practices. However, the implementation of TQM varies across the different types of sample textile companies like spinning, weaving, finishing, garments, and composite.

The above-mentioned findings of this study are supported by previous research. For example, the result that TQM practices are not associated with the size of the

company is supported by Sila (2007). These two studies have many commonalities but there are some differences in the sample and methodology. For example, Sila collected data from 2000 manufacturing and service organisations from the USA. He used three different categories for the size of firms, based on the number of employees. All of the categories had a similar number of employees as the current study. Similarly, the TQM practices studied by Sila include all the TQM practices being addressed in the current research.

Taylor and Wright (2003) studied 109 firms over a period of over five years. They also support the results in this research by providing empirical evidence that perceived TQM success was not associated with organisational size. Similarly, Sharma (2006) offers empirical evidence from the Midwest in support of the results of the current study. He also reports that the size of company has no effect on the implementation of TQM practices. Germain and Spears (1999) also support the findings of the current study, that implementation of TQM practices were not associated with the size of organisation.

On the other hand, results like Hoang et al. (2010), Jayaram, Ahire and Dreyfus (2010), Sun and Cheng (2002), Hendricks and Singhal (2000), and Terziovski and Samson (2000) indicate that organisational size is associated with the implementation of TQM practices. However, all of these studies have comparatively different findings compared to the current study, with many differences in their methodology, the nature of the companies, samples and country contexts. For example, Hoang et al. (2010) conducted research in Vietnam. They included manufacturing and service organisations in their sample, which has many companies with less than fifty employees. On the other hand, the

current sample is only based on companies from the textile sector and all the companies have more than a hundred employees. These characteristics might be the reason for variation in the results of both studies. Similarly, the findings of Jayaram, Ahire and Dreyfus (2010) do not conform to the results of the current study. They show that size of company moderates the influence of top management commitment, customer focus, and trust on the organisational outcomes like customer satisfaction, product quality and process quality. These two studies were conducted in entirely different countries and industry contexts. Jayaram, Ahire and Dreyfus (2010) conducted their study in US manufacturing companies, with no textile firms. Similarly, Hendricks and Singhal (2000) also indicate that smaller firm scan implement TQM significantly better compared to larger firms. However, they used the winning of quality awards as a proxy for TQM maturity and all of the companies were located in USA. These characteristics of sample firms were entirely different from the sample of the current study. Furthermore, they used financial data to measure the organisational performance, whereas the current study is only based on perceptual data. All of these dissimilarities in the sample and methodology might be the reason for variation in the results of both studies.

Ghobadian and Gallear (1997) argue that the basic concepts of TQM were equally applicable in Small and Medium Enterprises (SME). However, the method and details of the implementation of these concepts might be different. They propose that most of the inherent characteristics of TQM seem to best fit with the characteristics of SMEs while many appeared independent of size. Therefore, both large and small companies need to adapt themselves according to the requirements of TQM. The research agrees to some extent with the argument of

Ghobadian and Gallear (1997). One limitation of this study is that the sample does not contain any companies with less than one hundred employees. The majority of the sample companies have between one hundred and five hundred employees (see Table 6.3, p. 154 for further details). In Pakistan companies with less than one hundred employees are regarded as SMEs (SMEDA, 2011). Thus, the current sample does not have a sufficient representation of SMEs. Therefore, the arguments of Ghobadian and Gallear (1997) cannot be evaluated against the findings of the current study.

The current study also shows that according to the responses of the respondents the types of sample textile companies (e.g. spinning, weaving, finishing, garment and composite) was also associated with the implementation of TQM practices. It further indicates that TQM practices were poorly implemented in the sampled garment companies compared to other types of industry. Jayaram, Ahire and Dreyfus (2010), Sila and Ebrahimpour (2005), Sitkin, Sutcliffe and Schroeder (1994) and Benson, Saraph and Schroeder (1991) support these results. However, companies which support that the company type is associated with the implementation of TQM manufacture different types of goods as shown in their samples, such as chemicals, cars and metal fabrication. None of the research studies (from those which supported or contradicted the findings of current study) had a sample consisting of different types of textile companies like spinning, weaving and garment.

A possible explanation for this variation might be the difference in the capital intensity of the sample companies. For example, spinning and finishing companies have higher levels of capital intensity compared to garment companies.

Hendricks and Singhal (2000) argue that higher capital intensive companies might have a higher degree of automation and thus have more inherent control of the processes. On the other hand, lower capital intensive companies have less automation of the processes, thus they have to rely on the personal skills and motivation of the employees. Such companies normally have a higher number of employees. Therefore, the potential for getting benefits from TQM for lower capital intensive companies is higher compared to higher capital intensive companies. However, the implementation of TQM practices might be easier in higher capital intensive companies compared with lower capital intensive companies.

The other possible reason might be the firm diversification in terms of products. Stimpert and Duhaime (1997) indicate that firm diversification has a negative impact on strategic investment for the development of new products and process technologies. In the case of the sample companies, garment companies are more diversified in terms of their products compared to spinning and weaving companies. Spinning and weaving companies have only a few product lines and the companies have fully automated control, thus, less changes in the variation in the product quality; whereas the garment sector might have a large range of product lines which needs to be managed manually. These companies need to be more conscious about customer requirements, design of the products and innovation.

Another possible explanation of the findings is that implementation of TQM is associated with the difference in the level of formalisation and maturity of processes in the spinning, weaving and garment companies of Pakistan. For

example, the spinning industry, being the oldest and largest sector, is the most formalised and well-established sector of Pakistan (Pakistan Economic Survey, 2009-10). This is why it has a broad base of customers. Furthermore, the abundance of raw material and high demand for its products in the international market differentiate it from other sectors. On the other hand, the majority of the weaving and garment sector is in the non-formal mill sector. These companies have a less trained and less educated work force, which creates problems in the implementation of TQM concepts, including new ideas. These companies are also facing tough competition from other regional countries like China, India, Bangladesh, and Sri Lanka.

7.6 Issues in the Implementation of Quality Improvement Initiatives

The findings of this study indicate that the respondents consider that issues faced by their companies are the same as those faced by the majority of companies in other parts of the world. In this study, almost half of the respondents from the sample perceive that managers' awareness of TQM, multiple quality initiatives, a mindset that quality is a money wasting activity, the organisational culture, a lack of top management commitment and lack of communication are the issues which hinder the successful implementation of TQM (see Table 6.22, p.190 for further details).

