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Author(s)	Aziz, Roni Zubaidah Abdul
Citation	大阪大学, 2015, 博士論文
Version Type	VoR
URL	https://doi.org/10.18910/53936
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Total Quality Management: Cultural, Implementation, and Organizational Performance Aspects (An Empirical Investigation in Indonesia)

June 2015

RZ Abdul Aziz

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(An Empirical Investigation in Indonesia)

Submitted to
Graduate School of Information Science and Technology
Osaka University

June 2015

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Abstract

Implementation of total quality management (TQM) by Indonesian companies provides the opportunity to compete in the global marketplace. By applying TQM, companies can produce high quality products and services. However, TQM requires a fundamental change in a company that can cause difficulties and carries a risk of failure. To minimize the risk, company management must develop a specific implementation plan starting with a strategic decision that determines the diffusion method and sets the stage for the implementation process. The literature review of TQM in this study shows the influences of national and organizational culture on the success or failure of TQM implementation. National and organizational cultures can affect the degree of success in TQM implementation and organizational performance; therefore, it is important to examine the effects of national and organizational culture on TQM in Indonesian companies. This study develops instruments to measure the constructs of TQM and investigates the relationship between them. This research uses several Indonesian companies as relevant samples, and the research participants consist of senior executives, general managers, quality managers, and managerial level staff. The participants answer a comprehensive questionnaire to identify factors related to culture and TQM implementation in their respective companies. The results suggest that a relationship exists between national and organizational cultures and the different cultures influence TQM implementation and performance. Although there no significant cultural differences were found between companies, TQM implementation and organizational performance differed significantly. Thus, this research provides useful practical knowledge for Indonesian practitioners and academics of the TQM implementation process and designing an effective TQM implementation model.

Acknowledgements

In the name of Allah SWT, the Most Gracious and the Most Merciful, I offer my humble gratitude for allowing me to achieve more than I could ever hope.

This thesis would not have been possible without the help and support of my professors, family, and friends. First and foremost, my sincere gratitude and appreciation goes to my supervisor, Professor Hiroshi Morita, who offered excellent guidance throughout this research and in the writing of the thesis. His guidance, encouragement, and support have allowed me to learn so much, to interact with the research community, and to improve my ability to conduct this research. I would like to thank the members of my review committee, Professor Atsushi Yagi, Professor Masayuki Numao and Professor Shunji Umetani who have shared their valuable thoughts and comments to further refine and improve my thesis.

I would also like to thank the faculty members and the support staff of the Graduate School of Information Science and Technology for their encouragement and kind assistance throughout my study and the students of the Morita laboratory who shared their thoughts on my research. I thank the laboratory secretary, Mrs. Yukari Arai and Mrs. Kawazura, for their assistance with university concerns and conference arrangements. I thank my friends at IBI Darmajaya, who have always supported me. I thank the faculty members of Darmajaya for assisting with the data collection methodology and the students who participated in my research.

Finally, I would like to extend my gratitude and affection to my beloved wife Diah Permata, my sons RZ Muhammad Fauzan, RZ Muhammad Arifin Ilham, RZ Abdurrahman Ahsan, and my daughter RZ Anisa Azzahra, who have always been there for me. Thank you for supporting me with your patience, love, encouragement, and inspiration that has greatly facilitated the completion of this challenging effort.

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Chapter 1
Introduction

1.1 Introduction

Production quality and service excellence are critical requirements for companies hoping to expand their market share and survive in a competitive global marketplace. Beginning in the late 1980s, modern industries began to implement new styles of management systems to achieve these goals, and total quality management (TQM) is one such approach. These management systems have a significant impact on organizational performance in both the manufacturing and service industries. To compete globally, companies strive to improve their TQM implementation.

TQM is an efficient and effective method for improving organizational performance, and there is a positive correlation between quality management practices and company performance indicators such as customer satisfaction, employee relationships, operating procedures, and financial results (Juran, 1989). It is a management system that emphasizes on customer satisfaction through continuous improvement process, high standard of quality products and excellent services. Areas of TQM implementation, such as supplier relationships, benchmarking, top management commitment, and customer focus are critical performance factors (Malik et al., 2010; Miyagawa and Yoshida, 2005; Aziz and Morita, 2013). Top management support is highly significant and affects the quality of practices (Rao et al., 1997). Talib and Rahman (2012) suggest that top management commitment, a customer focus, customer satisfaction, human resource management, training, and education are the most important TQM practices for manufacturing and service organizations. Abusa and Gibson (2013) found that process management and top management commitment represent the TQM elements with the most impact on organizational performance in Libyan industries. Fotopoulos and Psomas (2010) found that TQM factors such as the

quality practices of top management, employee involvement in the quality management system, customer focus, data quality management processes, the quality of tools, and implementation techniques significantly affected companies' performance in Greece.

Cross-cultural studies have shown that cultural values play an important role in international operations and an organization's management practices (Flynn and Saladin, 2006; Hofstede et al., 2010; Kull and Wacker, 2010). Different national cultures may require different management practices, and organizational culture is recognized as a determinant of quality management success and organizational performance (Prajogo and McDermott, 2011, 2005; Naor et al., 2008; Bates et al., 1995). However, it takes time, at least six years in many cases, to achieve significant change in organizational culture (Ishikawa, 1985). Many companies fail to successfully implement TQM because they do not recognize that the implementation is counter to the existing values and culture of the company and employees (Cameron and Quinn, 1999). Organizational culture is a significant factor in the successful implementation of TQM (Beer, 2003; Detert et al., 2000; Edward, 1999). Therefore, national and organizational culture can determine the degree of success or failure of TQM implementation (Aziz and Morita, 2013; Sadeghian, 2010). Cultural and human are important factors in successful quality management (Imai, 1986; Ishikawa, 1985). In the Indonesian context, socio-cultural dynamics rather than technical and structural concerns often present obstacles to TQM implementation (Irianto, 2005). TQM implementation has a positive and significant influence on shaping the organizational culture of the manufacturing industry in South Sulawesi Indonesia (Bahri et al., 2012). Changing organizational culture to match the TQM approach and establishing a positive TQM environment are vital for successful TQM implementation.

Since TQM concept introduction in Indonesia in the early 1980s and ISO 9000 quality assurance system at the beginning of 1990s has been an increasing number of Indonesian companies implement TQM system or a quality assurance system. However, they still lacked effective in TQM systems and implementation at the companies' level. After reviewing the literature related to Indonesia quality

management, it became clear that due to a lack of empirical research has been systematically conducted dealing with implementation of TQM in Indonesia. Hence, the state of the art of TQM implementation in Indonesia companies remains unclear. A lack of empirical studies in the TQM field prevents companies from obtaining sufficient information to support TQM implementation practices. Moreover, studies on TQM in Indonesia do not address the cultural impact of TQM on organizations. Furthermore, managers' knowledge of the variables affecting TQM implementation is inadequate. Because of these difficulties, many Indonesian companies continue to perform inadequately despite TQM system implementation at the company level. Consequently, competitiveness among Indonesian products is below that of other countries, indicated by the low trade ratio and exports of goods and services as a contribution to GDP compared to the other the Association of Southeast Asian Nations (ASEAN) countries shown in Table 1.1.

Table 1.1 Segments of export, import, trade in GDP, and GDP per capita of ASEAN-Six

No.	Country	Exports of goods and services (% of GDP)	Imports of goods and services (% of GDP)	Trade (% of GDP)	GDP per capita (current US$)
1	Singapore	190.522	167.508	358.03	55,182.48
2	Malaysia	81.869	72.571	154.44	10,513.71
3	Thailand	73.567	70.281	143.848	5,778.98
4	Brunei	76.157	32.485	108.641	38,563.31
5	Philippines	27.915	31.983	59.898	2,764.58
6	Indonesia	23.743	25.739	49.482	3,475.25

Source: World Bank, World Development Indicators, 2013

The reason for this lack of competitiveness is an inherent focus on quality in daily operations and business by many Indonesian companies. According to Deming (1989), superiority in terms of product or service quality is a highly significant

element that could contribute positively to sales and strengthen the position of an organization in its chosen market.

In order to help in identifying problem areas and possible remedies, an investigation of TQM implementation in Indonesia companies is required. The research can explore the degree of the impact of culture on TQM implementation and organizational performance. Indonesian managers and academics have a stake in fully understanding TQM and its implementation. This thesis empirically investigates national and organizational cultures, TQM implementation, and how TQM affects organizational performance in Indonesia. This thesis conducts a comparative analysis of TQM, TQM ISO, and non-TQM company cultural factors influencing TQM implementation and organizational performance. Achieving ISO certification is a strategy used in TQM development; therefore, the ISO system served as the basic framework for the implementation process.

1.2 TQM implementation in Indonesia

TQM was first recognized in 1980 (Aroef, 1999). Numerous multinational companies, such as joint Japanese-Indonesian ventures and Japanese companies with branches in Indonesia were particularly influential in introducing the concept. The initiative began with workshops on quality management, quality assurance, and quality control circle (QCC) activities. The first company to consciously cultivate a quality management culture in Indonesia was Astra International, a Japanese-Indonesian joint venture. In 1982, top management at Astra International chose to implement total quality control (TQC) in their management system and, in October 1983, Astra total quality control (ATQC) began a massive training program at all levels of company management. Quality activities, such as QCC and other TQM activities, were successfully implemented. Meanwhile, many experts and scholars began to disseminate TQM knowledge through a quality control (QC) group. On March 1, 1985, the Indonesian Quality Management Association was established. One of its responsibilities was to cooperate with relevant governmental agencies to disseminate TQM information nationally to

improve the nation's productivity. Simultaneously, many firm employees accepted TQM education and training.

Recently, many Indonesian companies—ranging from state-owned to joint ventures to private—have implemented TQM for both manufacturing and services. However, some companies lack adequate TQM systems. Consequently, TQM is not well defined in Indonesia and is sometimes obscure. To improve quality systems and take steps towards TQM implementation, most Indonesian companies have implemented ISO 9000. The major TQM implementation practices in place in Indonesian companies can be summarized as the following: statistical process control, the seven basic tools of QC, QCC activities, self-assessment, quality inspection, the establishment of quality departments, cause and effect studies, and internal audits.

1.3 Research aims and objectives

Aim

TQM study suggests a potential causal relationship between TQM failure and cultural factors. This thesis investigates the interplay between TQM implementation and national and organizational culture, and this interplay affects organizational performance in Indonesia. A comparative analysis of TQM, TQM ISO, and non-TQM companies resulted in an analysis of cultural factors influencing TQM implementation and organizational performance.

Objective

This thesis identifies the challenges facing Indonesian companies and increases the awareness of problems linked to TQM implementation that may be related to cultural factors. Additionally, this research has a number of objectives related to national culture, organizational culture, TQM implementation, and organizational performance in Indonesian companies. These research objectives are:

- To develop and validate an instrument of national culture, organizational culture, TQM implementation constructs, and organizational performance for Indonesian companies.
- To investigate the relationship between national and organizational culture on TQM and organizational performance.
- To examine the differences in organizational culture, TQM implementation, and organizational performance between TQM and TQM ISO companies.
- To examine the differences in national and organizational culture, and organizational performance between TQM, TQM ISO, and non-TQM companies.

1.4 Research questions

Based on the research aim and objectives, the extensive TQM literature review, and informal discussions with quality practitioners and academics, six research questions are proposed.

- First: What are the TQM implementation constructs for Indonesian companies?
- Second: What are the overall cultural and organizational performance dimensions within TQM?
- Third: What are the effects of culture on TQM implementation and overall organizational performance of Indonesian companies?
- Fourth: What are the effects of TQM implementation on overall organizational performance of Indonesian companies?
- Fifth: What are the differences between organizational culture, TQM implementation, and organizational performance among the types of Indonesian companies adopting TQM?

- Sixth: What are the differences in national culture, organizational culture, and organizational performance among TQM and non-TQM companies?

1.5 Structure of the thesis

This thesis contains six chapters.

Chapter 1 provides the research introduction and background, TQM implementation in Indonesia, presents the aims and objectives, and organization of the thesis.

Chapter 2 presents the literature on the concept, TQM implementation constructs, national culture, organizational culture, and organizational performance. The chapter begins by reviewing the various definitions of TQM, review of TQM implementation constructs, TQM definition and constructs for this study, national culture, organizational culture, and organizational performance and concludes with the research into the relationship among TQM, culture, and performance.

Chapter 3 describes the development and validation of an instrument for national and organizational culture, TQM implementation constructs, and organizational performance. This model is designed based on existing TQM literature, the result of a questionnaire survey, and the testing model using data from Indonesian companies.

Chapter 4 presents an empirical investigation into the national culture, organizational culture, TQM implementation, and organizational performance. The results show the relationship between constructs and a comparative study between TQM and TQM ISO companies is explained.

Chapter 5 presents a comparative study of national culture, organizational culture, and performance between TQM, TQM ISO, and non-TQM companies. The results show the different variables according to the type of company.

Chapter 6 provides the conclusions and the new knowledge derived from this research. This chapter proposes recommendations for the Indonesian practitioner and academic. The limitations of the research and future research directions are also addressed in this chapter.

Chapter 2
TQM Theory and Culture

2.1 Introduction

TQM has assisted companies in providing world class services and honing manufacturing processes by providing quality products that meet customer satisfaction standards, offer a competitive edge, and win a greater market share. Modern industries have improved organizational performance in recent years. Many prescriptive and popular studies have investigated the TQM philosophy and the methods of quality practitioners or gurus such as Juran (1989), Deming (1986) and others. In the late 1970s and early 1980s, previously unchallenged American industries lost substantial market share in the US and world markets. To regain their competitive edge, companies began to adopt productivity improvement programs that had proven particularly successful in Japan. One of these "improvement programs" was the TQM system. In the last two decades, the popular press and academic journals have published a plethora of accounts describing successful and unsuccessful efforts at TQM implementation.

This chapter focuses on the identification of the TQM concept and culture based on a literature review that develops the theoretical foundation for this research. Section 2.2 presents the concept of TQM. Section 2.3 describes the TQM implementation constructs. Section 2.4 addresses the national cultural dimension. Section 2.5 discusses the organizational cultural dimension. Section 2.6 presents the concept of organizational performance. Finally, Section 2.7 discusses the relationship between culture, TQM, and organizational performance.

2.2 The concept of TQM

The concept of quality management must be defined before the concept of TQM can be explained. Quality management is implemented worldwide to achieve

improvements in organizational effectiveness. Hackman and Wageman (1995) show that quality management implementation "has become something of a social movement." Since its introduction, quality management concepts have been implemented in many organizations from manufacturing to other industries including educational institutions, health care organizations, public and government services, and non-profit organizations.

According to ISO 8402 (1994), quality management is "a management approach of an organization centered on quality (such as quality planning, quality control, quality assurance, and quality improvement), based on the participation of all its members, and aimed at long-term success through customer satisfaction and benefits to all members of the organization and society." The American Society for Quality describes TQM as a management approach to long-term success through customer satisfaction. TQM is based on the participation of all members of an organization toward the improvement of processes, products, services, and the culture in which they work. The methods for implementing this approach are found in the teachings of venerable leaders such as Philip B. Crosby, W. Edwards Deming, Armand V. Feigenbaum, Kaoru Ishikawa, Joseph M. Juran, and Genichi Taguchi. Table 2.1 shows the pioneers of the quality concepts and their contributions.

The principle of TQM differs from a traditional management approach. TQM is an integrated approach to improving the entire organization for long-term performance. TQM is a comprehensive management philosophy and set of practices that emphasizes customer satisfaction, meeting customer requirements, employee involvement, teamwork, benchmarking, supplier quality management and relationships with them, education and training, and recognition and reward. TQM endeavors to create and change organizational cultures to foster a continuous improvement process.

Table 2.1 Contributions of pioneers to the quality concepts

Quality pioneers	Contributions
Armand V. Feigenbaum	Total Quality Control
Kaoru Ishikawa	Preventive Quality
Genichi Taguchi	Design Quality
Philip B. Crosby	Cost of Quality
Frederick Winslow Taylor	Inspected Quality
W. Edwards Deming	Process Control Quality
Joseph M. Juran	Quality Management

A considerable cultural change and restructuring of organizations is required to undertake a strategy and plan to implement TQM. Each organization must take unique steps that lead to the adoption of the TQM principle within its own environment and plan for successful TQM implementation.

The evolution of quality management began in the 1920s to the 1960s; a statistical theory was initially adopted for product inspections. Acceptable quality levels, rejection, and standardization are product quality controls in mass production systems of this decade. In the 1960s to 1970s, quality control concepts had become the preoccupation of Japanese companies. Statistical process control, product testing, and complaints were widely adopted in Japan. Western companies would study Japanese company experience in implementing quality assurance system during the 1980s and apply this success to improve quality/services in emerging markets. Quality assurance standard (ISO 9000), the Baldrige Award, is a quality management excellence award for quality systems published in the 1990s. Finally, in the 1990s, TQM was recognized as a quality management system assisting organizations in many countries to improve their performance. Figure 2.1 shows the evolution of quality management.

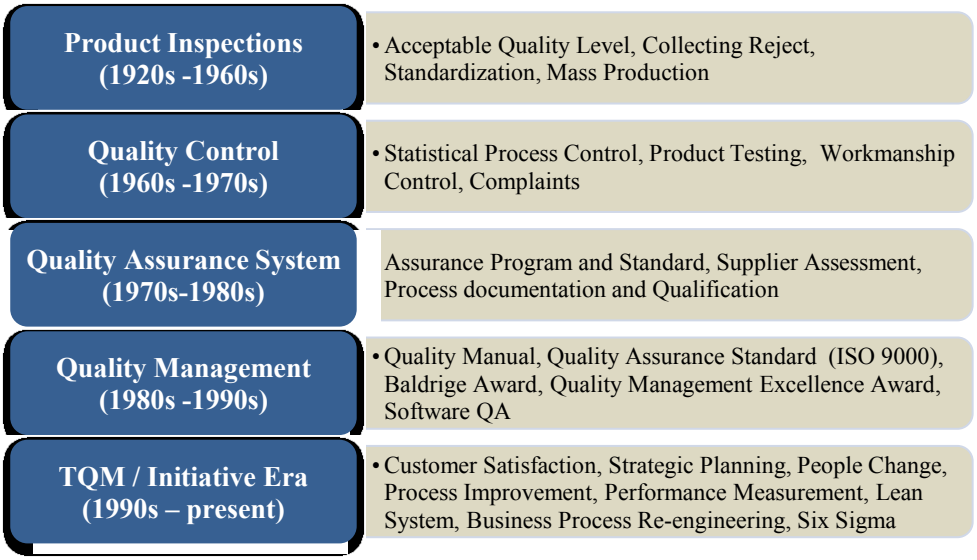

Figure 2.1 Evolutions of quality management

2.3 TQM implementation constructs

2.3.1 Review of TQM implementation constructs

The TQM literature review finds that firms implementing TQM gain advantages in various aspects of organizational performance (Ahire et al., 1996; Al-Hawary and Abu-Laimon, 2013; Das et al., 2008; Flynn et al., 1994; Fotopoulos and Psomas, 2010; Malik et al., 2013; Morrow, 1997; Saraph et al., 1989; Valmohammadi, 2011; Yusof and Aspinwall, 2000; Zhang et al., 2000). Saraph et al. (1989) initiated an empirical approach to the examination of TQM implementation and synthesized the literature on quality by identifying eight quality management factors in a business unit.