Among these issues, the managers' awareness of TQM followed by multiple quality initiatives, considering quality as money wasting activity and organisational culture are the most significant issues faced by the sample textile companies during the implementation of quality improvement initiatives.

The above-mentioned findings of this research are supported by many other studies. For example, Crosby (1984, p.88) indicates that all the individuals in a company must be able to understand quality concepts and their role in “causing quality”. He emphasises that it is not only the employees who have to understand their role in ensuring quality but senior management should also know all the aspects of quality implementation. For example, senior managers should be aware of their role in causing problems and improvements in quality processes. They have to understand what needs to be communicated to the employees and they can be encouraged in the implementation of improvement processes. Similarly, Deming (1986) puts a lot of emphasis on the training and education of employees.

Oakland (2004) also mentions that education, training and development of the managers are the fundamental aspect of TQM implementation. Similarly, Juran describes in his quality trilogy that quality cannot be improved until the employees are given adequate training (Juran and Godfrey, 1999). Gryna et al. (2007) argue while describing his road map for enterprise quality that education and training of the employees is the most crucial aspect at the ‘launch’ and ‘expand’ phase (see Figure 2.10, p.58 for further details). Herbert, Curry and Angel (2003) provide empirical evidence that lack of employees training was one of the major issues in the implementation of quality tools and techniques.

The other significant issue highlighted by the current study is the implementation of multiple quality improvement initiatives. For example, after getting the ISO 9001 certification, some companies start planning to get certification of ISO 14000. Similarly, along with these certifications they register for other standards like SA 8000 and OHSAS 18000. At the same time they start thinking of Six

Sigma and other improvement initiatives. However, all of the standards and frameworks have their own requirements, like development of manuals, procedures, work-instructions, management of records, internal and surveillance audits, corrective and preventive actions. It is very difficult for any organisation to meet the requirements of all of these standards individually. The duplication of activities for different standards might cause a lack of interest and focus for employees. Thus, to retain the certifications they superficially perform the required activities or just fulfil the requirements of the documents. The researcher has personally experienced this issue during his industrial experience. In his seven years industrial and consultancy experience, the researcher has hardly seen any organisation which is really committed to the implementation of standards like ISO 9000, ISO 14000 and SA 80000. Therefore, such programmes fail to achieve the expected success. This argument is supported by Martinez-Lorent and Martinez-Costa (2004). They provide empirical evidence that companies which are trying to implement TQM and ISO 9000 simultaneously were unable to achieve better results.

One possible way to overcome this problem is the integration of different management systems. For example, if a company is interested in implementing ISO 9000, ISO 14000, SA 8000, and OHSAS 18000 together then it is better to integrate all of these systems and combine them in one integrated company management system, rather than developing the documentations for the individual standards. This provision is available in the implementation of standards developed by ISO.

The other significant issue which the respondents perceive affect the implementation of quality improvement initiatives is the incompatible culture of the organisations. This finding supports the findings of some earlier studies such as Kujala and Lillrank (2004) and Detert, Schroeder and Mauriel (2000). Detert, Schroeder and Mauriel (2000) also mention that organisational culture is one of the major barriers in the implementation of TQM. He identified that many of the organisational cultural constructs have direct relevance to the implementation of TQM. If the gap between the actual culture of the organisation and the culture desired for TQM is high then such change initiatives will be very difficult to implement.

Some authors believe that organisational culture cannot be changed but Linstead et al. (2009: p.157) indicate that it can be manipulated to some extent.

An organisation is a place where cultural processes happen, but it is also an outcome of these processes working in society. The organisation itself is both a product and a producer of culture. This dual dimension is often missed by the more managerialist of commentators who seem to see culture as an object. But we can go further to suggest that cultural processes do not operate in a unified way - they are fragmentary, incomplete, contradictory, disrupted and neither stop nor start when we want them to. Although culture cannot be completely controlled, it can still be open to some manipulation.

Now the issue is, what needs to be changed in order to manipulate the organisational culture? Crosby (1984, p.98) made it very clear that

changing a culture is not a matter of teaching people a bunch of new techniques, or replacing their behaviour patterns with new ones. It is a matter of exchanging values and providing role models. This is done by changing attitudes.

The other main issue faced by the sample textile companies according to the perception of respondents is the lack of communication with the employees. One possible explanation for this finding could be that the majority of respondents indicated that their companies are certified to ISO 9001:2008. Wiele, Dale and Williams (1997) indicate that documentation required for ISO 9001 registration is often developed by quality managers who write manuals and procedures for other people in the organisation who afterwards just confirm and approve them without necessarily understanding them, and there is less involvement of senior and junior employees.

In the category of serious issues, the managers perceived that top management commitment is the most serious issue in their companies. This finding is in accordance with the literature. Section 2.6.1 discusses in detail that top management commitment is a fundamental aspect in the successful implementation of TQM philosophy. All the leading authors like Deming, Juran and Oakland (2001) are agreed that top management should lead the TQM implementation.

The lack of top management leadership as the most serious issue is also supported by Soltani and Wilkinson (2010), Beer (2003) and Harari (1993). The higher emphasis of all the TQM frameworks (e.g. EFQM excellence model and ISO 9000) on the construct of leadership also indicates that this is one of the most

important issues which need to be considered during the implementation of TQM practices.

The second top ranked serious issue was the focus on short-term profits. This finding supports Deming (1986). He indicates that short-term profit is one of the deadly diseases in the Western world. However, this finding indicated that it is the same in the sample companies as well. He argues that for the effective implementation of quality management concepts, managers have to think of quality as a business strategy. Similarly, Gryna et al. (2007) indicate that only those organisations which integrate TQM into their business strategy can get benefits from the implementation of it.

The unstable political environment, weak economic condition of the country and uncertainty in governmental policies might compel the sample textile companies to find short-term solutions to their problems.

7.7 Summary

The majority of the findings are supported by the TQM literature. Some of the findings could also be explained by the cultural context of the textile companies in Pakistan.

Overall, it is evident that TQM practices are not effectively implemented in the textile companies of Pakistan. These companies are much more interested in the implementation of ISO 9000. The other frameworks of TQM like MBNQA, the EFQM excellence model and Six Sigma are almost ignored.

The positive association of ISO 9001 certification with the implementation of TQM practices is encouraging for the textile companies of Pakistan. It shows that at a later stage these companies can implement TQM practices more effectively.

The positive association of TQM practices with business results is widely supported by the literature. Most of the issues faced by the textile companies of Pakistan during the implementation of quality improvement initiatives are supported by the literature. Furthermore, companies in other parts of the world face similar issues.

8 CONCLUSIONS AND RECOMMENDATIONS

8.1 Introduction

This chapter summarises the findings of the study and gives recommendations for future research. The findings of the study are discussed with reference to the research questions. The contributions to the body of knowledge and the limitations of this study are also described.

8.2 Summary of the Study

In the last few decades the concepts and frameworks of quality management were warmly welcomed in developed countries, however, companies in developing nations like Pakistan remained unacquainted with such initiatives. The existing empirical literature on TQM is dominated by empirical studies in the context of developed western countries, but one can hardly find any comprehensive research in the context of a developing country, like Pakistan.

A considerable number of have attempted to identify the relationship between TQM practices and business results but they have shown mixed findings. For example, many studies reported the positive effect of TQM practices on organisational performance (Bou-Llugar et al. 2009; Tari, Molina and Castejon 2007; Kaynak, 2003; Douglas and Judge, 2001; Hendricks and Singhal, 1996) whereas others do not support this claim (Corredor and Goni, 2010; Macinati, 2008; Su et al. 2008). Sila and Ebrahimpour (2005), Sousa and Voss (2002) and Forza and Filippini (1998) indicate that this relationship needs to be investigated in other contexts using further details and sophisticated frameworks. Similarly, in spite of the wide use of ISO 9000 (ISO, 2011), many studies

question whether certification to this standard improves organisational performance (Dick, Heras and Casadesus, 2008; Benner and Veloso, 2008; Magd and Curry, 2003). Some of the research highlights that certification to ISO 9001 does not facilitate companies in their journey towards the adoption of TQM philosophy (Martinez-Lorente and Martinez-Costa, 2004; Zhu and Scheuermann, 1999).

Therefore, this study has provided empirical evidence from textile companies in an under researched country, Pakistan, to bridge the above-mentioned gaps in the existing literature. Keeping in view the nature of the research and other constraints, like time and cost, quantitative methodology was used to answer the research questions mentioned in Table 4.1. Perceptual data was collected using self-completion questionnaires from the managers of different departments in the sample companies. Descriptive statistics, Pearson correlation coefficient, multiple regression and chi-square for independence was used to analyse the data.

In the next section, the conclusions of the key findings are discussed according to the research questions given in Table 4.1.

8.3 Research Questions and Findings of the Study

Table 4.1 contains the research questions which were derived from the literature and based on the research objectives (see Section 1.3, p.7 for further details). The major findings of this study are summarised with reference to each research question in the following sub-sections.

8.3.1 What is the Perceived Level of TQM Implementation in the Sample Textile Companies of Pakistan?

The findings of this study indicate that according to the perception of respondents the TQM philosophy is not implemented adequately and holistically in their companies. Very high adoption of ISO 9000 indicates that these companies at least have the minimum elements of quality management system (Gryna et al. 2007) and might be considered at the mid-way point towards full adoption of TQM (Gutierrez, Torres and Molina, 2010). However, on the basis of their characteristics and behaviours the sample textile companies might be mapped on level one of the framework proposed by Dale et al. (2007) (see Figure 2.13, p.61 for further details). The majority of behaviours and characteristics of the sample companies are similar to those described for 'uncommitted' companies by Dale et al. For example, the sample companies highly emphasise ISO 9001 certification (see Figure 6.4, p.159 for further details), but give less importance to the majority of quality tools and techniques and uses only a few tools (see Figure 6.6, p.162 for further details), and minimum focus on satisfaction of employees and other stakeholders (see Table 6.5, p.166 for further details).

This study indicates that the sample textile companies have not given equal importance to the elements of TQM. For example, process control (see Section 7.2.4.2, p.208 for further details) and customer focus (see Section 7.2.4.1, p.203 for further details) are given more importance compared to the satisfaction and involvement of stakeholders (employees, suppliers and society) (see Section 7.2.4.1, p.203 and Section 7.2.4.3, p.212 for further details).

These are not surprising results. Many other studies have highlighted similar findings. For example, Gotzamani et al. (2007) indicate that companies with

higher levels of ISO 9000 certification place more emphasis on process control and less on the involvement and satisfaction of stakeholders (employees, suppliers and society). Involvement and satisfaction of stakeholders is one of the fundamental principles of TQM philosophy (Slack et al. 2010; Martinez-Costa, Choi and Martinez 2009; Fotopoulos and Psomas, 2009; Bou-Llusar et al. 2009; Zu, 2009; Evans and Lindsay, 2008; Li et al. 2008, Juran and Godfrey, 1999; Deming, 1986; Crosby, 1984). The three authorities in TQM, Deming, Juran and Ishikawa, also agree on the centrality of employees in the philosophy (Hackman and Wageman, 1995). Therefore, without giving sufficient importance to employees and suppliers the companies cannot adopt the spirit of TQM. Similar findings are reported by many other studies being conducted in other contexts (e.g. Haffer and Kristensen, 2008; Al-Harkan, 2007 and Hafeez, Malik and Abdel-Meguid, 2006), which reflect that the sample companies have not yet understood the philosophy of TQM. This is not the ideal situation for the implementation of TQM. All the constructs of TQM are interrelated and they support one another during the implementation process (Bou-Llusar et al. 2009; Hussain, Akhtar and Butt, 2009). Thus, all the elements of TQM need to be emphasised equally.

8.3.2 Is There Any Association between TQM Practices and Business Results in the Sample Textile Companies of Pakistan?

The literature review in Section 2.3 concluded that the relationship between TQM practices and business results was inconclusive. However, this study supported a positive association of TQM practices (leadership, people, strategy, partnership and resources and process) with different dimensions of perceived business results in the sample textile companies of Pakistan. These results are consistent with the findings of many other studies like Bou-Llusar et al. (2009), Kaynak (2003), Tari,

Molina and Castejon (2007), Choi and Eboch (1998) and Easton and Jarrel (1998). Some studies partially support the results of this study, for example Samson and Terziovski (1999) show the positive effect of leadership and people management on the key performance results.