Zhang (2000) developed constructs and a measurement instrument of TQM for Chinese manufacturing companies. These constructs and measurements were used to examine the effects of TQM implementation and overall business performance. The constructs differed from Saraph et al. (1989), and the results showed that several TQM implementation constructs have positive effects on business performance. Employee satisfaction, strategic business performance, product quality, and customer satisfaction comprised the business performance measurements.

Das et al. (2008) developed constructs and a measurement instrument for TQM for the Thailand manufacturing industry. The instrument was based on the constructs developed by Saraph et al. (2000), Flynn et al. (1994), and Ahire et al. (1996). The results are reliable and valid instruments for Thai manufacturing firms.

Valmohammadi (2011) developed constructs and a measurement instrument for TQM for Iranian manufacturing small to medium-sized enterprises (SMEs), which were used to examine the effects of TQM on organizational performance. The author's TQM constructs differed from Saraph et al. (1989), and the results showed that leadership plays an important role in improving performance.

Malik et al. (2013) analyzed and ranked TQM practice activities, critical success factors, barriers, and business outcomes in the Pakistan electric fan manufacturing industry according to company size and ISO 9000 certification status. The results detailed eight management practices and demonstrated that large-sized and ISO 9000 certified firms are more actively involved in TQM practices and activities.

Parast et al. (2011) empirically investigated the effects of quality management practices on operational and business performance. The authors developed eleven quality management constructs, and the results indicated that top management support, employee training, and employee involvement significantly explain the variability of operational performance.

Al-Refaie and Hanayneh (2014) investigated the influences of TQM, total productive maintenance (TPM), and six sigma practices on firms' performance in Jordan. Their results showed significant positive effects of TPM and TQM on performance. However, six sigma practices were found to be deficient in improving performance.

Al-Hawary and Abu-Laimon (2013) assessed the impacts of TQM practices on service quality in Jordan cellular communication companies. Their results showed that leadership, information and analysis, customer focus, continuous improvement, and supplier quality management have positive effects on service quality.

Fotopoulos and Psomas (2010) examined the relationships between the TQM factors and organizational performance in Greek companies. The TQM factors

used were quality practices of top management, customer focus, employee involvement in the quality management system, process and data quality management, and quality tools and implementation techniques. According to the results, these variants significantly affect the companies' performance with respect to their internal procedures, customers, market share, and the natural and social environment.

Miyagawa and Yoshida (2010) examined the relationship between TQM practices and the business performance of Japanese-owned manufacturers in the US. The results indicated that TQM practices significantly influence overall company performance.

Although previous research has been conducted in the field of TQM implementation constructs. The TQM literature review has shown still no generally accepted standard for TQM construction.

2.3.2 TQM definition and constructs in this study

Many studies show that TQM encompasses a vast spectrum of organization perspectives. In the area of TQM implementation, each researcher has developed their own frameworks and constructs, measurements, and descriptions of TQM based on their specific needs and interests. These constructs are not suitable for the study of TQM implementation in Indonesia. Therefore, a new TQM implementation construct must be developed. Thus, the present thesis proposes ten constructs as the primary TQM elements for Indonesian companies based on previous research. An effort has been made to integrate the constructs into the new instrument. Table 2.2 compares the constructs developed by previous researchers and the 10 constructs for TQM used in this thesis. Therefore, in this thesis, TQM is "a quality management philosophy for continuously improving overall organizational performance based on leadership, vision and plan statement, customer focus, education and training, benchmarking, teamwork, continuous improvement processes, employee involvement, supplier quality management, and recognition and reward."

Table 2.2 Construct comparison

Saraph et al. constructs	Ashire et al. constructs	Morrow constructs	Yusof and Aspinwall constructs
1. Role of divisional top management and quality policy	1. Top management commitment	1. Top management commitment	1. Management leadership
2. Role of quality department	2. Customer focus	2. Visionary leadership	2. Measurement and feedback
3. Training	3. Supplier quality management	3. Customer focus	3. Education and training
4. Product/service design	4. Design quality management	4. Continuous improvement	4. Work environment and culture
5. Supplier quality management	5. Benchmarking	5. Teamwork	5. Systems and processes
6. Process management/operating procedures	6. SPC usage		6. Resources
7. Quality data and reporting	7. Internal quality information usage		7. Continuous improvement processes
8. Employee relations	8. Employee empowerment		8. Human resource development
	9. Employee involvement		9. Supplier quality assurance
	10. Employee training		10. Improvement tools and techniques
	11. Product quality		
	12. Supplier performance		

Miyagawa et al. constructs	Zhang et al. constructs	Das et al. constructs	This constructs
1. Leadership	1. Leadership	1. Top management commitment	1. Leadership
2. Quality information	2. Supplier quality management	2. Supplier quality management	2. Vision and plan statement
3. Strategic planning	3. Vision and plan statement	3. Continuous quality improvement	3. Customer focus
4. Human resources	4. Evaluation	4. Product innovation	4. Education and training
5. Quality assurance	5. Process control and improvement	5. Benchmarking	5. Benchmarking
6. Supplier quality	6. Product design	6. Employee involvement	6. Teamwork
7. Quality results	7. Quality system improvement	7. Reward and recognition	7. Continuous improvement processes
8. Customer focus and satisfaction	8. Employee participation	8. Education and training	8. Employee involvement
9. General matters (public responsibilities, employee training, well-being and morale)	9. Recognition and reward	9. Customer focus	9. Supplier quality management
	10. Education and training	10. Product quality	10. Recognition and reward.
	11. Customer focus		

2.3.2.1 Leadership

Leadership is the ability to understand people and to involve them in achieving organizational goals. Zhang et al. (2000) suggested that top level management plays an important role in goal achievement by providing and using tools and materials to communicate values and systems. The responsibilities of management include creating goals and strategies for quality improvement and pursuing long-term business success. Top management has the responsibility to initiate and maintain quality goals and culture for the continuous communication and delivery of their vision, to model a commitment to quality to employees, to develop policies and strategies based on total quality concepts, and to encourage employees to participate in goal achievement. Effective leadership can encourage employees to complete tasks and achievements for superior organizational performance. With respect to quality management, a strong commitment from top level management is critical. A lack of commitment from top level management is one reason for failure in TQM implementation (Brown et al., 1994).

2.3.2.2 Vision and plan statement

A vision and plan statement describes a company's positioning in its chosen domain (Zhang et al., 2000). It explains the standards, values, and beliefs of the company and serves as an advertisement of intended changes, orienting the company towards the future and acting as a buffer against complacency. The vision should originate from top management and be well articulated, delivered, and understood by all organization members. A vision that is articulated clearly to employees communicates their contribution and motivates staff to work hard to improve quality. A vision and plan statement substantially influences organizational decision making, the allocation of resources, and the strategy to achieve an objective. A well-executed vision and plan statement is the single most important element for an organization implementing effective TQM.

2.3.2.3 Customer focus

The future success of a company is largely dictated by the satisfaction it can provide to customers. A close relationship with customers is necessary to fully determine their needs and to acquire feedback on the extent to which those needs are met (Das et al., 2008). Understanding customers' needs is essential for the implementation of TQM. Customer satisfaction is measured by an organization's ability to meet and exceed its customers' needs and expectations. Companies can maintain close contact with customers in a variety of ways such as through post-purchase surveys, sales and marketing representatives, and customer relations departments that ensure that the interaction between companies and customers are pleasant experiences, particularly for the customer.

2.3.2.4 Education and training

The education and training of employees in the concepts, tools, and techniques related to quality are essential to their overall understanding of quality (Ahire et al., 1996). Hence, investment in education and training are crucial for TQM success (Zhang et al., 2000). Significant research indicates that education and training are two of the most significant elements in successful TQM implementation. Training emphasizes the core components for achieving organizational performance and the essential coordinating mechanisms previously mentioned. Employee education and training can increase employees' earning potential by developing and refining their competencies. The more employees understand about a particular job function, the more they appreciate their significance in the organization and their ability to increase their productivity and that of the firm.

2.3.2.5 Benchmarking

Companies must continuously benchmark their products and processes to fully meet customer requirements and evaluate their position with respect to internal and external standards. Benchmarking includes analyzing the best products and

processes of leading competitors in the same industry or in other industries that use similar processes (Ahire et al., 1996). Bhutta and Huq (1999) reported that benchmarking can identify specific areas of weakness and find solutions to transform them into strengths. Improvements are continuous and benchmarks lose relevance quickly. A competitor's performance is likely to continue to advance ahead of a lagger. According to Smith et al. (1993), the benefits of benchmarking are: the ability to identify how products can better meet customer needs, the ability to gauge an organization's strengths and weaknesses, the stimulation of continuous process improvements, and elaboration of innovative ideas.

2.3.2.6 Teamwork

Teamwork and problem solving are two significant aspects in TQM implementation. Establishing coordinated teamwork helps solve problems, creates empathy, manages change, implements plans, increases efficiency, preserves finances, stimulates innovation and morale, and generates a sense of involvement. Solutions created collectively are considered superior, more creative, and foster greater commitment to the ultimate outcome (Morrow, 1997). Teamwork involves different people and different divisions across an organization collaborating to maximize their potency and realize an organization's goals. Conti and Kleiner (1997) investigated what could be done to improve teamwork to benefit an organization and how team building fits into the future of business success. The results showed the important contribution of increased teamwork. Efficient and effective teamwork is one approach to achieving and maintaining a successful business.

2.3.2.7 Continuous improvement processes

A commitment to continuous improvement is, ideally, recognized at all levels: departmental, divisional, and individual. Imai (1986) defined continuous improvement as organized activities that involve everyone in the company from managers to workers in an integrated effort toward improving performance at every

level. A commitment to improvement is a relentless effort in the direction of better product management, better internal processes, better working relationships with team colleagues and other departments, better customer service, and effective methods to achieve goals. The implementation of a continuous improvement mind set includes the evaluation of current practices. Bhuiyan and Baghel's (2005) continuous improvement model reflects a culture of sustained improvement targeting the elimination of waste in all systems and processes of an organization. The model involves the collaboration of all to make improvements while not necessarily requiring substantial capital investment.

2.3.2.8 Employee involvement

Employees fully involved in the quality improvement process will acquire new knowledge, realize the benefits of better quality, and obtain a sense of accomplishment (Zhang et al., 2000). Employees should be encouraged to offer suggestions, ideas, and to participate in the quality improvement process. Fulford and Enz (1995) found that employee perceptions of empowerment have an impact on employee loyalty, concern for others and customers, and satisfaction. Employee involvement can enhance employee service capability with empowerment contributing to employee job satisfaction, job commitment, and pride in workmanship. Employee involvement can change negative attitudes and stimulate commitment to a company's success (Das et al., 2008).

2.3.2.9 Supplier quality management

Recently, world-class organizations have investment significantly in systems and processes to improve supplier quality. The responsibility of supplier quality management has been pushed down to suppliers, holding them accountable for the quality of products. A continuous supply of raw materials with the required quality standards is essential in all stages of manufacturing. Poor quality materials from suppliers increases costs and reduces the ultimate quality of the products (Das et al., 2008). Developing a long-term cooperative relationship with suppliers,

participating regularly in supplier activities, and delivering feedback on the performance of suppliers' products ensures the continuous supply of quality raw materials (Zhang et al., 2000). A world-class organization that implements quality management systems (QMS) can track and measure the cost of poor quality materials from suppliers. These QMS companies regular invest in their suppliers' capability to reduce the potential and cost of poor quality.

2.3.2.10 Recognition and reward

Recognition and reward are required for the improved performance of any individual, team, division, or department within a company. Recognition and reward should effectively stimulate employee commitment to improving the quality of products or services. Recognition and reward that produce positive effects on organizational performance to achieve desired performance should be closely aligned with organizational strategies. An organization that is focused on cost reduction could adopt a recognition and rewards strategy to minimize or eliminate costs through employee awards that foster on-going cost reduction efforts. Salary increases and promotions, improvements in working condition, and financial awards are suitable methods for recognition and reward (Zhang et al., 2000). According to Stolovitch and Keeps (1992), individuals are motivated to achieve higher levels of job performance by positive recognition from their managers and peers that builds a sense of confidence and satisfaction.

2.4 National culture

National culture represents the collective mental programming of individuals in a national context (Hofstede, 2001). Hofstede (2005, 2001) is internationally recognized for developing the first empirical model for the "dimensions" of national culture. Hofstede's framework is based on the assumption that people, globally, are guided and driven by different attitudes, beliefs, moralities, customs, and ethical standards. Societies have different traditions, religions, and rituals that form different perspectives concerning the management of family, work, social

occasions, and personal responsibilities. Hofstede (2001) concludes that differences in national cultural dimensions explain different organizational structures between nations. Countries with less power distance and low uncertainty avoidance in the general pattern of organizations typically have a democratic system. However, countries with greater power distance and high uncertainty avoidance typically have an authoritarian system (Hofstede, 2001.

Differing cultural values can be grouped statistically into four clusters: power distance, collectivism, uncertainty avoidance, and masculinity. An international study of Chinese employees and managers using a survey instrument based on Confucian dynamism caused Hofstede (1991) to add a fifth dimension: long-term orientation. Hofstede's five dimensions of national culture are applied in this thesis.

Measures of the five dimensions of national culture were taken from the Hofstede Centre The numerical ratings for each of the dimensions by country are shown in Figure 2.2. Germany, Japan, and South Korea are countries with high uncertainty avoidance and long-term orientation. Countries with high power distance include Malaysia and China.

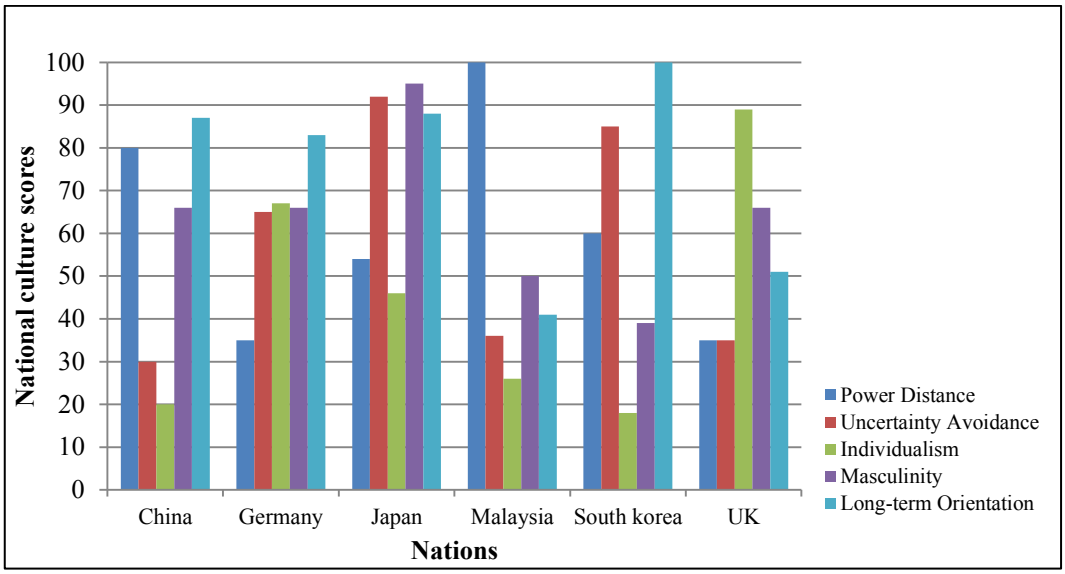

Figure 2.2 Numerical ratings of national culture dimensions by country (from the Hofstede Centre)

2.4.1 Power distance

Power distance reflects the relationships in a nation. The term expresses the degree to which the less powerful members of a society accept and expect that power be distributed unequally (Hofstede, 2005).

In countries with significant power distance, employees typically believe that their supervisors are always right and consider skirting rules to be disobedient and defiant. Managers and employees existentially consider all relationships unequal and based on a hierarchy of centralized power. In countries with low power distance, the systems are decentralized, and power is distributed more equally. There is limited dependence of employees on managers and interdependence between employees and managers. Employees will often disagree with their managers.

2.4.2 Collectivism

Collectivism represents the extent to which individuals act as group members. Individuals in a collectivist society focus on community, society, or the nation, and

emphasis is placed on societal duty and group interests. The relationship between individuals in the workplace is typically close, and the employer-employee relationship resembles a family link. The individual can expect a high degree of loyalty from group members. Examples of collectivist cultures are those of Japan, India, Korea, and Malaysia. In contrast, individualism represents a preference for a loose relationship between individuals in the workplace. Employees in individualist societies are confident, independent, quiet, realistic, and rational. The social framework is such that individuals are expected to take care of only themselves and their immediate families (Hofstede, 2005).

2.4.3 Uncertainty avoidance

Uncertainty avoidance represents the extent to which people feel threatened and uncomfortable with uncertainty and ambiguity when assessing future possibilities. This feeling is expressed in hectic and stressful circumstances. Societies with high uncertainty avoidance are likely to exhibit empowered planning and organized structures. These societies typically maintain strict bureaucracies and intolerance toward unusual behaviors. Individuals prefer the familiar rather than risk the unfamiliar. According to Hofstede (2001), the uncertainty inherent in life is considered a continuous threat that must be fought. In contrast, in a low uncertainty avoidance culture, uncertainty is a relatively stress-free and normal feature of life. Launching a business and assuming risk are considered normal. Countries with high uncertainty avoidance include Belgium, Germany, Greece, Italy, Korea, Mexico, Russia, and Turkey, (Hofstede, 2001).

2.4.4 Masculinity

According to Hofstede (2001), masculinity/femininity refers to dominant gender roles in societies. The masculinity dimension represents a society's preference for achievement, heroism, assertiveness, material reward for success, and competition—all of which can be classified as stereotypical male values. In masculine societies, employees receive clear guidance and control from

management and are motivated by high earnings and the prospect of a challenging career. Masculine culture believes that success equals hard work and money. A company's market success with respect to competition is measured by profit. When preparing a message to a masculine-oriented company, a speaker would emphasize achievement, success, and financial gain. Additionally, when social gender roles are clearly distinct, a society is considered masculine. When social gender roles are not clearly separated and overlap, the society is considered feminine. Hofstede and Vunderink (1994) reported that feminine national cultures define the overlapping roles of the sexes with both men and women exhibiting ambition or competitiveness.