The findings of this study that much of the variance in business results could be explained on the basis of TQM practices (see Table 6.9, p.176 for further details) is in accordance with the findings of PIMS study which highlights that quality is the most important factor affecting organisational performance (Gryna et al. 2007). Similarly, the findings of Hendricks and Singhal (2001), Douglas and Judge (2001), Easton and Jarrel (1998) and Zairi et al. (1994) are also in accordance to the results of this study. These findings support the claims of Deming (1982) and Crosby (1980, 84) that organisational performance might be improved by implementing TQM practices.

The pioneers of quality management like Deming, Juran and Crosby argue that TQM principles are universally applicable and companies located anywhere in the world can improve their performance. However, Sila and Ebrahimpour (2005); Forza and Filippini (1998) and Sitkin et al. (1994) question the universal applicability of TQM and suggest that organisations have to consider the context in which they are intending to implement these principles for the optimum benefits. However, the conformance of the results of this study with the findings of other studies supports the argument that positive results might be achieved by implementing TQM practices in any country. As all of the studies mentioned above, whose findings comply with the results of this study; were conducted in different countries from the current study (see Table 2.2, p.21 for further details).

However, there might be variation in the strength of the relationship of individual TQM constructs with the different dimensions of business results.

The varied effect of TQM practices on the business results will be well understood in the next section.

8.3.3 Which TQM Practices are Significant Predictors of the Overall Perceived Business Results in the Sample Textile Companies of Pakistan?

The review of literature in Section 2.3 shows that individual TQM practices have varied predictability of business results (Rahman and Bullock, 2005; Samson and Terziovski, 1999; Dow, Samson and Ford, 1999 and Ho, Duffy and Shih, 2001). The results of this study are in accordance with the literature. This study highlights that the individual TQM practices had different abilities to explain the variances in the business results. Among the TQM practices, partnership and resources are the best predictors of business results followed by the process and strategy. On the other hand, leadership and people have negligible and insignificant effects on the predictability of business results in the sample textile companies of Pakistan.

The higher positive effect of ‘partnership and resources’ and process on business results is supported by many other studies like Kaynak (2003), Tari, Molina and Castejon (2007) and Rahman and Bullock (2005). Similarly, Rahman and Bullock (2005) report that the leadership and people element have no direct effect on business results. Their findings also support the findings of the current study that leadership and people have no direct effect on business results.

Here the results that the leadership and people elements have no or negligible direct effect on business results seems contrary to the conclusion given in Section 8.3.3, that all the TQM practices are positively associated with different dimensions of business results. This contradiction might be explained on the basis of the findings of Rahman and Bullock (2005) who mentioned that leadership and people management affect performance indirectly through process management. Whereas process management has a direct effect on internal quality outcomes (scrap, rework, defects, performance) and external quality outcomes (complaints, warranty, litigation, and market share) (Ahire and Dreyfus, 2000).

All the gurus of quality like Deming, (2000, 1986), Crosby (1984) and Juran and Godfrey (1999) also emphasise the close relationship with the suppliers to develop a strategic alliance to achieve better business results. Juran and Godfrey (1999) assert that suppliers should be viewed as partners in pursuit of mutual goals rather than fighting on issues of price.

However, the sample companies give the least importance to the partnership and resources elements (see Figure 6.7, p.165 for more details.). This finding suggests that the sample companies should develop a closer liaison with suppliers and the necessary resources need to be provided in order to gain better business results.

8.3.4 Is There Any Association of ISO 9001 Certification and its Duration with the Implementation of TQM Practices?

ISO 9000 is one of the most widely used quality management system in the world (see Section 2.5.1.3, p.43 for more details). However, the literature is inconclusive about the association of this standard with the implementation of TQM (see Section 2.5.1.1, p.38 for more details). Being the latest version, ISO 9001:2008 is

considered more compatible with TQM philosophy. It is therefore expected that this version will facilitate the companies in their journey towards the implementation of TQM.

The findings of this study support this assertion and provide empirical evidence that certification to ISO 9001:2008 is associated with the perceived implementation of TQM practices in the sample textile companies of Pakistan. These results are supported by many other studies (Srivastav, 2010; Jang and Lin, 2008; Sroufe and Curkovic; 2008; Gotzamani et al. 2007; Terziovski and Power, 2007; Gotzamani et al. 2007; Magd and Curry, 2003).

The majority of studies (Jang and Lin, 2008; Sroufe and Curkovic; 2008) indicate that companies certified to ISO 9001 have a better management of organisational process. This might be due to the higher emphasis of this standard on the process approach (see Figure 2.3 and Section 2.5.1 for further details).

Furthermore, the documentation for ISO 9001 facilitates employees having better work instructions and procedures which consequently improve the organisational processes (Chow-Chua, Goh and Wan, 2003).

Thus, there is a positive association of ISO 9001 certification with implementation of TQM practices. Companies can implement TQM practices (leadership, people, partnership and resources, strategy and process) in a better way, after getting ISO 9001 certification (Gotzamani et al. 2007).

This study also indicated that the length of ISO 9001 certification is related to the perceived implementation of TQM practices. This finding is supported by the argument of Srivastav (2010), Terziovski and Power (2007) and Magd and Curry

(2003) that early implementation of ISO 9000 can provide the consistency in the organisation's work and facilitate the development of quality culture which helps the implementation of TQM philosophy. This finding also supports the continuous improvement in the ISO 9000 and indicates that auditing process, which is considered as the integral part of ISO 9001 certification, might help the companies in the improvement of quality management practices.

8.3.5 Is There Any Association of ISO 9001 Certification and its Duration with the Achievement of Business Results?

The major motivation behind the implementation of ISO 9001 is always to get better business results. However, the literature review in Section 2.5.1.2 indicates that the literature is inconclusive on this relationship.

This study indicates that certification to ISO 9001 is associated with business results. These results conform to the findings of many earlier studies like Karapetrovic, Fa and Saizarbitoria (2010), Srivastav (2010), Masakure, Henson and Cranfield, (2009), Lin and Jang (2009), Feng, Terziovski and Samson (2008), Terziovski and Power (2007), and Chow-Chua, Goh and Wan (2003). These studies provide empirical evidence from different countries and industries. This might support the universality of ISO 9001.

These results are in accordance with the findings of this study, mentioned in Sections 8.3.2 and 8.3.4. According to those findings ISO 9001 facilitates companies in the implementation of TQM practices which are positively associated with business results. Furthermore, it was highlighted in Section 8.3.4 that ISO 9001 certification has a better impact on the improvement in organisational processes, which consequently minimises production losses. The

decrease in the internal losses improves efficiency and customer satisfaction and helps to achieve improved business results.

Certification to ISO 9001 might improve the credibility and image of companies in the international market, which might help to increase the export sales of the companies (Masakure, Henson and Cranfield, 2009).

This study indicates that the length of ISO 9001 certification is not associated with the business results in the sample textile companies of Pakistan. These findings seem contrary to the general perception. However, these findings are supported by Karapetrovic, Fa and Saizarbitoria (2010), Benner and Veloso (2008) and Hendrick and Singhal (2001). The competitive advantage of the early adopters of ISO 9001 in the sample companies might be competed away with the passage of time by later adopters (Benner and Veloso, 2008).

As discussed in Section 2.7.1, superficiality in the implementation of TQM the, approach is the major issue (Baxter and Hirschhauser, 2004). Therefore, it might be possible that the sample textile companies are acting as 'pink factories'. They are only interested in getting ISO 9001 certification to satisfy contractual requirements and want to build up a good image in the eyes of their customers rather than improving their processes. Therefore, they only maintain the certification of this standard by fulfilling the minimum requirements of the certification process. Such companies do not consider the auditing process as an opportunity for improvement. They take it as a formality to maintain their certificate. Because of the non-serious attitude of the top management the shop floor workers do not take the standard's requirement seriously, which suppress their learning curve (Martinez-Lorente and Martinez-Costa, 2004). In such

scenarios the expected benefits from ISO 9001 certification might not be achieved with the passage of time.

8.3.6 Is There Any Association between Organisational Size and Implementation of TQM Practices in the Sample Textile Companies of Pakistan?

The literature review in Section 2.9 indicates that the literature is inconclusive about the effect of organisational size on the implementation of TQM practices. However, this study highlights that the size of the sample textile companies was not associated with the implementation of TQM practices. These findings are supported by the proponents of TQM who argue that principles of TQM are universally applicable and can be implemented effectively in any size of organisation.

The findings of the current study are supported by the results of Sila (2007), Taylor and Wright (2003), and Germain and Spears (1999), all of which have almost the same sample sizes.

There is no question that smaller and larger companies vary on the basis of management hierarchies, number of departments, level of specialisation of skills, functions, formalisation, centralisation and bureaucracy (Daft, 1995). Therefore, the implementation of TQM practices, like top management commitment, involvement of employees, training and development of employees, process management, continuous improvement, development of long-term relationship with suppliers and customer focus is not a similar function in both types of company. Hendricks and Singhal (2000) argue that fundamental changes in management philosophy, information provided to workers, performance

measurement and reward systems are required to implement the principles of TQM. The basic concepts of TQM seem equally applicable in small and large companies; however, there might be a difference in the method and details of implementation (Ghobadian and Gallear, 1997).

The researcher wants to indicate one important aspect that the sample in the current study does not represent Small and Medium Enterprises (SME). None of the sample companies had less than one hundred employees. The majority of sample companies have one hundred to one thousand employees (see Table 6.3, p.154 for further details). Companies with this range of employees are normally categorised as medium to large textile mills and do not come under the category of SME (SMEDA, 2011). As discussed in Section 3.2.1, the small companies in the informal mill sectors have poor infrastructure, unskilled labour, and old machinery compared to the formal mill sector. Therefore, the findings of this study need to be considered while keeping this context in view. This argument is further supported by Hoang et al. (2010), whose sample includes companies with less than fifty employees. The findings of his study are contrary to the results of the current study.

However, in the light of the findings of this study TQM practices might be implemented effectively in different sizes of sample textile companies.

8.3.7 Is There Any Association between the Type of Sample Textile Companies and Implementation of TQM in Pakistan?

This study indicates that the implementation of TQM varies across different types of sample textile companies like spinning, weaving, finishing, garments, and

composite. Among these types of textile companies, TQM practices were implemented most poorly in the garment sector.

The level of formalisation and maturity of processes in the spinning, weaving and garment companies might be one of the reasons for this variation. For example, the spinning industry, being the oldest and largest sector, is the most formalised and well-established sector of Pakistan (Pakistan Economic Survey, 2009-10). On the other hand, the majority of weaving and garment sector is in the non-formal mill sector. These companies have less trained and less educated work force, which creates problems in the implementation of TQM concepts including new ideas.

Capital intensity might be the one of the reasons of this variation in the implementation of TQM practices across different types of sample textile companies. For example, spinning and finishing companies have higher level of capital intensity as compare to garment companies. The higher capital intensive companies might have the higher degree of automation and thus they have more inherent control of the processes. On the other hand, the lower capital intensive companies have less automation of the processes thus they have to rely upon the personal skills and motivation of the employees. Low capital intensive companies normally have higher number of employees (Hendricks and Singhal, 2000). Thus, implementation of TQM practices in low capital intensive companies might be difficult as compare to high capital intensive companies.

8.3.8 Which are the Major Issues Faced by the Sample Textile Companies of Pakistan While Implementing Quality Improvement Initiatives?

This study indicates that according to the perception of respondents, managers' awareness about TQM, multiple quality initiatives, the mindset that quality is money wasting activity, organisational culture, lack of top management commitment and lack of communication are the significant issues faced by the sample textile companies in the implementation of quality improvement initiatives. The managers from sample companies perceive that lack of top management commitment followed by focus on short-term profits to be the top ranking serious issues.

The issues faced by the sample textile companies are the same as faced by the majority of companies in other parts of world. For example, Gryna et al. (2007), Oakland (2004), Herbert, Curry and Angel (2003), Juran and Godfrey (1999) and Deming (1986) also indicate that lack of managers' awareness about TQM is one of the major issues in the implementation of quality improvement initiatives. Therefore, all of this research emphasises the training and development of employees for the success of any TQM program.

Similarly, incompatibility of organisational culture is also supported by Lillrank (2004) and Detert, Schroeder and Mauriel (2000). In addition, lack of resources is supported by Wilkinson and Witcher (1991).