2.4.5 Long-term orientation

This dimension can be interpreted as a society's quest for virtue. Societies with long-term orientation believe that the truth depends on the situation, context, and time. According to Hofstede (2001), cultures with a long-term orientation focus on future rewards, particularly manifested in diligence and economizing. Individuals exhibit thriftiness, a high propensity to save and invest, an ability to adapt to changing conditions, and perseverance in achieving results. In contrast, a short-term orientation emphasizes stability, face-saving, gift-giving, and reciprocity. Cultures with a short-term orientation consider the present or the past more important than the future and are more concerned with immediate gratification. Additionally, long-term orientation/short-term orientation addresses the differences in cultures with respect to perspectives on time, the past, the present, and the future.

2.5 Organizational culture

The organizational culture literature shows differences in the understanding of the concept of organizational culture. The significance of the meaning of the concept of organizational culture depends on the way in which it is observed and measured. The common concepts of organizational culture have been defined by many

scholars as the foundations of an organization's character. According to Berryman (1989), an organization's culture is a set of norms or beliefs that are shared at the organizational level. Schein (1985) describes the concept of organizational culture as the pattern of basic assumptions—invented, discovered, or developed by a given group as it learns to cope with its problems of external adaptation and internal integration--that have worked sufficiently to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to organizational problems. Lawson and Shen (1998) argue that corporate culture is not reflected by a random mindset, norms, values, or actions but the unifying patterns that are shared, learned, and integrated at the group level and internalized by organizational members. Hofstede (2001) argues that organizational cultures are the collective programming of the mind that distinguishes the members of one organization from another.

The concept of organizational culture is challenging to observe, measure, and diagnose by cultural characteristics. Schein (1985) distinguishes three levels to culture that interact: artifacts and creations, values, and basic assumptions, and these cultural levels are shown Figure 2.3. Schein's level one, *the artifacts,* include any tangible, overt, visible, or language elements in an organization. Exemplifying organizational artifacts are landscape and architecture, furniture, uniform and dress codes, and technology. People not part of the culture are discernible by differences in artifact elements. Level two, *espoused values,* are stated values and rules of organizational behavior including philosophies, objectives, and strategies with which the organization members represent the organization both to themselves and others. Schein (1985) indicates that leaders deliver and communicate their values, which leads to success, and a cognitive transformation process takes place. The last level, the *basic assumption,* is the deeply embedded, accepted beliefs and behaviors that are unconscious but form the essence of a culture. These elements are integrated into office behavior.

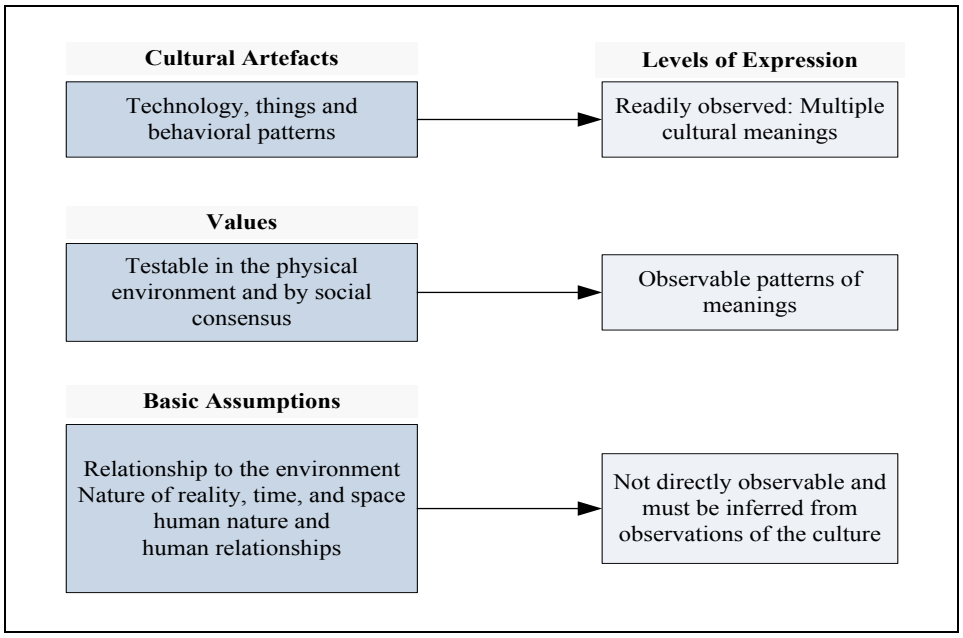

Figure 2.3 Three levels of organizational culture by Schein (Lawson and Shen, 1998)

According to Cameron and Quinn (1999), the organizational culture is represented by accepted values, basic underlying assumptions, expected collective memories, and some definitions present in an organization. The culture reflects "how things are around here" and the prevailing ideology to which people ascribe. The culture includes employee identity and the unwritten and often unspoken guidelines for rules within an organization.

Cameron and Quinn (2011, 1999) built a model of organizational culture. The competing values framework (CVF) was initially developed from research conducted on the major indicators of effective organizations. This framework was developed according to two main dimensions: flexibility as opposed to stability and internal as opposed to external focus. Plotted on a Cartesian plane, these dimensions form four quadrants, each of which represents the dominant culture type of a given organization—clan, adhocracy, market, or hierarchy. Figure 2.4 explains the four major organization culture types from the competing values framework. Additionally, an "Organizational Culture Assessment Instrument" (OCAI) can be used to correctly place a culture into one of the quadrants

depending on its values, assumptions, interpretations, and approaches. The four culture types are as follows:

- **Clan.** Clan organizations maintain an internal focus on flexibility and discretion. The organizations are typically considered pleasant places to work, where employees maintain close relationships. Clan cultures value cohesiveness, cooperation, and teamwork. Loyalty, tradition, and commitment are strong in such organizations. Emphasis is placed on human relationships where participation, personal satisfaction, and commitment are essential. Success is measured in terms of quality internal conditions and having met the concerns of those who interact with the company.

- **Adhocracy.** Adhocracies maintain an external focus and concentrate on flexibility. Organizational managers are typically seen as innovators, entrepreneurs, and visionaries. Adhocracies seek to generate profit using new resources and refining processes. Success, however, is measured in terms of creating unique products and services, assuming risk, and anticipating the future.

- **Hierarchy.** Hierarchies maintain an internal focus and concentrate on stability. Such organizations have a clear organizational structure, standardized operating procedures, and strict control. These organizations require internal maintenance and the stable, careful integration of new policies. Leaders coordinate, monitor, organize, and administer. Hierarchies emphasize predictability, clearly defined goals, and the efficient use of resources.

- **Market.** Markets maintain an external focus and concentrate on stability. Market-driven companies concentrate on transactions with the external environment. Market cultures leverage their advantages over competitors and strive to earn profits through success in the marketplace.

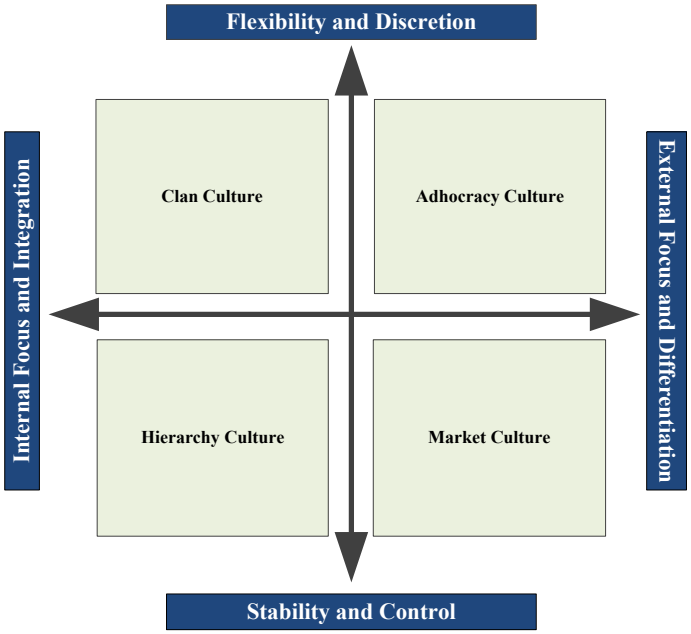

Figure 2.4 Competing values framework of organizational culture (Cameron and Quinn, 1999)

From the explanation of the four culture types, it is evident that different organizations exhibit diverse norms and values, roles and actions, leadership styles, organizational behavior, objectives, and strategies. Cameron and Quinn (1999) indicate that the dominant culture of the organization has a significant relationship with leadership style, human resource management, management roles, TQM, and the effectiveness criteria of organizational performance. To achieve goals and improve organizational performance, the manager must fully understand the culture and initiate cultural change if necessary. Cameron and Quinn (1999) developed the CVF based on six key organizational dimensions with the same set of cultural values. The six content dimensions for the associated cultures used as the basis for OCAI are shown in Table 2.3.

Cameron and Quinn (1999) investigate the applicability of the CFV within forms of organization considering a number of factors such as organizational leadership, organizational effectiveness, human resource management rules, and TQM. Table 2.4 presents the applicable CVF to each type of culture.

Organizational leadership including leadership roles, effectiveness criteria, and core management theories is closely associated with each of the four quadrants of the organizational cultures described in Table 2.4. The managerial leadership skills and knowledge that play an important role in the culture change process have a relationship with personal and organizational effectiveness. Additionally, CVF assists organizations in implementing and successfully improving TQM by applying the strategy to each culture type.

More recently, some authors use CVF to identify and assess organizational culture. Willar (2012) examined the organizational culture profile of Indonesian construction companies. Irianto (2005) investigated organizational culture in Indonesian manufacturing firms. Prajogo and McDermott (2011) used the four cultural dimensions of CVF to examine the impact of organizational culture on performance. Al-Khalifa and Aspinwall (2000) investigated the ideal cultural profile for TQM in the UK and found that clan and adhocracy cultures have a significant effect on successful TQM implementation.

Table 2.3 OCAI, the organizational culture assessment

Culture Types	Culture Dimension					
	Dominant Characteristics	**Organizational Leadership**	**Management of Employees**	**Organization Glue**	**Strategic Emphases**	**Criteria of Success**
Clan Culture	The organization is a very personal place. It is like an extended family. People seem to share a lot of themselves.	The leadership in the organization is generally considered to exemplify mentoring, facilitating, or nurturing.	The management style in the organization is characterized by teamwork, consensus, and participation.	The glue that holds the organization together is loyalty and mutual trust. Commitment to this organization runs high.	The organization emphasizes human development. High trust, openness, and participation persist.	The organization defines success on the basis of the development of human resources, teamwork, employee commitment, and concern for people.
Adhocracy Culture	The organization is a very dynamic entrepreneurial place. People are willing to stick their necks out and take risks.	The leadership in the organization is generally considered to exemplify entrepreneurship, innovating, or risk taking.	The management style in the organization is characterized by individual risk-taking, innovation, freedom, and uniqueness.	The glue that holds the organization together is commitment to innovation and development. There is an emphasis on being on the cutting edge.	The organization emphasizes acquiring new resources and creating new challenges. Trying new things and prospecting for opportunities are valued.	The organization defines success on the basis of having the most unique or newest products. It is a product leader and innovator.
Market Culture	The organization is very results oriented. A major concern is with getting the job done. People are very competitive and achievement oriented.	The leadership in the organization is generally considered to exemplify a no-nonsense, aggressive, results-oriented focus.	The management style in the organization is characterized by hard-driving competitiveness, high demands, and achievement.	The glue that holds the organization together is the emphasis on achievement and goal accomplishment. Aggressiveness and winning are common themes.	The organization emphasizes competitive actions and achievement. Hitting stretch targets and winning in the marketplace are dominant.	The organization defines success on the basis of winning in the marketplace and outpacing the competition. Competitive market leadership is key.
Hierarchy Culture	The organization is a very controlled and structured place. Formal procedures generally govern what people do.	The leadership in the organization is generally considered to exemplify coordinating, organizing, or smooth-running efficiency.	The management style in the organization is characterized by security of employment, conformity, predictability, and stability in relationships.	The glue that holds the organization together is formal rules and policies. Maintaining a smooth-running organization is important.	The organization emphasizes permanence and stability. Efficiency, control and smooth operations are important.	The organization defines success on the basis of efficiency. Dependable delivery, smooth scheduling and low-cost production are critical.

Source: Cameron and Quinn (1999)

Table 2.4 The applicability of the competing values model

CVF Applicability	Culture Types			
	Clan Culture	**Adhocracy Culture**	**Hierarchy Culture**	**Market Culture**
Organizational Leadership	**Orientation**: COLLABORATIVE	**Orientation**: CREATIVE	**Orientation**: CONTROLLING	**Orientation**: COMPETING
	Leader Type: Facilitator, Mentor, Team builder	**Leader Type**: Innovator, Entrepreneur, Visionary	**Leader Type**: Coordinator, Monitor, Organizer	**Leader Type**: Hard driver, Competitor, Producer
	Value Drivers: Commitment, Communication, Development	**Value Drivers**: Innovative outputs, Transformation, Agility	**Value Drivers**: Efficiency, Timeliness, Consistency, and uniformity	**Value Drivers**: Market share, Goal achievement, Profitability
	Theory of Effectiveness: Human development and participation produce effectiveness.	**Theory of Effectiveness**: Innovativeness, vision, and new resources produce effectiveness	**Theory of Effectiveness**: Control and efficiency with capable processes produce effectiveness	**Theory of Effectiveness**: Aggressively competing and customer focus produces effectiveness
Organizational Effectiveness	Cohesion, high levels of employee morale and satisfaction, human resource development, and teamwork	New products, creative solutions to problems, cutting-edge ideas, and growth in new markets	Efficiency, timeliness, smooth functioning, and predictability	Achieving goals, outpacing the competition, increasing market share, and acquiring premium levels of financial return
TQM	QUALITY STRATEGIES: Empowerment Team building Employee involvement Human resource development Open communication	QUALITY STRATEGIES: Surprise and delight, Creating new standards, Anticipating needs, Continuous improvement, Finding creative solutions	QUALITY STRATEGIES: Error detection, Measurement, Process control, Systematic problem solving, Quality tools (fishbone diagrams, Pareto charting, affinity graphing, variance plotting)	QUALITY STRATEGIES: Measuring customer preferences, Improving productivity, Creating external partnerships, Enhancing competitiveness, Involving customers and suppliers
Human Resources Management Rules	**HR Role**: Employee champion	**HR Role**: Change agent	**HR Role**: Administrative specialist	**HR Role**: Strategic business partner
	Means: Responding to employee needs	**Means**: Facilitating transformation	**Means**: Reengineering processes	**Means**: Aligning HR with business strategy
	Ends: Cohesion, Commitment, Capability	**Ends**: Organizational renewal	**Ends**: Efficient infrastructure	**Ends**: Bottom-line impacts
	Competencies: Morale assessment; Management development; Systems improvement	**Competencies**: Systems analysis; Organizational change skills; Consultation and facilitation	**Competencies**: Process improvement; Customer relations; Service needs assessment	**Competencies**: General business skills; Strategic analysis

Source: Cameron and Quinn (1999)

2.6 Organizational performance

Organizational performance is composed of the actual output or results of an organization measured against its goals and objectives (Richard et al., 2009). Measuring performance is a critical factor in improving performance; it assists in the creation of goals and the planning of future strategies. Currently, there are no suggestions in the literature as to how to measure organizational performance.

Various researchers have analyzed the impact of TQM practices on organizational performance (Hua et al., 2000; Mar Fuentes-Fuentes, et al., 2004; Demirbag et al., 2006; Sadeghian, 2010; Salaheldin, 2009; Zhang, 2000) and conclude that TQM implementation has a significant impact on organizational performance. The TQM literature review on organizational performance suggests various indicators used for measuring performance, and these are shown in Table 2.5.

Mar Fuentes-Fuentes et al. (2004) assess organizational performance based on financial and operational performance (e.g., sales growth, market share growth, customer complaints, and levels of customer satisfaction) and employee performance (e.g., levels of employee satisfaction and absenteeism). Demirbag et al. (2006) measure organizational performance from a financial performance (e.g., revenue growth over the last three years, net profits, profit to revenue ratio), non-financial performance, and output performance perspective. Kaynak (2003) uses three dimensions of organizational performance relevant to TQM. The first indicator is financial and market performance including return on investment (ROI), market share, sales growth, market share growth, and profit growth. The second indicator is quality performance such as product/service quality, the cost of scrap and rework, productivity, and delivery lead time of products/services to customers. The last indicator is inventory management performance.

In this thesis, performance is measured by two dimensions: financial and non-financial performance. Financial performance is measured by fiscal criteria such as return on assets (ROA), net income to revenue ratio, revenue development, and net earnings. Non-financial performance criteria are secondary measurements effected by TQM implementation including market share, customer satisfaction, product/service defects or failures, customer complaints, employee satisfaction, employee turnover, and reputation among major customer segments.

Table 2.5 Measures of organizational performance by different studies

Study	Organizational performance	Indicators
Mar Fuentes-Fuentes et al. (2004)	Financial performance	Growth in profits; Profitability growth
	Operational performance	Sales growth; Market share growth; Reducing customer complaints; Level of customer satisfaction; Level of defects in the products/services; Products/services quality to meet or exceed customer's demands
	Employee performance	Level of employee satisfaction and level of absenteeism
Demirbag et al. (2006)	Financial performance	Market orientation; New product/service development; Quality as perceived by customers; Market share; Investments in R&D aimed at new innovations; Market development; Employee turnover; Capacity to develop a unique competitive profile; Reputation among major customer segments
	Non-Financial performance	Revenue growth over the last three years; Net profits; Market share gain over the last three years; Profit to revenue ratio; Cash flow from operations; Return on investment
	Output performance	Rejection rate and waste; ROA, and cost per adjusted discharge
Salaheldin (2009)	Financial performance	Revenue growth; Net profit; Profit-revenue ratio; ROA
	Non-Financial performance	R&D investment; Capacity to develop a competitive profile; New product development; Market development; Market orientation.

2.7 TQM, culture, and performance

An understanding of the national and organizational culture underlying a company is required before implementing TQM. Depending on the existing emphases within an organization, changing working environments may experience a learning process and adaptation to new approaches. Cultural change can be initiated by top management (Trice and Beyer, 1993), and leaders must focus on the organization's objectives as they implement appropriate strategies to change the culture.

Baldrige criteria are consistent with Hofstede's cultural dimensions, as discussed by Flynn and Saladin (2006), who examined the relationship between

Baldrige constructs and national cultural dimensions. The results show that higher levels of uncertainty avoidance, power distance, collectivism, and masculinity support the success of the Baldrige constructs. Mardani and Kazemilari (2012) observed a relationship between national culture and TQM implementation in Iran. The authors investigated the impact of national culture as determined by Hofstede's cultural dimensions on TQM implementation and found that power distance, long-term orientation, and individualism are the most critical elements for TQM implementation. Kull and Wacker (2010) determined that cultural values can moderate the effect of quality management on quality performance, and national and organizational cultures can determine the difference between success and failure in TQM implementation. Al-Khalifa and Aspinwall (2000) and Sadeghian (2010) found that clan and adhocracy cultures are the most promising for successful TQM implementation. Prajogo and McDermott (2011) examined the relationship between the four cultural dimensions of the CVF and performance and found that an adhocracy culture was the strongest predictor of performance measures. Shokshok et al. (2011) and Naceur and Khalefa (2005) argue that organizational culture has a significant effect on TQM implementation and organizational performance.