The finding of this study that the lack of top management is the most serious issue during the implementation of quality improvement initiatives is supported by the leading researchers like Deming (1986), Juran (1984) and Oakland (2001). All of

whom agree that top management should lead the TQM implementation. Many other studies like Soltani and Wilkinson (2010), Beer (2003) and Harari (1993) argue that top management plays a pivotal role in the implementation of quality improvement initiatives. The high emphasis of all the TQM frameworks (e.g. the EFQM excellence model and ISO 9000) on the construct of leadership also supports this finding.

The other serious issue according to the perception of respondents is the focus on short-term profits. The country's conditions, like an unstable political environment, weak economic situation and uncertainty in governmental policies might compel the sample companies to find a short-term solution to their problems.

8.4 Contribution to the Body of Knowledge

This is one of the comprehensive studies about the implementation of TQM in the context of Pakistani textile companies. This study contributes into the body of TQM knowledge by providing new empirical evidence from Pakistan which is an under researched developing country.

It was identified in Chapters 2, 3 and 4 that many gaps exist in the literature on the implementation of TQM in the context of the textile sector and developing countries. This study has tried to bridge these gaps. Thus, the salient contributions of this research to the existing body of knowledge are as follows:

- This study has provided empirical evidence that the world's most well-known quality management system, ISO 9000, does not contradict the implementation of TQM, but facilitates companies in their journey

towards the adoption of the TQM philosophy. The positive association of ISO 9001 certification on business results is also validated in this study. Thus, the claim of the International Organisation for Standardisation (ISO) that ISO 9001 certification can improve organisational performance is supported by the findings of this study.

- This study provides the first ever empirical evidence from Pakistan about the implementation of EFQM excellence model's criteria. This study highlights that the Enablers and Results criteria of the EFQM excellence model were not equally emphasised in the sample textile companies. From the Enabler criteria, the people construct and from the Results criteria the people and society results were poorly emphasised.
- This study has empirically contributed to the TQM literature which supports a positive association of TQM practices with business results. The findings of earlier studies that TQM practices have a strong and positive association with business results are validated by this study.
- This study has contributed to the contingency theory of TQM and highlighted that the implementation of TQM varies across different types of textile companies. However, organisational size has no effect on the adoption of TQM practices.
- This study provided the empirical evidence that sample companies are at their early level with reference to the implementation of quality management practices.

8.5 Limitations of the Study and Recommendations for Future Research

This is the first ever study in the Pakistani textile sector which is based on the framework of EFQM excellence model. Therefore, it should be considered as the litmus test of TQM implementation in the sample textile companies. Many limitations are acknowledged in the designing, planning and execution of this research work. These limitations need to be considered while interpreting the results of this study. The major limitations of this study, along with the recommendations for future research are as follows:

- The design of research was cross-sectional in nature. The researcher was unable to collect longitudinal data due to constraints like time, cost etc. This data set does not enable the researcher to truly evaluate the effect and change in the business results because of the implementation of TQM practices. Thus, in future studies longitudinal data needs to be collected to better evaluate the effect of TQM practices on the business results.
- The data collected was only based on the perception of the respondents. This data was not supported by other information like annual reports etc. Thus, in future studies, secondary data from annual reports and other organisational sources might be useful, along with the perceptual data to obtain a true picture of organisational performance.
- As this was a pioneering study on TQM in the textile sector of Pakistan, no previously validated instrument were available. Therefore, in the research a questionnaire was developed; however, the questionnaire could have some limitations in its structure and wording. Therefore, future

studies should be based on a detailed investigation using interviews, document review, observations and other qualitative approaches.

- In this study, the respondents were managers from different departments of the sample textile companies. However, to minimise biasness in the responses in future studies, the data needs to be collected from multiple levels of the organisations, including the shop-floor workers.
- In this study, the direct effect of TQM practices on business results was evaluated, but the literature indicates that some TQM practices have an indirect effect on business results. However, due to the limitations of the statistical techniques used, the researcher was unable to identify the indirect effect of these practices on the business results. Thus, in future studies the indirect effect of TQM practices on the different levels of business results required investigation in detail.

APPENDIX A

SURVEY QUESTIONNAIRE

INTRODUCTION

This study is part of a doctoral research project at the University of York, UK. This research will investigate the extent of TQM implementation and its association with organisational performance in the textile sector of Pakistan. Your responses will be kept completely confidential. No individual respondents will be identified to any other person or in any written form in any case. The name of your organisation will not be publicly released.

SECTION I

Please respond to the following questions by ticking (v) in the appropriate box.

<p>1. What are the types of activities performed at your organisation?</p> <p>Spinning <input type="checkbox"/> Weaving <input type="checkbox"/> Finishing <input type="checkbox"/> Garments <input type="checkbox"/> Composite <input type="checkbox"/></p> <p>2. How many employees are working in your organisation?</p> <p>Less than 100 <input type="checkbox"/> 101-500 <input type="checkbox"/> 501-1000 <input type="checkbox"/> Above 1000 <input type="checkbox"/></p> <p>3. How many types of products (Finished goods supplied to different customers) are being produced by your organisation?</p> <p>Less than 5 <input type="checkbox"/> from 5-10 <input type="checkbox"/> Above 10 <input type="checkbox"/></p> <p>4. The awareness and knowledge of TQM of managers and employees is?</p> <p>Excellent <input type="checkbox"/> Very good <input type="checkbox"/> Good <input type="checkbox"/> Poor <input type="checkbox"/> know nothing <input type="checkbox"/></p> <p>5. What is your position in the organisation?</p> <p>Production Manager <input type="checkbox"/> Quality Assurance Manager <input type="checkbox"/> Financial Manager <input type="checkbox"/></p> <p>HR Manager <input type="checkbox"/> Sales Manager <input type="checkbox"/> Any other title:</p>

SECTION II

Please respond to the following questions by ticking (✓) in the appropriate box that most closely represents your observations about the way management practices are in your organisation

Scale: Strongly Disagree=1 Disagree=2 Undecided=3 Agree=4 Strongly Agree =5

Leadership		Rating
V1	Managers view cost as more important in comparison to the quality of products	5 4 3 2 1
V2	Managers present themselves as role models for the employees	5 4 3 2 1
V3	Managers ensure that employees and suppliers (the people/companies who provide raw materials etc. to the company) are aware of the company's long- term plans.	5 4 3 2 1
V4	Managers don't want to give authority to employees for them to take decisions about their jobs	5 4 3 2 1
V5	Managers continuously acquire and update their knowledge that is valuable for the organisation	5 4 3 2 1
V6	Managers encourage and participate in continuous improvement initiatives	5 4 3 2 1
Strategy		Rating
V7	The views of customers (the people/companies who buy or want to buy your company's products) are considered important while designing new products.	5 4 3 2 1
V8	The views of employees & suppliers are considered while shaping the company's objectives	5 4 3 2 1
V9	The performance of competitors and best in class companies is assessed and analyzed	5 4 3 2 1
V10	Systematic measurement of loses (e.g. production loses, the loses due to rejection of finished products etc.) is carried out	5 4 3 2 1
V11	Information systems are in place to capture information about customers and markets	5 4 3 2 1
V12	Periodically (e.g. after every three months, six months or one year etc.) the organisational performance is evaluated against the set objectives & targets.	5 4 3 2 1
People		Rating
V13	Formal processes are used regularly (such as attitude surveys, employees' briefing etc.) to find out employees' opinions and views	5 4 3 2 1
V14	Specific quality training is offered to employees	5 4 3 2 1
V15	Employees are encouraged to update their knowledge & skills	5 4 3 2 1
V16	Teamwork is a common practice within the organisation	5 4 3 2 1

V17	Employees have easy access to the relevant information	5	4	3	2	1
V18	Managers recognize employees' achievements at work	5	4	3	2	1
Partnership and Resources		Rating				
V19	Suppliers are encouraged to develop long-term partnerships with the organisation.	5	4	3	2	1
V20	Our organisation do not give preference to quality over cost while making purchase agreements with suppliers	5	4	3	2	1
V21	Performance of the suppliers is evaluated periodically.	5	4	3	2	1
V22	Updated information and resources are provided to all employees to perform their jobs	5	4	3	2	1
V23	The organisation tries to reduce the harmful effect of its activities on the environment	5	4	3	2	1
Processes, products and services		Rating				
V24	Proper procedures are established to perform different jobs	5	4	3	2	1
V25	Employees are aware of the parameters (e.g. temperature, pressure etc.), of different processes, which are needed to be controlled for effective operation.	5	4	3	2	1
V26	Performance of production processes is monitored	5	4	3	2	1
V27	Development and innovation of production processes is emphasised	5	4	3	2	1
V28	The research and development (R&D) department is continuously working on the development & improvement of the products.	5	4	3	2	1
V29	Production processes are capable of producing products according to design specifications	5	4	3	2	1
V30	Proper systems are in place to deal with customer complaints	5	4	3	2	1

Section III

Please answer the following questions keeping in view the performance of your organisation in this calendar year.

Scale: Strongly Disagree=1		Disagree=2		Undecided=3		Agree=4		Strongly Agree =5		
Customer and Employees' Results							Rating			
V31	The number of customers (companies/people who buy products) has increased	5	4	3	2	1				
V32	Communication with customers (companies/people who buy products) has improved	5	4	3	2	1				
V33	Customers' (companies/people who buy products) complaints have decreased	5	4	3	2	1				

V34	Employees' willingness to work for extra time has increased	5	4	3	2	1
V35	Employees' absenteeism has decreased	5	4	3	2	1
V36	The number of employees leaving their jobs from the company has increased	5	4	3	2	1

Financial and Non-financial Results		Rating				
V37	Market share of our company has improved	5	4	3	2	1
V38	The size of sales has increased	5	4	3	2	1
V39	Profit level has increased	5	4	3	2	1
V40	Company's earnings have decreased	5	4	3	2	1
V41	The quality of raw materials has improved	5	4	3	2	1
V42	Problems in the technical processes have decreased	5	4	3	2	1
V43	Defects/errors in the finished products have decreased	5	4	3	2	1
V44	Effective utilization of organisational resources (e.g. buildings, equipments, and materials) has improved	5	4	3	2	1

Society Results		Rating				
V45	Emission of hazardous gases in the environment has decreased	5	4	3	2	1
V46	Level of hazardous chemicals in the effluent (the waste water coming from different processes and then leaving the company) has decreased.	5	4	3	2	1
V47	The environmental protection agency of Pakistan is happy with our company	5	4	3	2	1

Section IV

Please respond to the following questions by ticking (v) in the appropriate box.

<p>1. Is your organisation certified to ISO 9001, quality management system? Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>If "yes" than how long; Less than 3 years <input type="checkbox"/> from 3-6 years <input type="checkbox"/> above 6 years <input type="checkbox"/></p>
<p>2. Which of the following TQM/Excellence/Social accountability models/ frame works are implemented or, ever tried to implement by your organisation?</p> <p>EFQM Excellence Model <input type="checkbox"/> Six Sigma <input type="checkbox"/> MBNQA <input type="checkbox"/></p> <p>SA8000 <input type="checkbox"/> ISO14000 <input type="checkbox"/> Deming Prize <input type="checkbox"/></p> <p>Any other.....</p>

3. If your organisation has implemented or ever tried to implement quality improvement initiatives (e.g. ISO 9000 etc.) then to what extent your organisation has faced the following issues or barriers?

Scale:

Was the most serious issue =4 Was a major issue =3 was a minor issue =2 Was not an issue =1

<i>Issues/Barriers</i>	<i>Rating</i>			
i. Lack of top management commitment	4	3	2	1
ii. Lack of resources	4	3	2	1
iii. Organisation's culture does not support quality improvement initiatives	4	3	2	1
iv. Managers don't have adequate knowledge of TQM implementation	4	3	2	1
v. Broad quality objectives without measurable targets	4	3	2	1
vi. Quality initiatives are not consistent with the strategic initiatives being persuaded by the organisation	4	3	2	1
vii. Perception of the leadership that implementation of quality initiatives is a money wasting activity	4	3	2	1
viii. Organisation pursuit multiple quality initiatives thus lack of clarity of program goals	4	3	2	1
ix. Lack of communication with employees	4	3	2	1
x. Organisational structure didn't allow in developing quality culture (like frankness, openness)	4	3	2	1
xi. Organisational emphasis on short-term profits rather than long-term gains	4	3	2	1

4. To what extent your organisation is familiar/use the following quality management tools and techniques?

Scale:

Not familiar with it =4 Familiar with it =3 Occasionally use it =2 Use it extensively =1