Chapter 3
Developing and Validating National Culture, Organizational Culture, TQM Constructs, and Organizational Performance Instruments

3.1 Introduction

This chapter describes the development of national and organization culture, TQM implementation, and organizational performance constructs for an Indonesian company. This model is designed based on the existing TQM literature, the questionnaire findings from 129 TQM companies in Indonesia and the general characteristics of Indonesian companies. TQM companies are divided into two types, TQM and TQM ISO companies. TQM companies implement a TQM system, and TQM ISO companies are ISO-certified. These instruments will help the Indonesian practitioner and academic to measure TQM implementation with respect to culture and performance. The Indonesian manager can evaluate a company's TQM implementation process to target improvement areas and adopt a particular strategy for that company. This chapter developing and validating five national culture dimensions, four organizational culture dimensions based on CVF, ten TQM implementation constructs, and two organizational performance instruments.

Section 3.2 presents a national and organizational culture, TQM constructs, and organizational performance instruments. Section 3.3 explains the TQM implementation constructs comparison. Section 3.4 describes and discusses the methodology, processes, and empirical assessment of the constructs. Section 3.5 presents the results and discussion. Finally, Section 3.6 provides the conclusions.

3.2 National culture, organizational culture, TQM constructs, and organization performance instruments

National culture, organizational culture, TQM implementation practices, and performance and their variables are presented in this section. Many researchers develop instruments for Hofstede's (2001) definition of national culture. However, in this thesis, the national culture instrument we develop is based on instruments of Wu (2006) and Irianto (2005). Additionally, the organizational cultures are based on the Organizational Culture Assessment Instrument (OCAI) developed by Cameron and Quinn (1999). Based on CVF, four (4) dimensions of organizational culture are measured using six (6) scale keys of cultural aspects of organizations: dominant characteristics, organization leadership, management of employees, organizational glue, strategic emphases, and criteria for success. The CVF is one of the most extensive models and has been used in empirical studies on organizational culture (Naranjo-Valencia et al., 2011).

Based on the literature review and the results obtained from the interviews with Indonesian companies, we identified a number of significant variables for the measurement of TQM implementation practices of Indonesian companies. TQM implementation constructs were developed based on the instruments of previous researchers. The detailed TQM constructs are explained in Chapter 2.3.

Identifying and measuring a company's organizational performance are critical to achieve improvements. According to Demirbag et al. (2006), the measurement of organizational performance is required to identify and measure the impact of TQM implementation. This thesis uses the organizational performance measures suggested by Mar Fuentes-Fuentes et al. (2004) and Salaheldin (2009). Organizational performance is measured by two dimensions: financial and non-financial performance. Financial performance is measured by fiscal criteria, and non-financial performance criteria are secondary measurements of TQM implementation reflecting the company's success in implementing TQM. Chapter 2.6 explained the details of organizational performance.

Table 3.1 presents the set of instruments used to measure national culture, organizational culture, TQM implementation practices, and performance, which address the particular characteristics of Indonesian companies. A total of 114 items were developed to measure the 21 constructs.

Table 3.1 Operationalization of national and organizational culture, TQM implementation, and performance.

Scales	Item number
1. Power Distance	5
2. Uncertainty Avoidance	5
3. Masculinity	5
4. Collectivism	4
5. Long-term Orientation	3
6. Clan Culture	6
7. Adhocracy Culture	6
8. Hierarchy Culture	6
9. Market Culture	6
10. Leadership	8
11. Vision and Plan Statement	8
12. Customer Focus	6
13. Education and Training	6
14. Benchmarking	5
15. Teamwork	5
16. Continuous Improvement Process	4
17. Employee Involvement	5
18. Supplier Quality Management	5
19. Recognition and Reward	5
20. Financial Performance	4
21. Non-financial Performance	7

Appendix D lists the 114 measurement items for the assessment of national culture, organizational culture, TQM implementation, and organizational performance of Indonesian companies.

3.3 TQM implementation constructs comparison

A combination of six instruments (Ahire et al., 1996; Das et al., 2008; Flynn et al., 1994; Morrow, 1997; Saraph et al., 1989; Zhang et al., 2000) were carefully examined for TQM construct development in this thesis. We integrated the constructs from previous research into the new instrument. The role of divisional top management, the quality department (Ahire et al., 1996), quality leadership (Flynn et al., 1994), leadership (Zhang et al., 2000) and top management commitment (Das et al., 2008) are integrated into the "leadership" construct. Process control, cleanliness and organization (Flynn et al., 1994), and the vision and plan statement (Zhang et al., 2000) are integrated into the "vision and plan statement" construct. Customer involvement and customer focus (Ahire et al., 1996; Das et al., 2008; Saraph et al., 1989; Zhang et al., 2000) are integrated into the "customer focus" construct. Training (Saraph et al., 1989), employee training (Ahire et al., 1996), and education and training (Saraph et al., 1989; Zhang et al., 2000) are combined to form the "education and training" construct. The benchmarking constructs (Ahire et al., 1996; Das et al., 2008) are combined to form the "benchmarking" construct in this thesis.

In Indonesia, social activity is a community activity and, hence, teamwork forms part of Indonesian culture. Employee relations (Saraph et al., 1989), selection for potential teamwork, teamwork (Morrow, 1997; Flynn et al., 1994), and employee empowerment (Ahire et al., 1996) are incorporated into the "teamwork" construct. Quality data and reporting (Saraph et al., 1989), process control, feedback, cleanliness, organization (Flynn et al., 1994), statistical process control (SPC) usage, and internal quality information usage (Ahire et al., 1996) are included in the "continuous improvement process" construct. Employee involvement (Ahire et al., 1996 and Das et al., 2008) is included in the "employee

involvement" construct.

Companies must establish long-term cooperative relationships with suppliers. Supplier quality management (Das et al., 2008; Saraph et al., 1989; Zhang et al., 2000), supplier relationship (Flynn et al., 1994), and supplier quality management and supplier performance (Ahire et al., 1996) are considered in the "supplier quality management" construct. Quality improvement rewards (Flynn et al., 1994) and recognition and reward constructs (Das et al., 2008; Zhang et al., 2000) are included in the "recognition and reward" construct.

3.4 Methodology

3.4.1 Sample

This thesis used a postal survey, and the population of the survey was composed of companies in Lampung province in Indonesia. The company information was obtained from the Lampung Provincial Statistics Bureau (2012). There are several large and medium companies in the Lampung province. Before distributing questionnaires, managers were interviewed by phone. In addition to posing perceptual questions, interviewers asked whether the company had implemented a TQM or an ISO system (ISO certified) and, if so, when it was implemented. The respondents were required to have some knowledge of the implementation of the TQM or ISO system. The number of qualifying companies was determined based on the information received.

Three hundred questionnaires were sent to senior executives, general managers, quality managers, managers, and ordinary employees of the firms. Company employee respondents expressed their agreement or disagreement with statements using a five-point Likert scale: (1) Strongly disagree, (2) Disagree, (3) Undecided, (4) Agree and (5) Strongly agree. A total of 136 questionnaires was eventually returned for a response rate of 45.33%. For data analysis, we used IBM-SPSS version 21. After data analysis, 129 questionnaires were complete and used. Table 3.2 shows the breakdown of the respondents' profiles.

Table 3.2 Profiles of the respondents by job position, industry, and quality system

Job position	**Frequency**	**Percentage (%)**
CEO/GM/Director	6	4.65
Engineering Department Manager	3	2.33
Production Manager	8	6.20
HRD Manager	10	7.75
Supervisor	59	45.74
Branch Manager	16	12.40
Head of Division	8	6.20
Marketing Manager	1	0.78
Others	18	13.95
Industry	**Frequency**	**Percentage (%)**
Food	44	34.11
Chemical and Petrochemical	7	5.43
Agribusiness	4	3.10
Media	18	13.95
Electrical and Electronic	5	3.88
Building and Civil Construction	20	15.50
Trade	11	8.53
Others	20	15.50
Quality System	**Frequency**	**Percentage (%)**
TQM Companies	59	45.7
TQM ISO Companies	70	54.3

3.4.2 Empirical assessment of the constructs

Many methods empirically assess the reliability and validity of a measurement scale. This section details the evaluation of the reliability and validity of these scales. Five scales were used to measure organizational culture, four scales measured organizational culture based on CVF, 10 scales measured TQM

implementation constructs, and two scales measured the organizational performance of Indonesian companies. For each scale, the items used for the measurements are shown in Appendix D. Appendix A lists the relative frequency distributions and means of respondent responses to items that measure national and organizational culture dimensions, TQM implementation constructs, and performance.

3.4.2.1 Detailed item analysis

The Nunnally (1978) method was used for a detailed item analysis. Nunnally (1978) developed a method to evaluate the assignment of items to scales that consider the correlation of each item with each scale. Specifically, the item scores to scale score correlations are used to determine whether an item belongs to the scale as assigned, to some other scales, or if the item should be eliminated. The scale score is obtained by computing the arithmetic average of the scores of the items that comprise that scale. Specifically, the item score to scale score correlations are used to determine whether an item belongs to the scale as assigned (Zhang, 2000). If an item does not highly correlate with any of the constructs, it should be deleted. Kemp (1999) suggests that the values of the item to scale correlations should be greater than 0.5; those lower than 0.5 do not share sufficient variance with the remaining items in that scale, do not measure the same construct and, therefore, should be deleted from the scale. Saraph et al. (1989), Zhang et al. (2000) and Das et al. (2008) used this method for a detailed item analysis of constructs for instrument development. For this thesis, item analysis was performed to determine whether the items were assigned appropriately. The correlation matrix in Table 3.3 shows that all the values are greater than 0.50. Appendix B shows the complete correlation matrix. Appendix B shows that Item 1 of power distance (scale 1) has correlations of 0.785, 0.189, 0.236, 0.156, and -0.025 with the five scales of the national culture dimensions. Because the value of scale 1 (power distance) is the average of the five items, there is a high correlation between scale 1 and Item 1. Additionally, because Item 1 shows relatively smaller

correlations with the other scales, we conclude that Item 1 in Scale 1 is assigned appropriately to this scale. All other items were similarly examined.

Table 3.3 Item to scale correlation matrix (Pearson correlation)

Scales		Item number							
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
National culture									
1	Power Distance	0.785	0.797	0.766	0.578	0.701			
2	Uncertainty Avoidance	0.754	0.778	0.685	0.812	0.776			
3	Masculinity	0.910	0.93	0.858	0.840	0.891			
4	Collectivism	0.889	0.873	0.746	0.857				
5	Long-term Orientation	0.732	0.853	0.809					
Organizational culture									
1	Clan Culture	0.753	0.773	0.819	0.797	0.714	0.699		
2	Adhocracy Culture	0.768	0.687	0.683	0.706	0.673	0.719		
3	Hierarchy Culture	0.663	0.771	0.740	0.574	0.740	0.766		
4	Market Culture	0.757	0.749	0.692	0.746	0.719	0.768		
TQM Implementation									
1	Leadership	0.697	0.806	0.809	0.822	0.787	0.780	0.692	0.792
2	Vision and Plan Statement	0.806	0.827	0.852	0.800	0.867	0.866	0.847	0.785
3	Customer Focus	0.731	0.718	0.800	0.816	0.754	0.790		
4	Education and Training	0.838	0.865	0.869	0.891	0.920	0.779		
5	Benchmarking	0.853	0.865	0.860	0.867	0.862			
6	Teamwork	0.892	0.890	0.913	0.803	0.861			
7	Continuous Improvement Process	0.851	0.922	0.890	0.875				
8	Employee Involvement	0.870	0.903	0.896	0.914	0.800			
9	Supplier Quality Management	0.775	0.860	0.869	0.860	0.655			
10	Recognition and Reward	0.865	0.865	0.795	0.862	0.855			
Organizational Performance									
1	Financial Performance	0.866	0.930	0.920	0.909				
2	Non-financial Performance	0.837	0.816	0.845	0.852	0.860	0.905	0.871	

3.4.2.2 Reliability

Reliability measures the extent to which an experiment, test, or any measuring procedure yields the same results in repeated trials (Carmines and Zeller, 1979). Reliability represents stability or consistency in scores over time or across raters. There are four methods used for assessing reliability: (1) the test-retest method, (2) the alternate form method, (3) the split-halves method, and (4) the internal consistency method.

Cronbach (1951) uses the internal consistency method to assess the homogeneity, equivalence, and inter-correlation of items to estimate the reliability of a measurement for a single test administration. The Cronbach coefficient α is the most popular test within the internal consistency method (Nunnally, 1978). Internal consistency is most commonly denoted by the Cronbach's alpha (α) coefficient (Nunnally, 1978). Most previous researchers use this model for reliability testing to develop measurement instruments for TQM implementation constructs (Saraph et al., 1989; Zhang et al., 2000; Das et al., 2008 and Willar, 2012). We conducted reliability tests using Cronbach's alpha, and Table 3.4 shows the results. The alpha coefficients for the twenty-one constructs ranged from a minimum of 0.714 to a maximum of 0.936, indicating high instrument reliability. Coefficients of 0.70 or more are considered reliable (Nunnally, 1978).

Table 3.4 Item reliability test

Constructs	Number of item	Deleted number	Cronbach's alpha
National culture			
1. Power Distance	5	1	0.813
2. Uncertainty Avoidance	5	No	0.814
3. Masculinity	5	No	0.931
4. Collectivism	4	No	0.857
5. Long-term Orientation	3	No	0.714
Organizational Culture			
1. Clan Culture	6	No	0.850
2. Adhocracy Culture	6	No	0.796
3. Hierarchy Culture	6	No	0.797
4. Market Culture	6	No	0.830
TQM Implementation			
1. Leadership	8	No	0.903
2. Vision and Plan Statement	8	No	0.932
3. Customer Focus	6	No	0.859
4. Education and Training	6	No	0.930
5. Benchmarking	5	No	0.905
6. Teamwork	5	No	0.921
7. Cont. Improvement Process	4	No	0.906
8. Employee Involvement	5	No	0.925
9. Supplier Quality Management	5	No	0.850
10. Recognition and Reward	5	No	0.891
Organizational Performance			
1. Financial Performance	4	No	0.927
2. Non-financial Performance	7	No	0.936

3.4.2.3 Validity

Validity represents the extent to which an instrument measures what it is intended to measure. The three most popular methods of evaluating the validity of a measurement instrument are content validity, criterion-related validity, and construct validity (Carmines and Zeller, 1979).

Content validity is a subjective measure among researchers and various expert reviewers. The instrument measures all aspects of the subject. According to Zhang et al. (2000), content validity is not a scientific measure. However, it is a foundation on which to develop a survey instrument's validity. Das et al. (2008) argue that content validity is face validity that the expert judges objectively assess to rate the correspondence between variable items. In this thesis, the ten TQM implementation constructs and two organizational performance dimensions should have content validity because the measurement items were developed from an extensive literature review and detailed evaluations by Indonesian academics and practitioners.

The criterion-related validity measures the extent to which the ten constructs of TQM implementation in Indonesian companies relate to organizational performance. Two measures of organizational performance are rated (on a five-point scale) using eleven indexes concerning their performance. Saraph et al. (1989), Zhang et al. (2000) and Das et al. (2008) used bivariate correlation (Pearson) analysis for a criterion-related validity test. The test was conducted to study the interrelationships between TQM constructs (predictor set) and organizational performance (the criterion set). Table 3.5 presents the bivariate correlation. The results show that the correlation between the ten TQM constructs and the two organizational performance constructs is significant at the 0.01 level. We concluded that the constructs exhibit criterion-related validity.

Table 3.5 Bivariate correlation matrices

A. Within predictor set (TQM constructs)

	TQM implementation scales	1	2	3	4	5	6	7	8	9	10
1	Leadership	1.000									
2	Vision and Plan Statement	0.731	1.000								
3	Customer Focus	0.551	0.531	1.000							
4	Education and Training	0.707	0.567	0.538	1.000						
5	Benchmarking	0.691	0.416	0.265	0.770	1.000					
6	Teamwork	0.579	0.708	0.596	0.558	0.433	1.000				
7	Continuous Improvement Process	0.725	0.536	0.521	0.704	0.722	0.572	1.000			
8	Employee Involvement	0.708	0.673	0.475	0.748	0.713	0.662	0.781	1.000		
9	Supplier Quality Management	0.546	0.549	0.393	0.508	0.655	0.495	0.600	0.650	1.000	
10	Recognition and Reward	0.613	0.603	0.554	0.633	0.488	0.666	0.592	0.747	0.516	1.000

B. Within criterion set (quality performance measures)

	Organizational Performance Measures	1	2
1	Financial Performance	1.000	
2	Non-financial Performance	0.869	1.000

C. Between predictor and criterion set

	TQM implementation scales	**Organizational performance measures**		
		Financial performance	**Non-financial performance**	**Average of the two measures**
1	Leadership	0.611	0.675	0.643
2	Vision and Plan Statement	0.716	0.651	0.684
3	Customer Focus	0.619	0.615	0.617
4	Education and Training	0.551	0.595	0.573
5	Benchmarking	0.303	0.426	0.365
6	Teamwork	0.726	0.779	0.753
7	Continuous Improvement Process	0.546	0.663	0.605
8	Employee Involvement	0.626	0.699	0.663
9	Supplier Quality Management	0.519	0.510	0.515
10	Recognition and Reward	0.732	0.798	0.765

Notes: Pearson correlation is significant at the 0.01 level; total number 129

The construct validity can be evaluated using factor analysis, which analyzes the interrelationships among a large number of variables and can be explained in terms of their common underlying dimensions (constructs). Construct validity reduces data that do not correlate with any of the underlying dimensions (Das et al., 2008). The general purpose of factor analysis is to condense or summarize information into a smaller set of new composite dimensions with minimal loss of information (Hair et al., 2006). There are two forms of factor analysis, exploratory factor analysis (EFA) and confirmatory factor analysis (CFA).

EFA is the most common form of factor analysis and is used when there is no prior theory and factor loadings are used to intuit the factor structure of the data. EFA identifies whether selected items cluster on one or more than one construct and, thus, assess the unidimensionality of constructs. Typically, three or more items are selected for a latent variable or construct (Zhang et al., 2000). The principal component analysis (PCA) is a basic model used for EFA. EFA was performed using PCA to identify all constructs, and Table 3.6 shows the results. There are three techniques for factor extraction: latent root criterion or eigenvalue, percentage of variance, and the scree test. Among the three techniques, latent root criterion or eigenvalue is the most commonly used technique for factor extraction (Hair et al., 2006).

The factor analysis results illustrated in Table 3.6 show that all the items in twenty-one constructs form a single factor and have eigenvalues greater than one. Factors with eigenvalues greater than one are considered significant; all factors with eigenvalues less than one are considered insignificant and are disregarded. For each of the 21 constructs, the factor loadings were over 0.506, except for Item 4 for the power distance construct, which had a factor loading of less than 0.5. In this study, 0.5 was the cut-off point for factor loading; therefore, anything with a factor loading less than 0.5 was excluded. Hair et al. (2006) noted that factor loadings greater than 0.3 are considered significant, loadings of 0.4 are considered more significant, and loadings of 0.5 or greater are considered highly significant. The factor loading value of items indicates how strongly the item influences the measured variable. A score under 0.5 shows weak influence.

Table 3.6 Item constructs validity test

Categorical factors	Number of factors	Eigen-values	Factor loading										Percentage of variance
			Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8	Item 9	Item 10	
National Culture													
1. Power Distance (PD)	1	2.728	0.834	0.853	0.831	0.420	0.661						54.552
PD (After deleting Item 4)	1	2.609	0.846	0.865	0.858		0.639						65.227
2. Uncertainty Avoidance (UA)	1	2.913	0.775	0.779	0.702	0.819	0.737						58.263
3. Masculinity (Mas)	1	3.929	0.905	0.925	0.867	0.846	0.888						78.587
4. Collectivism (ClV)	1	2.850	0.896	0.882	0.761	0.831							71.248
5. Long-term Orientation (LTO)	1	1.920	0.745	0.868	0.782								63.998
Organizational Culture													
1. Clan	1	3.474	0.735	0.769	0.829	0.813	0.721	0.688					57.897
2. Adhocracy	1	3.003	0.763	0.666	0.674	0.737	0.665	0.734					50.055
3. Hierarchy	1	3.064	0.677	0.790	0.759	0.506	0.736	0.780					51.059
4. Market	1	3.283	0.775	0.751	0.676	0.752	0.713	0.766					54.717
TQM Constructs and Performance													
1. Leadership	1	4.803	0.696	0.807	0.805	0.822	0.784	0.787	0.682	0.804			60.037
2. Vision and Plan Statement	1	5.547	0.819	0.837	0.840	0.805	0.875	0.875	0.842	0.762			69.338
3. Customer Focus	1	3.553	0.745	0.745	0.799	0.808	0.731	0.786					59.216
4. Education and Training	1	4.453	0.836	0.864	0.869	0.893	0.921	0.779					74.209
5. Benchmarking	1	3.722	0.875	0.857	0.876	0.835	0.871						74.442
6. Teamwork	1	3.809	0.896	0.897	0.913	0.795	0.859						76.184
7. Continuous Improvement Process	1	3.133	0.842	0.927	0.885	0.884							78.328
8. Employee Involvement	1	3.852	0.866	0.904	0.897	0.919	0.798						77.048
9. Supplier Quality Management	1	3.302	0.792	0.884	0.884	0.894	0.560						66.035
10. Recognition and Reward	1	3.625	0.887	0.887	0.742	0.869	0.864						72.507
11. Financial Performance	1	3.289	0.859	0.927	0.924	0.916							82.223
12. Non-financial Performance	1	5.128	0.847	0.808	0.848	0.845	0.854	0.904	0.882				73.252
TQM*	1	6.482	0.855	0.786	0.669	0.845	0.780	0.782	0.848	0.901	0.732	0.828	64.820

Notes: An eigenvalue greater than one was used as a criterion for factor extraction; * Factor analysis for TQM constructs

To further **e**xplore the factor analysis by excluding Item 4 for power distance, Table 3.4 shows the factor loading values over 0.5. The table indicates that all constructs have good construct validity. Finally, the validated national and organizational culture, TQM implementation, and performance instruments have 21 scales that consist of 114 measurement items. One item for power distance was deleted after factor analysis. Thus, for data analysis, only 113 items were used in this thesis.

3.5 Discussion

Previous researchers (Saraph et al., 1989) show important work on reliable and empirically validated TQM construct development. The researchers identified items relevant to integrated TQM and based on the TQM constructs prescribed by Deming, Crosby, Juran, and Ishikawa. Other researchers (Ahire et al., 1996; Das et al., 2008; Flynn et al., 1994; Zhang et al., 2000) used prescriptive conceptual, empirical literature on TQM and practitioner literature. Saraph et al. (1989) developed instruments using data from the manufacturing and services sectors and 162 managers as a response sample that included 20 companies. Zhang et al. (2000) used data from 212 Chinese manufacturing companies in nine industrial sectors. Miyagawa et al. (2005) used 52 respondents from Japanese companies in China. Das et al. (2008) developed instruments based on manufacturing companies in Thailand and used 275 respondents from ISO 9000 certified company managers in quality management and production.

This thesis uses data from companies in Lampung Province in Indonesia for testing and validating the instrument. The generalization is limited, although these constructs are developed to measure TQM implementation for Indonesian companies. The instruments were developed on the basis of an extensive literature review and adapted to the implementation of TQM in Indonesia. The instruments were empirically tested and validated using data from Indonesian companies. The instruments could be applied to other countries although they are more valid for Indonesian companies.

3.6 Conclusions

The instruments for measuring national and organizational culture, TQM implementation, and performance have been tested for reliability and validity. The procedures for the reliability and validity were used to test the measurement instruments. One item of power distance was deleted after factor analysis because its factor loading value was less than 0.5. Thus, the empirically validated national and organizational culture, TQM implementation instrument, and organizational performance instrument consisting of 21 constructs (113 items) is reliable and valid. This validated instrument can be used directly in other studies for different populations. Industrial managers in Indonesia can use this instrument to evaluate their TQM implementation programs and to identify problem areas that should be improved. Managers can develop practical plans and steps for the successful implementation of TQM. Indonesian researchers can use this instrument to better understand and develop quality management theory.

Chapter 4
National Culture, Organizational Culture, TQM Implementation, and Performance: An Empirical Investigation

4.1 Introduction

This chapter investigates the interplay between national and organizational cultures, TQM implementation, and the effects on organizational performance in Indonesia. A comparative analysis of TQM and TQM ISO companies was conducted on the cultural factors influencing TQM implementation and organizational performance. Achieving ISO certification is a strategy used in TQM development; therefore, the ISO system serves as the basic framework for the implementation process. This section provides important information for Indonesian manufacturers and academics to more fully understand TQM and its implementation.

Section 4.2 explains and provides motivation for the methodology and hypotheses. Section 4.3 presents results and a discussion on the investigation of culture, TQM implementation, and performance. Finally, Section 4.4 presents conclusions.

4.2 Methodology and hypotheses

Based on the above literature review, we developed a research framework to examine the extent to which the five constructs of Hofstede et al.'s (2010) national culture, four constructs of Cameron and Quinn's (2011, 1999) organizational culture, and our ten constructs of TQM implementation exist in Indonesian companies. We investigate the relationships between culture, TQM implementation, and organizational performance by measuring the financial and

non-financial performance of companies. Figure 4.1 illustrates the proposed research framework. This research model suggests that the greater the effect of culture on TQM implementation, the more the organizational performance of Indonesian companies will be improved by TQM implementation. In this theoretical research framework, the independent variables are national and organizational culture and TQM implementation, and the dependent variables are organizational culture, TQM implementation, and performance.

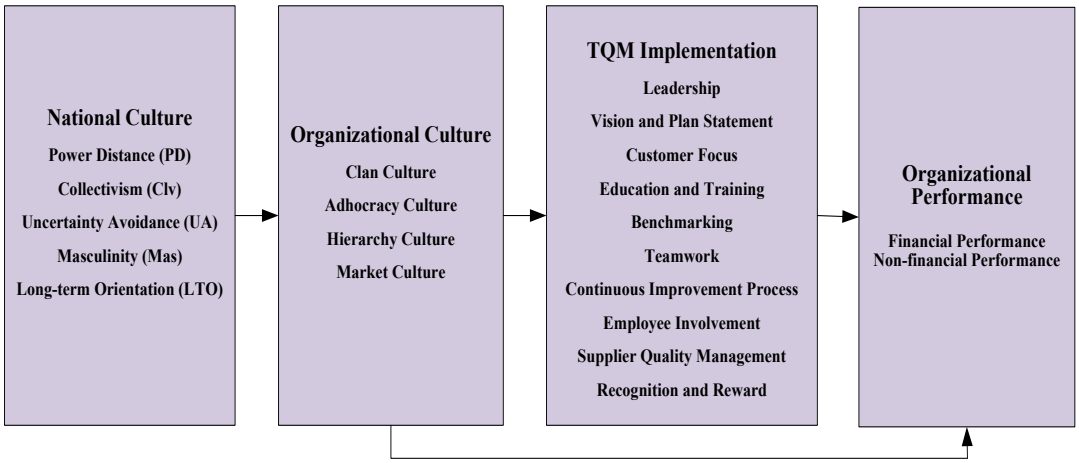

Figure 4.1 Research framework

This chapter investigates the relationship between national culture and organizational culture, the effect of organizational culture on TQM and organizational performance, the effect of TQM implementation on organizational performance, and the differences between organizational culture, TQM implementation, organizational performance among TQM and TQM ISO companies.

Based on the research objectives and the research framework described in Figure 4.1, we developed seven hypotheses. The first hypothesis examines the relationship between the five dimensions of national culture (power distance, uncertainty avoidance, masculinity, collectivism, and long-term orientation) and organizational culture. Previous researchers have used Hofstede's (2001) dimensions to assess national culture (Sadeghian, 2010; Wu, 2006; Flynn and

Saladin, 2006; Irianto, 2005) and have found that national culture has significant effects on organizational culture in both Iran and the UK (Sadeghian, 2010).

H1. National culture significantly affects organizational culture.

The second and third hypotheses address the relationship between the four dimensions of organizational culture (clan culture, adhocracy culture, hierarchy culture, and market culture), TQM implementation, and two variables of organizational performance. Prajogo and McDermott (2011) used the four cultural dimensions of the CVF to examine the relationship between organizational culture and performance. Haffar et al. (2013) found adhocracy and clan cultures to be the most supportive cultures for the implementation of TQM practices.

H2. Organizational culture significantly affects TQM implementation.

H3. Organizational culture significantly affects organizational performance.

The fourth hypothesis investigates the relationship between the ten constructs of TQM implementation on two variables of organizational performance. Parast et al. (2011) found that top management support, employee training, and employee involvement have significant effects on organizational performance. Thus, TQM significantly influences overall company performance (Miyagawa and Yoshida, 2010).

H4. TQM implementation significantly affects organizational performance.

The fifth, sixth, and seventh hypotheses investigate differences in organizational culture, TQM implementation, and organizational performance between TQM and TQM ISO companies. Previous researchers (Malik et al., 2013; Martínez-Costa et al., 2008) conducted comparative analysis of TQM implementation and performance between ISO and non-ISO firms. Their results show that companies with ISO certification have greater value.

H5. Organizational culture is significantly different between TQM and TQM ISO companies.

H6. TQM implementation is significantly different between TQM and TQM ISO companies.

H7. Organizational performance is significantly different between TQM and TQM ISO companies.

We used IBM-SPSS version 21 for data analysis. We conducted multiple regression and one-way ANOVA to investigate national culture, organizational culture, TQM implementation, and organizational performance. The analysis of the relationships was based on correlation coefficients; however, in this thesis, we used t-values with two-tailed tests for the hypothesis testing consistent with other studies (Miyagawa and Yoshida, 2010; Sadeghian, 2010; Malik et al., 2010). Several researchers have used one-way ANOVA to compare the differences in variables (Karim et al., 2008; Martínez-Costa et al., 2008; Malik et al., 2013). Therefore, one-way ANOVA tests were used to compare mean variable factor scores between TQM and TQM ISO companies.

4.3 Results and discussion

Tables 4.1, Table 4.2, Table 4.3 and Table 4.4 show the means and standard deviations for the five dimensions of national cultures, the four dimensions of organizational culture, the ten TQM constructs, and the two variables of company performance for each company type. The average scores were plotted to provide a clear picture of national and organizational culture in Indonesian companies. Figure 4.2 shows no differences in national culture between the two company types and that uncertainty avoidance, collectivism, and long-term orientation are dominant culture profiles in Indonesia. Figure 4.3 shows no differences in the organizational culture between the two company types and no dominant organizational culture profile.

Table 4.1 Means and standard deviations of the five dimensions of national culture for the two firm types

National culture		Company type		
		TQM	TQM ISO	All
Power Distance (PD)	Mean	2.6780	2.5929	2.6318
	SD	0.7685	0.6287	0.6946
Uncertainty Avoidance (UAI)	Mean	4.2136	4.1343	4.1705
	SD	0.4577	0.4370	0.4466
Masculinity (MAS)	Mean	3.3017	3.2800	3.2899
	SD	1.0637	0.8843	0.9666
Collectivism (CLV)	Mean	4.1483	3.9143	4.0213
	SD	0.5782	0.6166	0.6084
Long-term Orientation (LTO)	Mean	4.1412	3.9667	4.0465
	SD	0.5439	0.4820	0.5166

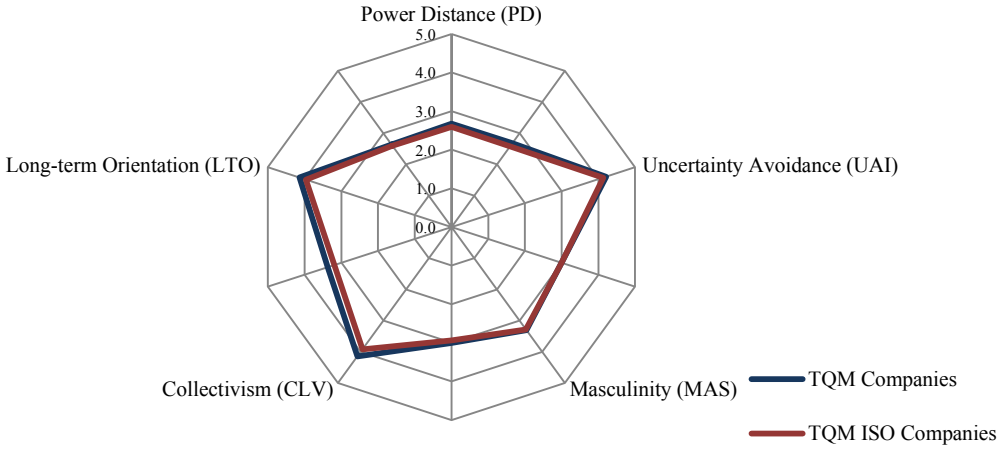

Figure 4.2 Profile of the national culture of the two company types

Table 4.2 Means and standard deviations of the five dimensions of organizational culture for the two company types

Organizational culture		Company type		
		TQM	TQM ISO	All
Clan Culture	Mean	4.1780	4.1381	4.1563
	SD	0.5621	0.5076	0.5315
Adhocracy Culture	Mean	4.2006	4.1143	4.1537
	SD	0.5232	0.4346	0.4772
Hierarchy Culture	Mean	4.2458	4.2000	4.2209
	SD	0.5032	0.4166	0.4570
Market Culture	Mean	4.3079	4.1881	4.2429
	SD	0.5093	0.4052	0.4579

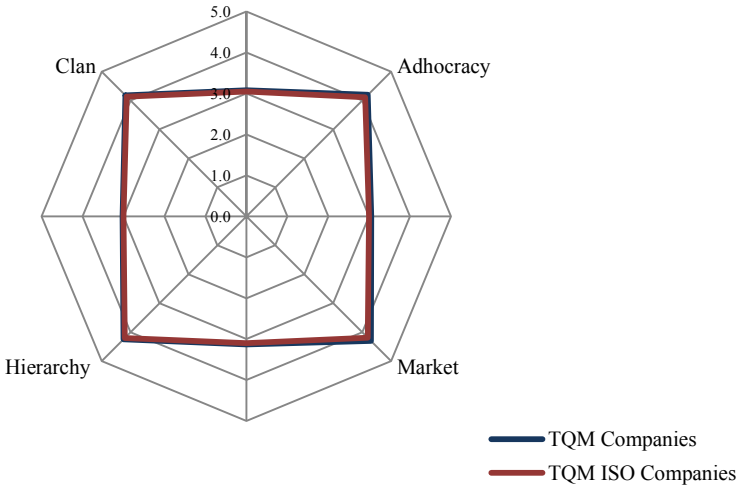

Figure 4.3 Profile of the organizational culture for the two company types

Figure 4.4 shows the plotted average scores for the ten TQM implementation constructs. According to the results, TQM companies have greater value than TQM ISO companies. Table 4.4 shows that performance value for TQM companies is greater than the performance value for TQM ISO companies.

Table 4.3 Means and standard deviations of the ten TQM implementation constructs for the two company types

TQM implementation constructs		Company type		
		TQM	TQM ISO	All
Leadership	Mean	4.3983	4.1768	4.2781
	SD	0.4932	0.5552	0.5372
Vision and Plan Statement	Mean	4.5191	4.3607	4.4331
	SD	0.5604	0.5106	0.5377
Customer Focus	Mean	4.5282	4.3857	4.4509
	SD	0.5725	0.4693	0.5218
Education and Training	Mean	4.1610	4.0143	4.0814
	SD	0.6659	0.5623	0.6138
Benchmarking	Mean	4.1085	3.8886	3.9891
	SD	0.7281	0.5884	0.6625
Teamwork	Mean	4.5593	4.3314	4.4357
	SD	0.5739	0.4490	0.5205
Continuous Improvement Process	Mean	4.2585	4.0143	4.1260
	SD	0.6565	0.5432	0.6077
Employee Involvement	Mean	4.2136	4.0800	4.1411
	SD	0.6420	0.5640	0.6023
Supplier Quality Management	Mean	4.3932	4.1714	4.2729
	SD	0.5119	0.4843	0.5074
Recognition and Reward	Mean	4.2949	4.1543	4.2186
	SD	0.6404	0.5929	0.6167

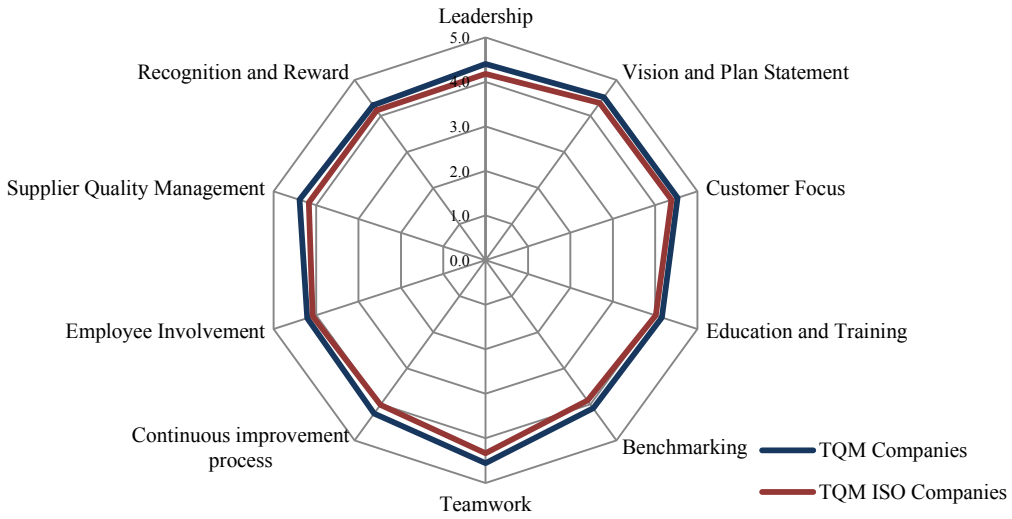

Figure 4.4 Profile of TQM implementation for the two company types

Table 4.4 Means and standard deviations of the two performance variables for the two company types

Performance		Company type		
		TQM	TQM ISO	All
Financial performance	Mean	4.5212	4.2500	4.3740
	SD	0.5710	0.5125	0.5547
Non-financial performance	Mean	4.4213	4.2000	4.3012
	SD	0.6280	0.5121	0.5765

Table 4.5 shows the multiple regression analysis using five factors of national culture as independent variables and four factors of organizational culture as dependent variables. National culture had a significant effect on organizational culture, confirming hypothesis H1. The results are as follows:

- Two factors of national culture, uncertainty avoidance and long-term orientation, had positive and significant effects on clan and market cultures.
- Three factors of national culture had significant effects on adhocracy culture. Uncertainty avoidance and long-term orientation had significant positive

effects, whereas masculinity had a significant negative effect.