<i>Tools and Techniques</i>	<i>Rating</i>			
i. Customer Surveys	4	3	2	1
ii. Quality Function Deployment (QFD)	4	3	2	1
iii. Flow Charts	4	3	2	1
iv. Statistical Process Control (SPC)	4	3	2	1
v. Quality circles	4	3	2	1
vi. Pareto analysis	4	3	2	1
vii. Benchmarking	4	3	2	1
viii. Quality Cost Systems	4	3	2	1
ix. Suggestion Box	4	3	2	1
x. Fishbone diagrams	4	3	2	1
xi. Team building methods	4	3	2	1

xii. Kaizen	4	3	2	1
xiii. Failure Mode and Effect Analysis (FMEA)	4	3	2	1
xiv. Supplier Audits	4	3	2	1
xv. 5S	4	3	2	1

Any other issue (s):

This concludes the questionnaire. I truly appreciate your cooperation. Please send it back to the following address:

Vice Chancellor, National Textile University, Mananwala, Faisalabad

Your email/Telephone #: (Optional):

APPENDIX B

RESEARCH CONSENT FORM

You are invited to participate in a research study conducted by Mr. Shafiq, who is a doctoral student from the York Management School, University of York, UK. Mr. Shafiq, is conducting this study for his doctoral dissertation. Your participation in this study is entirely voluntary. You should read the project information sheet first and ask questions about anything you do not understand, before deciding whether or not to participate in this study.

Please tick “✓” in the box

- | | |
|--|--------------------------|
| i. I am informed about the objectives of the study | <input type="checkbox"/> |
| ii. I know that participation in this study is entirely voluntary | <input type="checkbox"/> |
| iii. I am aware about the procedure | <input type="checkbox"/> |
| iv. I am satisfied from the assurance given, about the confidentiality of data | <input type="checkbox"/> |
| v. I am aware that my country will be benefited from this study | <input type="checkbox"/> |
| vi. I am aware that I am not bound to give answers to all the questions in the questionnaire | <input type="checkbox"/> |
| vii. I have the contact information about the researchers | <input type="checkbox"/> |
| viii. I have no objection to use the information, which I will give, for the academic purpose. | <input type="checkbox"/> |

I am satisfied from the information given about this project, and I agree to participate in this study.

Name of the Respondent

Signature of the Respondent

APPENDIX C

PROJECT INFORMATION SHEET

Mr. Shafiq, who is a doctoral student from the York Management School, University of York, is conducting this study for his doctoral dissertation. This doctoral research is sponsored by Higher Education Commission of Pakistan.

- **Purpose of the study**

The purpose of this study is to investigate the implementation of TQM initiatives in the textile companies of Pakistan.

- **Procedures**

A questionnaire survey is conducted from the textile companies who are the member of All Pakistan Textile Mills Association (APTMA). The middle and senior managers, from textile companies, are the respondents for this study. The respondents need to fill in the self-completion questionnaire form. The responses will be based on the perception of respondents.

- **Potential benefits to subjects and/or to society**

It is not likely that you will benefit directly from participation in this study, but the research will enable the practitioners, managers & governmental officials to understand the extent of TQM implementation and its association to the different levels of organisational performance. They will also be able to understand the issues and barriers the organisations may face while implementing quality improvement initiatives.

- **Confidentiality**

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. We will not use your name in any of the information we get from this study or in any of the research reports.

Information that can identify you individually will not be released to anyone outside the study. Any information we use for, dissertation or publication will not identify you individually.

- **Participation and withdrawal**

You can choose whether or not to be in this study. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind.

You may also refuse to answer any questions you do not want to answer.

- **Identification of researchers**

If you have any questions or concerns about the research, please feel free to contact to the followings:

APPENDIX D

LIST OF THE PEOPLE WHO PARTICIPATED IN THE PILOT TESTING

- Professor Dr. Niaz Ahmad Akhtar
 - Vice Chancellor, National Textile University, Faisalabad, Pakistan
- Professor Dr. Nasir Saeed Butt
 - Institute of Quality and Technology Management, University of the Punjab, Lahore, Pakistan
- Dr. Muhammad Usman
 - Institute of Quality and Technology Management, University of the Punjab, Lahore, Pakistan
- Dr. Muhammad Asif
 - Institute of Quality and Technology Management, University of the Punjab, Lahore, Pakistan
- Dr. Shahid Farooq
 - Institute of Education and Research, University of the Punjab, Lahore, Pakistan
- Muhammad Imran
 - National Textile University, Faisalabad, Pakistan
- Mr. Abid Umar
 - National Textile University, Faisalabad, Pakistan
- Khalil Ahmad
 - Style Textile Lahore
- Khurram Karmani
 - Style Textile Lahore

- Mohammad Hamid Khan
 - Sitara Textile, Faisalabad
- Hameed Ullah Khan
 - Sitara Textile, Faisalabad
- Faisal Hakim
 - Sitara Textile, Faisalabad
- Qaisar Abbas Virk
 - Crescent Textile Mills, Faisalabad
- Shakeel Ahmad Khurram Shahzad
 - Nishat Textile Mills, Faisalabad
- Shahid Naveed Anjum
 - Nishat Textile Mills, Faisalabad

LIST OF ABBREVIATIONS

ADB:	Asian Development Bank
APTMA:	All Pakistan Textile Mills Association
APLAC:	Asian Pacific Laboratory Accreditation Cooperation
AQA:	Australian Quality Award
BQF:	British Quality Foundation
CEO:	Chief Executive Officer
EFQM:	European Foundation for Quality Management
FMEA:	Failure Mode and Effect Analysis
GATT:	General Agreement on Trade and Tariffs
ICRIER:	Indian Council for Research International Economic Relations
ILAC:	International Laboratory Accreditation Cooperation
ISO:	International Organisation for Standardisation
MBNQA:	Malcolm Baldrige National Quality Award
MD:	Managing Director
NTU:	National Textile University
PNAC:	Pakistan National Accreditation Council
PSQCA:	Pakistan Standard and Quality Control Authority
QFD:	Quality Function Deployment
QSF:	Quality Scotland Foundation
SA 8000:	Social Accountability 8000
SMEDA:	Small and Medium Enterprises Development Authority
SPC:	Statistical Process Control
TQM:	Total Quality Management
WTO:	World Trade Organisation
VIF:	Variance Inflation Factor

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