- Three factors of national culture had significant effects on hierarchy cultures. Uncertainty avoidance and long-term orientation had significant positive effects, whereas collectivism had a significant negative effect.

Table 4.5 Regression analysis between national and organizational cultures

Predictors (national culture)	Clan			Adhocracy		
	R = 0.617 F-value = 15.158 Significance = 0.000			R = 0.631 F-value = 16.304 Significance = 0.000		
	β	***t***	**Sig.**	***β***	***T***	**Sig.**
Power Distance	−0.117	−1.572	0.119	−0.114	−1.554	0.123
Uncertainty Avoidance	0.389	5.319	0.000**	0.273	3.785	0.000**
Masculinity	−0.056	−0.703	0.484	−0.132	−1.665	0.099*
Collectivism	−0.117	−1.338	0.183	0.034	0.399	0.691
Long-term Orientation	0.462	5.710	0.000**	0.487	6.109	0.000**
Predictors (national culture)	**Hierarchy**			**Market**		
	R = 0.563 F-value = 11.427 Significance = 0.000			R = 0.596 F-value = 13.550 Significance = 0.000		
	β	***t***	**Sig.**	***β***	***T***	**Sig.**
Power Distance	−0.130	−1.654	0.101	−0.088	−1.157	0.250
Uncertainty Avoidance	0.299	3.891	0.000**	0.285	3.820	0.000**
Masculinity	−0.051	−0.609	0.544	−0.113	−1.377	0.171
Collectivism	−0.189	−2.049	0.043*	−0.025	−0.281	0.779
Long-term Orientation	0.474	5.577	0.000**	0.475	5.747	0.000**

Note: $^{*}t \geq t_{(0.05)} = 1.657$; $^{**}t \geq t_{(0.01)} = 2.356$

These results suggest that the influence of national culture plays an important role in the formation of the organizational culture and is consistent with a previous study (Sadeghian, 2010). High uncertainty avoidance implies that Indonesian companies have more empowered planning and a more formalized management system with clearly defined rules. The managers share information that contains

explicit assignments, goals, policies, and procedures. However, the companies delay the adoption of technology and trends until they are proven to be effective and successful. However, a long-term orientation causes Indonesian companies to look toward long-term business goals and motivates employees.

Table 4.6 shows the multiple regression analysis that used four factors of organizational culture as independent variables, TQM constructs, and two factors of organizational performance as dependent variables. The organizational culture significantly affected TQM, confirming hypothesis H2. Clan and adhocracy cultures had a significant positive effect on TQM. For hypothesis H3, only one factor of organizational culture (market culture) had a positive and significant effect on non-financial performance.

Table 4.6 Regression analysis between organizational culture, TQM, and performance

Predictors (organisational culture)	**TQM**			**Financial**			**Non-financial**		
	R = 0.781 F-value = 48.470 Significance = 0.000			R = 0.533 F-value = 12.296 Significance = 0.000			R = 0.628 F-value = 20.170 Significance = 0.000		
	β	***t***	**Sig.**	***β***	***t***	**Sig.**	***β***	***t***	**Sig.**
Clan	0.282	2.686	0.008**	0.188	1.321	0.189	0.169	1.290	0.199
Adhocracy	0.379	2.735	0.007**	0.073	0.390	0.697	0.106	0.613	0.541
Hierarchy	0.044	0.374	0.709	0.074	0.466	0.642	−0.028	−0.192	0.848
Market	0.122	0.928	0.355	0.234	1.311	0.192	0.411	2.498	0.014**

Note: $^{*}t \geq t_{(0.05)} = 1.657$; $^{**}t \geq t_{(0.01)} = 2.356$

Organizational culture is an important aspect of TQM implementation. The clan culture emphasizes commitment, communication, employee involvement, teamwork, and development while concentrating on flexibility and discretion with internal strengthening. The adhocracy culture emphasizes creativity, flexibility, innovativeness, and adaptability, although both clan and adhocracy culture dimensions suggest a conducive environment for the effective implementation of TQM. This result is consistent with previous studies (Al-Khalifa and Aspinwall,

2000; Sadeghian, 2010). The successful implementation of TQM is determined by an awareness of and adaptation to organizational culture before implementation. Additionally, only market culture has a significant effect on non-financial performance in the relationship between organizational cultures and organizational performance. The market culture emphasizes productivity, profitability, and goal achievement with stability and control to enhance external competitiveness. The success of a market culture is measured by market share, customer satisfaction, and a strong reputation among major customer segments. Indonesian companies can adopt a market culture to improve their non-financial performance.

Table 4.7 shows that the multiple regression analysis used 10 variables of TQM constructs as independent variables and two factors of organizational performance as dependent variables. These results show that TQM implementation had a significant effect on organizational performance, confirming hypothesis H4. Five constructs of TQM implementation (leadership, education and training, teamwork, supplier quality management, and recognition and reward) had significant positive effects on financial performance, whereas benchmarking had a significant negative effect. Analysis shows that the five constructs of TQM implementation (leadership, teamwork, continuous improvement process, supplier quality management, and recognition and reward) had significant positive effects on non-financial performance, whereas benchmarking and vision and plan statements had significant negative effects.

These results are consistent with those of previous studies (Terziovski and Samson, 1999; Salaheldin, 2009; Parast et al., 2011; Valmohammadi, 2011). Thus, leadership correlates with financial and non-financial performance. Leadership can impact performance in a variety of ways. Indonesian company leaders can institute education and training to improve employee skills and achieve organizational goals. Leaders can also develop teamwork to manage change, implement plans, solve problems, and create a sense of empathy and engagement. Teamwork can improve the quality of products and services, lower rates of failure and defective products, and is fundamental to successful TQM implementation.

Additionally, companies require continuous process improvement to increase productivity, reduce failure rates, improve process efficiency, and stimulate innovation. Continuous process improvement is also essential for supplier quality management and organizational performance. A continuous supply of raw materials of the required quality is vital in all stages of manufacturing. Long-term relationships with inspection teams can help minimize the cost of raw materials (Juran, 1989). Additionally, recognition and rewards are important business tools. Such tools can improve performance within an organization and effectively stimulate employee commitment to quality. Companies must develop a formal compensation system to encourage, evaluate, reward, and recognize individual and team efforts for quality enhancement and improved customer satisfaction (Brown et al., 1994).

Table 4.7 Regression analysis between TQM constructs and performance

Predictors (TQM constructs)	Financial			Non-financial		
	R = 0.876 F-value = 39.062 Significance = 0.000			R = 0.902 F-value = 51.282 Significance = 0.000		
	β	***t***	**Sig.**	***β***	***t***	**Sig.**
Leadership	0.196	2.143	0.034*	0.310	3.769	0.000**
Vision and Plan Statement	0.130	1.513	0.133	−0.150	−1.952	0.053*
Customer Focus	−0.025	−0.361	0.719	−0.072	−1.134	0.259
Education and Training	0.271	2.842	0.005**	0.122	1.429	0.156
Benchmarking	−0.565	−5.277	0.000**	−0.432	−4.496	0.000**
Teamwork	0.253	3.396	0.001**	0.396	5.909	0.000**
Continuous Improvement Process	0.086	1.010	0.314	0.224	2.921	0.004**
Employee Involvement	−0.040	−0.394	0.694	−0.014	−0.152	0.880
Supplier Quality Management	0.258	3.713	0.000**	0.147	2.357	0.020**
Recognition and Reward	0.337	4.268	0.000**	0.413	5.817	0.000**

Note: $^{*}t \geq t_{(0.05)} = 1.657$; $^{**}t \geq t_{(0.01)} = 2.356$

Table 4.7 shows that benchmarking and vision and plan statements have significant negative effects on organizational performance. However, previous researchers find that benchmarking has a significant positive effect (Malik et al., 2010) and is one way to improve product quality, reduce production costs, and increase sales. Additionally, vision and plan statement results revealed no clear long-term vision towards improving organizational performance. Zhang (2000), however, proposed that vision and plan statements provide a clear overview of strategies for an organization to achieve its goals. Vision provides direction and a path for transformation. However, Table 4.7 shows that employee involvement does not have a significant effect on organizational performance. This could be because Indonesian company employees are not thoroughly engaged in performance improvement. The aim of employee involvement is to encourage employees to contribute more to the firm. However, unfortunately, some companies are reluctant to invest and provide incentives for employees, such as development and training opportunities, which would increase employee engagement and maximize their potential.

Malik et al. (2013), Karim et al. (2008), and Martínez-Costa et al. (2008) used one-way ANOVA to compare the differences in the variable effects. We used one-way ANOVA to examine the differences between TQM and TQM ISO companies. Table 4.8 presents the means and ANOVA results for the four dimensions of organizational culture. Organizational culture was not significantly different between TQM and TQM ISO companies, disproving hypothesis H5. The one-way ANOVA shows no significant values for clan, adhocracy, hierarchy, and market cultures because the calculated results are greater than the significance level of 0.05.

Table 4.8 Means and ANOVA of organizational cultures

Organizational culture	TQM companies	TQM ISO companies	*F*	Sig.
Clan Culture	4.1780	4.1381	0.179	0.673
Adhocracy Culture	4.2006	4.1143	1.047	0.308
Hierarchy Culture	4.2458	4.2000	0.319	0.573
Market Culture	4.3079	4.1881	2.213	0.139

Note: The mean difference is significant at the 0.05 level.

These results are consistent with previous assumptions that both types of organizations that implement TQM have the same organizational culture. Additionally, by implementing TQM or acquiring ISO certification, companies can develop a similar culture and a standard for quality systems. Hence, companies can implement TQM more successfully. This is because cultural change is a key factor determining the level of success in TQM implementation (Al-Khalifa and Aspinwall, 2000; Aziz and Morita, 2013; Sadeghian, 2010; Karimi and Latifah, 2012).

The calculations in Table 4.9 show that TQM implementation is significantly different between TQM and TQM ISO companies, confirming hypothesis H6 with respect to leadership, teamwork, continuous process improvement, and supplier quality management because the calculated results are below the significance level of 0.05. However, the calculated results for vision and plan statements, customer focus, education and training, benchmarking, employee involvement, and recognition and reward are above the significance level of 0.05. Thus, these constructs are not significantly different between the two types of companies.

The vision and plan statements of the two types of companies show similar values and are, therefore, equally important. However, customer focus values are not significantly different, indicating that the organizations consider that delivering quality products and superior service will promote business and sales growth. Additionally, education and training, benchmarking, employee involvement, and recognition and reward do not differ significantly. Thus, the two

types of companies have similar priorities when implementing the TQM constructs. However, leadership, teamwork, continuous process improvement, and supplier quality management are significantly different between TQM and TQM ISO companies. TQM companies place greater emphasis on these TQM implementation constructs. Finally, management leadership and continuous improvement are the most important factors for both TQM implementing organizations (Malik et al., 2013).

Table 4.9 Means and ANOVA of TQM implementation constructs

TQM constructs	TQM companies	TQM ISO companies	*F*	Sig.
Leadership	4.3983	4.1768	5.640	0.019*
Vision and Plan Statement	4.5191	4.3607	2.817	0.096
Customer Focus	4.5282	4.3857	2.415	0.123
Education and Training	4.1610	4.0143	1.841	0.177
Benchmarking	4.1085	3.8886	3.599	0.060
Teamwork	4.5593	4.3314	6.397	0.013*
Continuous Improvement Process	4.2585	4.0143	5.345	0.022*
Employee Involvement	4.2136	4.0800	1.582	0.211
Supplier Quality Management	4.3932	4.1714	6.374	0.013*
Recognition and Reward	4.2949	4.1543	1.674	0.198

Note: * The mean difference is significant at the 0.05 level.

Table 4.10 shows the means and ANOVA results using two variables of organizational performance as dependent variables. Organizational performance was significantly different, confirming hypothesis H7. The one-way ANOVA shows significant values for financial and non-financial performance because the calculated results are below the significance level of 0.05.

Table 4.10 Means and ANOVA of organizational performance

Organizational performance	TQM companies	TQM-ISO companies	*F*	Sig.
Financial	4.5212	4.2500	8.074	0.005*
Non-financial	4.4213	4.2000	4.860	0.029*

Note: * The mean difference is significant at the 0.05 level.

These results are consistent with previous assumptions that TQM companies perform better than TQM ISO companies because of unequal levels of TQM implementation. Most Indonesian companies implement an ISO system for TQM. Thus, it is likely that TQM companies have additional experience implementing TQM than ISO companies. Consequently, companies with TQM systems should not feel pressured to acquire an ISO certification unless it is something expected by clients or other organizations. An effective management system ensures that a company will deliver goods or services in accordance with the set requirements. This enables a company to build customer confidence and compete in the global marketplace. Thus, TQM implementation and becoming ISO certified are appropriate strategies for improving organizational performance.

4.4 Conclusions

Numerous hypotheses testing TQM and TQM ISO companies show a number of relationships and comparisons between the variables as follows:

1. National culture has an influence on organizational culture. Uncertainty avoidance and long-term orientation have significant positive effects on clan, market, adhocracy, and hierarchy cultures. Masculinity and collectivism have negative effects on adhocracy and hierarchy cultures, respectively.
2. Organizational culture has a direct impact on TQM implementation. Clan and adhocracy cultures have significant positive effects on TQM. However, only market culture shows a positive effect on non-financial performance.

3. TQM constructs play a positive role in improving organizational performance. TQM implementation requires leadership, education and training, teamwork, a continuous improvement process, supplier quality management, and recognition and rewards. These constructs are vital to improving organizational performance.
4. There is no significant difference in the organizational culture of TQM and TQM ISO companies. Companies that implement TQM systems or that are TQM ISO certified have the same organizational culture.
5. There is a significant difference in the TQM implementation and performance of TQM and TQM ISO companies. TQM companies perform better than TQM ISO companies with respect to leadership, teamwork, continuous process improvement, supplier quality management, and financial and non-financial performance.

The results of this chapter indicate that national culture influences organizational culture and that organizational culture has an effect on TQM and organizational performance. Additionally, TQM constructs have a positive impact on organizational performance, and TQM and TQM ISO companies have similar organizational cultures. Moreover, in considering TQM implementation and performance, TQM companies perform better than TQM ISO companies. Results indicate that an ISO certification does not necessarily add significant value to a company that has already implemented a TQM system. However, if a company requires an ISO certification, they should certainly acquire one.

Chapter 5
A Comparative Study of National Culture, Organizational Culture, and Performance in TQM, TQM ISO, and Non-TQM companies

5.1 Introduction

Culture represents the values derived from social, economic, legal, political and religious norms, and traditions of society. Culture characterizes the behavior of individuals in a social group with other groups and depending on the individuals themselves. This includes actions taken within their individual situations in all spheres of life. Flynn and Saladin (2006), Hofstede et al. (2010), and Kull and Wacker, 2010) found that cultural values can play a significant role in international operations and organizational management practices. Naor et al. (2008) and Prajogo and McDermott (2011, 2005) show that organizational culture is recognized as an important determinant of quality management success and organizational performance.

Studies on national culture, organizational culture, and performance in Indonesian companies do not identify the differences in these cultures and performances between TQM, TQM ISO companies and non-TQM companies. TQM and TQM ISO companies have been discussed in chapter 3 and 4. While, non-TQM companies did not implement a TQM system or ISO certified. This section presents cultural problems with the changes that may be related to the implementation of TQM in Indonesian companies. The key factors of this study are TQM and ISO, which are important for both practitioners and academics. Section 5.2 presents the methodology and hypotheses. Sections 5.3 presents results and a discussion of a comparative study of culture and performance with

TQM, TQM ISO, and non-TQM companies. Finally, conclusions are provided in Section 5.4.

5.2 Methodology and hypotheses

The previous chapter described the sample, reliability, and validity of TQM implementation and performance. This section shows the new data collected using the same instruments from 46 questionnaires from non-TQM companies to clarify differences in national culture, organizational culture, and performance between TQM, TQM ISO, and non-TQM companies in Indonesia. We developed three hypotheses. The first and second hypotheses examine the differences in the five dimensions of national culture (power distance, uncertainty avoidance, masculinity, collectivism, and long-term orientation) and the four dimensions of organizational culture (clan culture, adhocracy culture, hierarchy culture, and market culture) between TQM, TQM-ISO and non-TQM companies. The national culture is similar to all companies or individuals in the same country because there are no- significant differences in individuals' responses (Hofstede, 2001). We argue that TQM implementation has influenced the culture of employees and companies.

H1. The national culture is significantly different between TQM, TQM ISO, and non-TQM companies.

H2. The organizational culture is significantly different between TQM, TQM ISO, and non-TQM companies.

The third hypotheses investigate the differences in organizational performance between TQM, TQM ISO, and non-TQM companies. Malik et al. (2013) and Martínez-Costa et al. (2008) investigate the differences in organizational performance between ISO and non-ISO companies. The authors' results show that ISO companies have superior organizational performance.

H3. Performance is significantly different between TQM, TQM ISO, and non-TQM companies.

We used a total sample of 175 questionnaires (senior executive, general manager, quality manager, managerial level, and ordinary employee participants) of which 129 were from the previous studies and 46 questionnaires were from non-TQM companies. Table 5.1 shows the breakdown of the sample.

5.3 Results and discussion

The average and standard deviations of the five dimensions for national cultures, the four dimensions for organizational cultures, and the two variables for company performance for each company were tabulated and are shown in Table 5.2, Table 5.3, and Table 5.4, respectively. The average scores for national culture from Tables 5.2 were plotted to provide a clear picture of the current national culture of Indonesian companies and are illustrated in Figure. 5.1. The five dimensions of culture (Hofstede, 2001) were measured for the national culture of Indonesian companies. The results in Table 5.2 indicate that Indonesian employees have high uncertainty avoidance, a collectivist and long-term orientation, a perception of low power distance, and an average preference for masculinity, as shown in Figure 5.1. According to Hofstede (2001), the dimensions of Indonesian culture are characterized by a perception of a high power distance, a collectivist orientation, and an average preference for uncertainty avoidance and masculinity.

The characteristics of organizational culture have high significance with respect to market culture. The organizational culture profile in TQM companies is more dominant than that of non-TQM companies. However, a culture of hierarchy in Indonesian companies has greater value than the other cultures shown in Figure. 5.2. Additionally, Table 5.4 indicates that TQM and TQM ISO companies have a high value with respect to financial and non-financial organizational performance compared to non-TQM companies.

Table 5.1 Profiles of the respondents by job position, industry, and quality system

Job position	**Frequency**	**Percentage (%)**
CEO/GM/Director	12	6.9
Engineering Department Manager	5	2.9
Production Manager	11	6.3
Human Resource Development Manager	19	10.9
Supervisor	81	46.3
Branch Manager	17	9.7
Head of Division	9	5.1
Marketing Manager	1	0.6
Others	20	11.4
Industry	**Frequency**	**Percentage (%)**
Food Industry	44	25.1
Furniture and Wood Industry	4	2.3
Chemical and Petrochemical	7	4.0
Mining	3	1.7
Agribusiness Industry	4	2.3
Media Industry	33	18.9
Electrical and Electronic Industry	11	6.3
Building and Civil construction	33	18.9
Trading Industry	11	6.3
Others	25	14.3
Quality System	**Frequency**	**Percentage (%)**
TQM Companies	59	33.7
TQM ISO Companies	70	40.0
Non-TQM Companies	46	26.3

Table 5.2 Means and standard deviations for the five dimensions of national cultures for the three company types

National culture		Company type			
		TQM	TQM ISO	Non-TQM	All
Power Distance (PD)	Mean	2.6780	2.5929	2.6576	2.6386
	SD	0.7685	0.6287	0.4095	0.6312
Uncertainty Avoidance (UAI)	Mean	4.2136	4.1343	4.0130	4.1291
	SD	0.4577	0.4370	0.3138	0.4207
Masculinity (MAS)	Mean	3.3017	3.2800	3.0348	3.2229
	SD	1.0637	0.8843	0.5355	0.8799
Collectivism (CLV)	Mean	4.1483	3.9143	3.9565	4.0043
	SD	0.5782	0.6166	0.5757	0.5990
Long-term Orientation (LTO)	Mean	4.1412	3.9667	3.5435	3.9143
	SD	0.5439	0.4820	0.6416	0.5934

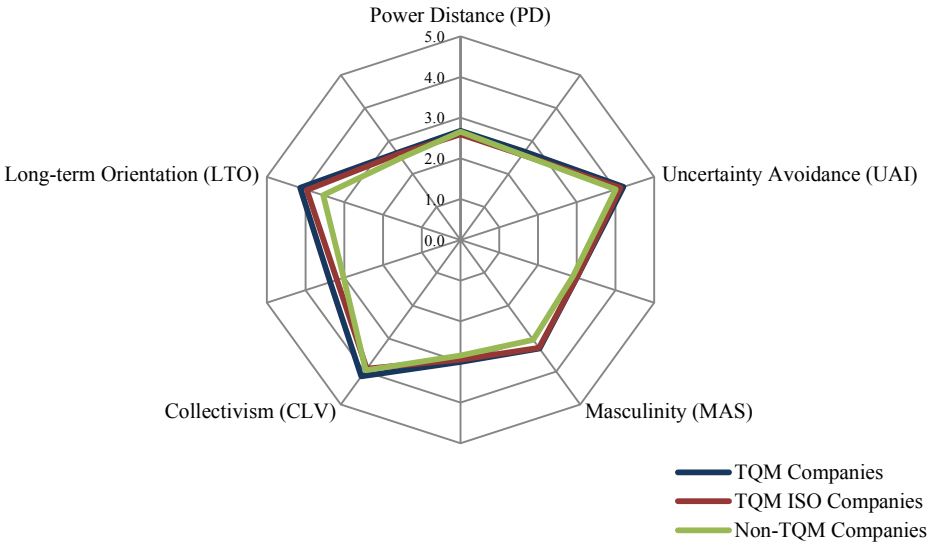

Figure 5.1 Profile of the national culture for the three company types

Table 5.3 Means and standard deviations for the four dimensions or organizational cultures for the three company types

Organizational Culture		Company type			
		TQM	TQM ISO	Non-TQM	All
Clan Culture	Mean	4.1780	4.1381	3.9167	4.0933
	SD	0.5621	0.5076	0.4840	0.5287
Adhocracy Culture	Mean	4.2006	4.1143	3.9312	4.0952
	SD	0.5232	0.4346	0.3471	0.4564
Hierarchy Culture	Mean	4.2458	4.2000	3.9601	4.1524
	SD	0.5032	0.4166	0.5546	0.4964
Market Culture	Mean	4.3079	4.1881	3.8768	4.1467
	SD	0.5093	0.4052	0.4899	0.4924

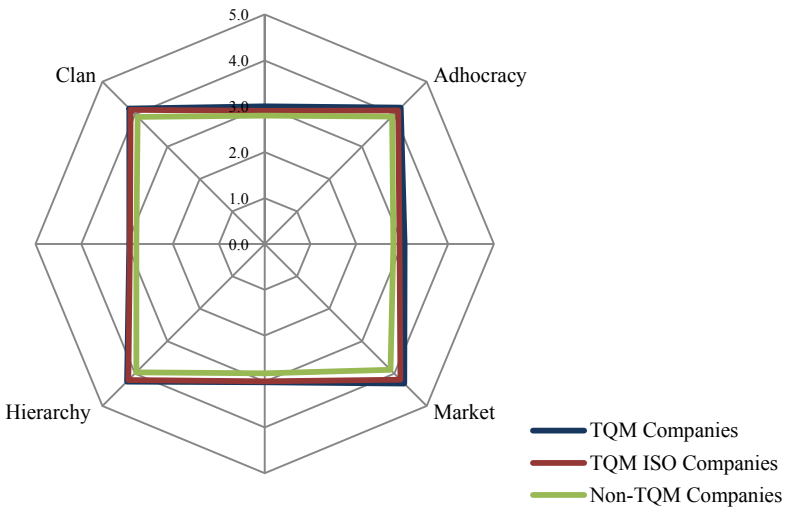

Figure 5.2 Profile of the organizational culture for the three company types

Table 5.4 Means and standard deviations for the two performance variables for the three company types

Performance		Company type			
		TQM	TQM ISO	Non TQM	All
Financial Performance	Mean	4.5212	4.2500	3.9402	4.2600
	SD	0.5710	0.5125	0.5431	0.5825
Non-financial Performance	Mean	4.4213	4.2000	3.8975	4.1951
	SD	0.6280	0.5121	0.4834	0.5802

To test the hypotheses, we use the one-way ANOVA technique to examine the significance of the dimensions of culture and performance. We identify the differing dimensions from an analysis of the dimensions of culture and performance. Post hoc tests are applied to those dimensions to check the significant differences in culture and company performance in each company.

Table 5.5 presents the one-way ANOVA analysis using five dimensions of national culture as dependent variables and company type as independent variables. National culture does not significantly differ between TQM, TQM ISO and non-TQM companies (H1). Because the calculated results are over the 0.05 significant level, the one-way ANOVA depicts no significant values for power distance (PD), uncertainty avoidance (UAI), masculinity (MAS), and collectivism (CLV). However, long-term orientation (LTO) has significant values less than the 0.05 significant level. These results are consistent with the previous assumption that all companies have similar national culture.

The Table 5.6 shows that organizational culture shows significant differences between TQM, TQM ISO and non-TQM companies (H2). The calculation results for clan culture, adhocracy culture, hierarchy culture, and market culture are less than the 0.05 significant level. The results indicate that TQM implementation requires organizational culture change and causes cultural differences between the companies.

Table 5.5 Means and ANOVA analysis of national culture between company types

National culture	TQM companies	TQM ISO companies	Non-TQM companies	*F*	Sig.
Power Distance (PD)	2.6780	2.5929	2.6576	0.317	0.729
Uncertainty Avoidance (UAI)	4.2136	4.1343	4.0130	3.012	0.052
Masculinity (MAS)	3.3017	3.2800	3.0348	1.443	0.239
Collectivism (CLV)	4.1483	3.9143	3.9565	2.693	0.071
Long-term Orientation (LTO)	4.1412	3.9667	3.5435	15.892	0.000*

Note: * The mean difference is significant at the 0.05 level.

Table 5.6 Means and ANOVA analysis of organizational culture between company types

Organizational culture	TQM companies	TQM ISO companies	Non- TQM companies	*F*	Sig.
Clan	4.1780	4.1381	3.9167	3.685	0.027*
Adhocracy	4.2006	4.1143	3.9312	4.806	0.009*
Hierarchy	4.2458	4.2000	3.9601	5.038	0.007*
Market	4.3079	4.1881	3.8768	11.576	0.000*

Note: * The mean difference is significant at the 0.05 level.

Table 5.7 shows significant differences in performance between TQM, TQM ISO and non-TQM companies (hypothesis H3). The calculated significant values for financial performance and non-financial performance are less than 0.05 significant levels. The results reveal that the TQM companies have better company performance than non-TQM companies.

Table 5.7 One-way ANOVA analysis of performance between company types

Performance	TQM companies	TQM ISO companies	Non- TQM companies	*F*	Sig.
Financial Performance	4.5212	4.2500	3.9402	14.933	0.000*
Nonfinancial Performance	4.4213	4.2000	3.8975	11.849	0.000*

Note: * The mean difference is significant at the 0.05 level.

Table 5.8 shows the post hoc test analysis for different variables. The long-term orientation (LTO) dimensions of national culture show no significant differences between TQM and TQM ISO companies. However, non-TQM companies show significant differences compared to TQM and TQM ISO companies. Companies implementing TQM have a high score for long-term orientation. Maintaining a long-term orientation is a fundamental advantage in TQM implementation. Companies with long-term orientation develop plans and strategies for greater organizational success achieved through robust organization. Management is optimistic about the future and understands how to achieve goals.

Organizational culture shows no significant differences between TQM and TQM ISO companies. However, non-TQM companies are different. The results indicate that companies implementing TQM in clan, adhocracy, hierarchy, and market cultures have superior value. This illustrates that the company has a better organizational system and structure as a consequence of TQM implementation. Organizations reflect flexibility concerning individual differences and are friendly places to work. Morality, cooperation, and teamwork are strong in companies, and human relationships, participation, and commitment are emphasized. Managers have effective plans and strategies to generate and improve company performance to succeed in a competitive marketplace. Companies have a clear organizational structure, standardized operating procedures, and strict control.

Financial performance shows significant differences between the three types of companies. For non-financial performance, no significant differences are found between TQM and TQM ISO companies. However, the non-TQM companies are different. The results indicate that TQM implementation produces competitive advantage to improve organizational performance. For financial performance, implementing TQM provides direct benefits that increase profits with reduced cost to an organization's operations such as reduced scrap, rework, and warranty cost. Non-financial performance shows secondary effects of TQM implementation with benefits such as improved customer satisfaction because organizations have better products and services, reduced customer complaints through superior

customer relations, improved employee involvement, and fewer defects and failures.

Table 5.8 Post hoc tests (multiple comparisons)

Dependent variable	Between companies		Mean difference	Std. error	Sig.
Long-term Orientation (LTO)	TQM	TQM-ISO	0.1746	0.097	0.172
	TQM	Non-TQM	0.5978	0.108	0.000*
	TQM-ISO	Non-TQM	0.4232	0.104	0.000*
Clan	TQM	TQM-ISO	0.0399	0.092	0.902
	TQM	Non-TQM	0.2613	0.102	0.031*
	TQM-ISO	Non-TQM	0.2214	0.099	0.067
Adhocracy	TQM	TQM-ISO	0.0863	0.079	0.520
	TQM	Non-TQM	0.2694	0.088	0.007*
	TQM-ISO	Non-TQM	0.1831	0.085	0.081
Hierarchy	TQM	TQM-ISO	0.0458	0.086	0.855
	TQM	Non-TQM	0.2856	0.096	0.009*
	TQM-ISO	Non-TQM	0.2398	0.092	0.027*
Market	TQM	TQM-ISO	0.1198	0.082	0.314
	TQM	Non-TQM	0.4311	0.091	0.000*
	TQM-ISO	Non-TQM	0.3113	0.088	0.002*
Financial Performance	TQM	TQM-ISO	0.2712	0.096	0.014*
	TQM	Non-TQM	0.5810	0.106	0.000*
	TQM-ISO	Non-TQM	0.3098	0.103	0.008*
Non-financial Performance	TQM	TQM-ISO	0.2213	0.097	0.060
	TQM	Non-TQM	0.5238	0.108	0.000*
	TQM-ISO	Non-TQM	0.3025	0.104	0.011*

Note: * The mean difference is significant at the 0.05 level.

Therefore, with the implementation of TQM and ISO certification, a company already has a standard for a quality management system. Quality management is one element of operations management designed to achieve organizational

objectives more efficiently. An effective management system can ensure the company will deliver the goods or services in accordance with set requirements. This builds customer confidence and the firm's ability to compete in the global marketplace. Implementing TQM and ISO are valuable assets for an organization. The implementation of TQM and ISO certification can be considered institutional factors and an appropriate strategy for improving competitive advantage and business performance.

5.4 Conclusions

Several conclusions can be formed from the results and discussion in this section. Based on the first hypothesis, the empirical findings indicate that the national culture has no significant differences among TQM, TQM ISO, and non-TQM companies with the exception of the long-term orientation dimension. This implies no difference in the national culture of Indonesian companies.

The second hypothesis suggests that the organizational cultures of TQM and TQM-ISO companies are not significantly different. However, non-TQM companies are different. The differences in cultural context show that TQM implementation has changed the organizational culture of companies. Prior to the implementation of TQM, non-TQM company managers must possess knowledge of the dominant organizational culture in their company. The managers evaluate their culture to develop steps or TQM implementation. An environment and culture that supports the successful implementation of TQM is required.

The last hypothesis shows significant differences in company performance among the three types of companies. This evidence indicates that TQM and ISO companies perform better than non-TQM companies. We conclude that, to achieve high performance, the company should implement TQM or part of TQM such as acquiring ISO certification. By implementing TQM, companies have high standards of quality management and culture.

The results are consistent with the previous assumption that all companies have a similar national culture. However, organizational culture and company performance differ significantly among company types.

Chapter 6
Conclusions and Recommendations

6.1 Introduction

This chapter provides the conclusions and recommendations of this thesis and research conclusions obtained from conducting this study. This study began with a discussion and review of TQM literature. We defined the TQM concept as a quality management philosophy for continuously improving overall organizational performance based on leadership, a vision and plan statement, customer focus, education and training, benchmarking, teamwork, a continuous improvement process, employee involvement, supplier quality management, and recognition and reward. We proposed ten constructs of TQM and an extensive literature review on culture and organizational performance.

The review of culture suggested five dimensions of national culture from Hofstede (2001) and four dimensions of organizational culture by Cameron and Quinn (1999). The five dimensions of national culture are: power distance, uncertainty avoidance, masculinity, collectivism, and long-term orientation. The four dimensions of organizational culture by Cameron and Quinn are based on the competing values framework (CVF): clan, adhocracy, hierarchy, and market culture. The organizational performance was measured using two significant dimensions: financial performance such as ROA, net income to revenue ratio, revenue development, net earnings, and non-financial performance criteria including market share, customer satisfaction, product/service defects or failures, customer complaints, employee satisfaction, employee turnover, and reputation among major customer segments.

Section 6.2 presents the conclusions from this study. Section 6.3 offers recommendations for practitioners and future research perspectives.

6.2 Conclusions

Numerous conclusions have been obtained from this thesis, and the empirical investigations into TQM include aspects of culture, implementation, and performance in Indonesia. Findings concerning the interplay between national and organizational cultures, TQM implementation, and how TQM affects organizational performance of Indonesian companies include the following.

First, the instruments for measuring national and organizational culture, TQM implementation, and organizational performance are reliable and valid and can be used directly in other studies for different populations by other researchers. The instruments investigate the relationship between culture, TQM implementation, and organizational performance. Indonesian practitioners can evaluate their culture and design TQM implementation programs to improve organizational performance and the TQM implementation process.

Second, several conclusions are evident from the empirical investigation of national and organizational culture, TQM implementation, and organizational performance with TQM and ISO companies.

1. National culture influences organizational culture. Uncertainty avoidance and long-term orientation have significant positive effects on clan, market, adhocracy, and hierarchy cultures. Masculinity and collectivism have negative effects on adhocracy and hierarchy cultures, respectively.

2. Organizational culture has a direct impact on TQM implementation. Clan and adhocracy cultures have significant positive effects on TQM. However, only market culture shows a positive effect on non-financial performance.

3. TQM constructs play a positive role in improving organizational performance. TQM implementation requires leadership, education and training, teamwork, a continuous improvement process, supplier quality management, and recognition and rewards. These constructs are vital to improving organizational performance.

4. There is no significant difference in the organizational culture of TQM and TQM ISO companies. Companies that implement TQM systems or that are TQM ISO certified have the same organizational culture.
5. There is a significant difference in the TQM implementation and performance of TQM and TQM ISO companies. TQM companies perform better than TQM ISO companies with respect to leadership, teamwork, continuous process improvement, supplier quality management, and financial and non-financial performance.
6. ISO certification does not necessarily add significant value to a company that has already implemented a TQM system. However, if a company requires an ISO certification, they should certainly acquire ISO certification.

Third, several conclusions have been obtained from a comparative study of national culture, organizational culture, and performance of TQM, ISO, and non-TQM companies.

1. Indonesian national culture has high uncertainty avoidance, a collectivist perspective, high long-term orientation, low power distance and show an average preference for masculinity.
2. National culture does not differ among TQM, ISO, and non-TQM companies, and there is no difference in the national culture of Indonesian companies.
3. Organizational culture does not differ significantly among TQM and ISO companies. However, non-TQM companies are different.
4. Company performance significantly differs among the three types of firms. This evidence indicates that TQM and ISO companies perform better organizationally than non-TQM companies.

6.3 Recommendations

6.3.1 Managerial implications

This research has important practical and academic implications such as the observation that significant events create triggers for performing improvements, which then provide motivation for quality management implementation. There is no single strategy for successful quality management implementation in Indonesia. Companies must consider their specific influential conditions. By better understanding the nature and type of national and organizational culture and the relationship between culture and TQM constructs, managers can effectively implement TQM.

Prior to the implementation of TQM or ISO systems, managers must determine the dominant organizational culture in their company. Differences in the cultural context of each company may significantly affect the implementation of TQM or ISO systems. Additionally, the following are important implications of this thesis:

1. Management should assess the culture using the proposed model to develop steps for TQM implementation. An environment and culture that supports the successful implementation of TQM is required.
2. The proposed model could be used by managers to assess TQM implementation in their organization. Knowledge of TQM implementation will provide insight for managers to evaluate and prepare plans for performance improvement.

6.3.2 Limitations and future research

This study addressed the culture, TQM implementation, and the TQM relationship with organizational performance. Despite our findings, there are opportunities for further research. First, the instruments in this thesis can be used for larger sample sizes with diverse demographics; the generalization is limited in this thesis. Second, the data collected in this thesis are subjective and depend on the

perceptions of the respondents. Therefore, data is relatively weak because respondents were asked for their general perception of company conditions, which may lead to bias in the research findings.

Further research could address the limitations of this study. First, the measurement model in this study could reexamine the validity of its findings. Second, the observations could be applied to a longitudinal case study. Third, further research could use larger sample sizes with diverse demographics and organizational types. Finally, organizational performance could include financial statements and other performance measures as indicators of company performance.

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Appendix A

Frequency distributions and means of respondents' responses to measurement items

Table A.1 Items measuring national culture dimensions

Scales	Item	Mean	Response frequency					Total
			1	2	3	4	5	
Power Distance (Scale 1)*	1	2.6279	9	49	57	9	5	129
	2	2.5891	10	48	58	11	2	129
	3	2.6357	10	47	55	14	3	129
	4*	2.7752	15	42	33	35	4	129
	5	2.6744	13	40	55	18	3	129
Uncertainty Avoidance (Scale 2)	1	4.2403		1	3	89	36	129
	2	4.1395		1	11	86	31	129
	3	4.2093			6	90	33	129
	4	4.2093			11	80	38	129
	5	4.0543		7	9	83	30	129
Masculinity (Scale 3)	1	3.0078	4	51	36	16	22	129
	2	3.0698	6	48	32	17	26	129
	3	3.5504	2	14	44	49	20	129
	4	3.5581	4	12	47	40	26	129
	5	3.2636	5	28	47	26	23	129
Collectivism (Scale 4)	1	4.0155		9	6	88	26	129
	2	4.0233		8	7	88	26	129
	3	4.1783		1	7	89	32	129
	4	3.8682		12	23	64	30	129
Long-term Orientation (Scale 5)	1	3.9535		1	22	88	18	129
	2	4.1318			19	74	36	129
	3	4.0543		3	20	73	33	129

Note: * The item was deleted after the factor analysis.

Table A.2 Items measuring organizational culture dimensions

Scales	Item	Mean	Response frequency					Total
			1	2	3	4	5	
Clan Culture (Scale 1)	1	3.9690	2	2	24	71	30	129
	2	3.9767		4	29	62	34	129
	3	4.1705		1	17	70	41	129
	4	4.3333		1	9	65	54	129
	5	4.2171		1	12	74	42	129
	6	4.2713		3	7	71	48	129
Adhocracy Culture (Scale 2)	1	4.0000		9	11	80	29	129
	2	4.0698			27	66	36	129
	3	4.2248		1	15	67	46	129
	4	4.1938		1	7	87	34	129
	5	4.2248		3	11	69	46	129
	6	4.2093		2	10	76	41	129
Hierarchy Culture (Scale 3)	1	4.2016		2	7	83	37	129
	2	4.2403		1	9	77	42	129
	3	4.2093		2	8	80	39	129
	4	4.2481		2	14	63	50	129
	5	4.2016		2	17	63	47	129
	6	4.2248		2	7	80	40	129
Market Culture (Scale 4)	1	4.2946		1	3	82	43	129
	2	4.2248			12	76	41	129
	3	4.2016		2	12	73	42	129
	4	4.2403		1	5	85	38	129
	5	4.3333		2	7	66	54	129
	6	4.1628		2	16	70	41	129

Table A.3 Items measuring TQM implementation constructs

Scales	Item	Mean	Response frequency					Total
			1	2	3	4	5	
Leadership (Scale 1)	1	4.3333			11	64	54	129
	2	4.2248		2	17	60	50	129
	3	4.2403		1	23	49	56	129
	4	4.2558		4	11	62	52	129
	5	4.2791		3	10	64	52	129
	6	4.2791		1	13	64	51	129
	7	4.2093	1	1	12	71	44	129
	8	4.4031			7	63	59	129
Vision and Plan Statement (Scale 2)	1	4.5194			5	52	72	129
	2	4.5426			4	51	74	129
	3	4.3798	1	1	14	45	68	129
	4	4.4651		2	4	55	68	129
	5	4.4341			6	61	62	129
	6	4.4341		1	4	62	62	129
	7	4.3876		2	8	57	62	129
	8	4.3023		3	16	49	61	129
Customer Focus (Scale 3)	1	4.5271		2	4	47	76	129
	2	4.5194			1	60	68	129
	3	4.4264	1	1	10	47	70	129
	4	4.3566		4	7	57	61	129
	5	4.4031	1	4	3	55	66	129
	6	4.4729		2	8	46	73	129
Education and Training (Scale 4)	1	4.0388		1	28	65	35	129
	2	4.0078		2	26	70	31	129
	3	4.1318		2	20	66	41	129
	4	4.0853		1	25	65	38	129
	5	4.0930		2	23	65	39	129
	6	4.1318		1	18	73	37	129
Benchmarking (Scale 5)	1	4.0465			24	75	30	129
	2	3.9380		3	33	62	31	129
	3	4.1008			23	70	36	129
	4	3.8527	4	6	33	48	38	129
	5	4.0078			36	56	37	129
Teamwork (Scale 6)	1	4.4651			7	55	67	129
	2	4.4496			4	63	62	129
	3	4.4031		1	8	58	62	129
	4	4.4496			6	59	64	129
	5	4.4109			7	62	60	129

Continued

Scales	Item	Mean	Response frequency					Total
			1	2	3	4	5	
Continuous Improvement Process (Scale 7)	1	4.1085		3	17	72	37	129
	2	4.1085		1	20	72	36	129
	3	4.1395		5	12	72	40	129
	4	4.1473		1	14	79	35	129
Employee Involvement (Scale 8)	1	4.0543		1	27	65	36	129
	2	4.1085		1	22	68	38	129
	3	4.1473		2	18	68	41	129
	4	4.1783		1	15	73	40	129
	5	4.2171		1	13	72	43	129
Supplier Quality Management (Scale 9)	1	4.3256			7	73	49	129
	2	4.4031			2	73	54	129
	3	4.1860		1	16	70	42	129
	4	4.2403		1	12	71	45	129
	5	4.2093			27	48	54	129
Recognition and Reward (Scale 10)	1	4.2481			17	63	49	129
	2	4.2481			16	65	48	129
	3	4.0465	2	5	28	44	50	129
	4	4.2481		1	14	66	48	129
	5	4.3023			17	56	56	129

Table A.4 Items measuring organizations performance dimensions

Scales	Item	Mean	Response frequency					Total
			1	2	3	4	5	
Financial (Scale 11)	1	4.3411		2	4	71	52	129
	2	4.3411		1	10	62	56	129
	3	4.4109			8	60	61	129
	4	4.4031			5	67	57	129
Non-financial (Scale 12)	1	4.4109			5	66	58	129
	2	4.3488		1	15	51	62	129
	3	4.3333			14	58	57	129
	4	4.2636		1	19	54	55	129
	5	4.2093		3	14	65	47	129
	6	4.1628		2	21	60	46	129
	7	4.3798			5	70	54	129

Appendix B

Item to scale correlation matrix (Pearson correlation)

Table B.1 Item to scale correlation matrix of the five dimensions of national culture

Scales	Item	1	2	3	4	5
Power Distance (Scale 1)	1	**0.785**	0.189	0.236	0.156	-0.025
	2	**0.797**	0.095	0.261	0.175	-0.004
	3	**0.766**	0.065	0.155	-0.037	-0.102
	4*	**0.578**	-0.096	0.508	0.013	-0.155
	5	**0.701**	-0.221	0.297	0.211	0.070
Uncertainty Avoidance (Scale 2)	1	-0.020	**0.754**	-0.113	0.033	-0.070
	2	0.072	**0.778**	-0.039	0.118	0.039
	3	-0.109	**0.685**	-0.254	-0.065	0.002
	4	0.090	**0.812**	-0.009	0.158	0.063
	5	-0.047	**0.776**	0.053	0.433	0.336
Masculinity (Scale 3)	1	0.365	-0.163	**0.910**	0.289	-0.057
	2	0.372	-0.033	**0.930**	0.370	0.015
	3	0.355	-0.163	**0.858**	0.165	-0.102
	4	0.341	0.099	**0.840**	0.322	0.044
	5	0.428	-0.095	**0.891**	0.363	0.097
Collectivism (Scale 4)	1	0.097	0.069	0.317	**0.889**	0.420
	2	0.179	-0.067	0.371	**0.873**	0.365
	3	0.161	0.358	0.219	**0.746**	0.236
	4	0.060	0.341	0.255	**0.857**	0.450
Long-term Orientation (Scale 5)	1	-0.001	0.096	-0.056	0.343	**0.732**
	2	-0.090	0.172	0.061	0.493	**0.853**
	3	-0.061	0.025	-0.005	0.250	**0.809**

Note: * The item was deleted after the factor analysis.

Table B.2 Item to scale correlation matrix of the four organizational culture dimensions

Scales	Item	1	2	3	4
Clan Culture (Scale 1)	1	**0.753**	0.610	0.625	0.622
	2	**0.773**	0.642	0.472	0.534
	3	**0.819**	0.695	0.561	0.598
	4	**0.797**	0.691	0.573	0.689
	5	**0.714**	0.575	0.603	0.657
	6	**0.699**	0.577	0.551	0.594
Adhocracy Culture (Scale 2)	1	0.601	**0.768**	0.562	0.672
	2	0.641	**0.687**	0.527	0.517
	3	0.619	**0.683**	0.580	0.575
	4	0.606	**0.706**	0.589	0.632
	5	0.550	**0.673**	0.683	0.622
	6	0.507	**0.719**	0.703	0.686
Hierarchy Culture (Scale 3)	1	0.497	0.605	**0.663**	0.655
	2	0.655	0.669	**0.771**	0.690
	3	0.654	0.664	**0.740**	0.626
	4	0.381	0.499	**0.574**	0.395
	5	0.545	0.642	**0.740**	0.623
	6	0.429	0.564	**0.766**	0.636
Market Culture (Scale 4)	1	0.540	0.649	0.562	**0.757**
	2	0.731	0.689	0.608	**0.749**
	3	0.598	0.639	0.593	**0.692**
	4	0.533	0.630	0.722	**0.746**
	5	0.587	0.649	0.741	**0.719**
	6	0.577	0.612	0.539	**0.768**

Table B.3 Item to scale correlation matrix for the ten TQM Implementation contracts

Scales	Item	1	2	3	4	5	6	7	8	9	10
Leadership (Scale 1)	1	**0.697**	0.430	0.264	0.442	0.537	0.235	0.446	0.386	0.467	0.270
	2	**0.806**	0.585	0.350	0.606	0.550	0.516	0.564	0.573	0.305	0.479
	3	**0.809**	0.588	0.497	0.596	0.601	0.447	0.633	0.547	0.384	0.472
	4	**0.822**	0.647	0.510	0.551	0.517	0.526	0.660	0.624	0.448	0.536
	5	**0.787**	0.599	0.475	0.496	0.500	0.397	0.490	0.549	0.509	0.432
	6	**0.780**	0.562	0.388	0.622	0.620	0.596	0.592	0.604	0.457	0.579
	7	**0.692**	0.489	0.507	0.494	0.468	0.393	0.491	0.527	0.403	0.488
	8	**0.792**	0.618	0.393	0.560	0.480	0.454	0.600	0.561	0.421	0.535
Vision and Plan Statement (Scale 2)	1	0.538	**0.806**	0.538	0.452	0.265	0.643	0.427	0.536	0.389	0.546
	2	0.593	**0.827**	0.480	0.477	0.282	0.652	0.430	0.569	0.460	0.582
	3	0.687	**0.852**	0.447	0.497	0.353	0.693	0.471	0.593	0.383	0.595
	4	0.591	**0.800**	0.460	0.438	0.234	0.576	0.326	0.487	0.300	0.530
	5	0.568	**0.867**	0.404	0.500	0.404	0.499	0.406	0.531	0.535	0.446
	6	0.579	**0.866**	0.395	0.492	0.383	0.482	0.461	0.575	0.575	0.491
	7	0.639	**0.847**	0.408	0.528	0.438	0.626	0.526	0.631	0.545	0.432
	8	0.628	**0.785**	0.413	0.390	0.383	0.522	0.486	0.539	0.475	0.402
Customer Focus (Scale 3)	1	0.327	0.473	**0.731**	0.368	0.143	0.592	0.361	0.459	0.247	0.443
	2	0.355	0.319	**0.718**	0.424	0.226	0.552	0.455	0.450	0.379	0.543
	3	0.270	0.326	**0.800**	0.320	0.109	0.400	0.359	0.275	0.271	0.443
	4	0.492	0.391	**0.816**	0.474	0.258	0.425	0.419	0.313	0.357	0.348
	5	0.494	0.521	**0.754**	0.381	0.156	0.408	0.284	0.358	0.265	0.413
	6	0.589	0.404	**0.790**	0.530	0.345	0.425	0.554	0.378	0.318	0.408
Education and Training (Scale 4)	1	0.526	0.424	0.316	**0.838**	0.615	0.379	0.558	0.533	0.337	0.472
	2	0.545	0.460	0.432	**0.865**	0.560	0.362	0.485	0.500	0.348	0.433
	3	0.622	0.385	0.553	**0.869**	0.741	0.432	0.580	0.607	0.502	0.521
	4	0.715	0.551	0.456	**0.891**	0.757	0.556	0.615	0.756	0.527	0.621
	5	0.690	0.630	0.570	**0.920**	0.668	0.613	0.714	0.780	0.477	0.652
	6	0.549	0.475	0.453	**0.779**	0.637	0.545	0.687	0.693	0.434	0.572
Benchmarking (Scale 5)	1	0.504	0.402	0.138	0.675	**0.853**	0.384	0.600	0.636	0.565	0.362
	2	0.608	0.316	0.249	0.635	**0.865**	0.314	0.624	0.587	0.497	0.375
	3	0.674	0.517	0.323	0.770	**0.860**	0.584	0.663	0.714	0.602	0.630
	4	0.571	0.221	0.245	0.581	**0.867**	0.262	0.628	0.481	0.511	0.329
	5	0.625	0.408	0.179	0.698	**0.862**	0.385	0.598	0.712	0.671	0.456
Teamwork (Scale 6)	1	0.492	0.624	0.510	0.476	0.378	**0.892**	0.481	0.595	0.406	0.563
	2	0.452	0.651	0.514	0.477	0.326	**0.890**	0.436	0.562	0.446	0.606
	3	0.518	0.660	0.532	0.496	0.366	**0.913**	0.518	0.598	0.421	0.552
	4	0.524	0.527	0.516	0.499	0.387	**0.803**	0.536	0.519	0.451	0.543
	5	0.535	0.624	0.527	0.486	0.432	**0.861**	0.521	0.609	0.439	0.644
Continuous Improvement Process (Scale 7)	1	0.617	0.408	0.426	0.565	0.574	0.480	**0.851**	0.593	0.451	0.467
	2	0.632	0.378	0.421	0.616	0.704	0.424	**0.922**	0.680	0.551	0.524
	3	0.659	0.571	0.492	0.634	0.592	0.586	**0.890**	0.744	0.570	0.507
	4	0.658	0.537	0.504	0.680	0.697	0.530	**0.875**	0.752	0.551	0.608

Continued

Scales	Item	1	2	3	4	5	6	**7**	8	9	10
Employee Involvement (Scale 8)	1	0.719	0.599	0.478	0.766	0.711	0.536	0.746	**0.870**	0.497	0.728
	2	0.658	0.604	0.472	0.711	0.657	0.612	0.708	**0.903**	0.590	0.673
	3	0.602	0.583	0.344	0.625	0.616	0.630	0.665	**0.896**	0.579	0.645
	4	0.605	0.611	0.369	0.657	0.595	0.591	0.723	**0.914**	0.558	0.669
	5	0.512	0.554	0.416	0.511	0.536	0.532	0.579	**0.800**	0.635	0.552
Supplier Quality Management (Scale 9)	1	0.495	0.526	0.340	0.422	0.506	0.520	0.552	0.548	**0.775**	0.379
	2	0.404	0.485	0.292	0.367	0.418	0.417	0.447	0.582	**0.860**	0.500
	3	0.492	0.444	0.410	0.460	0.578	0.424	0.536	0.523	**0.869**	0.532
	4	0.391	0.479	0.344	0.350	0.447	0.476	0.489	0.578	**0.860**	0.533
	5	0.398	0.299	0.198	0.417	0.619	0.192	0.383	0.399	**0.655**	0.167
Recognition and Reward (Scale 10)	1	0.672	0.680	0.524	0.663	0.517	0.737	0.582	0.780	0.491	**0.865**
	2	0.623	0.541	0.594	0.700	0.544	0.636	0.670	0.731	0.495	**0.865**
	3	0.321	0.388	0.312	0.321	0.197	0.388	0.280	0.430	0.262	**0.795**
	4	0.577	0.526	0.568	0.571	0.426	0.514	0.563	0.637	0.541	**0.862**
	5	0.482	0.465	0.410	0.509	0.468	0.608	0.499	0.658	0.462	**0.855**

Table B.4 Item to scale correlation matrix for the two performance indicators (Pearson correlation)

Scales	Item	1	2
Financial (Scale 1)	1	**0.866**	0.767
	2	**0.930**	0.772
	3	**0.920**	0.766
	4	**0.909**	0.853
Non-financial (Scale 2)	1	0.811	**0.837**
	2	0.713	**0.816**
	3	0.766	**0.845**
	4	0.734	**0.852**
	5	0.658	**0.860**
	6	0.761	**0.905**
	7	0.788	**0.871**

Appendix C
Normal Distribution Test

In this section, SPSS conducts a data normality test using the values of skewness and kurtosis for each study variable. The mean and standard deviations for each independent variable are calculated to determine the mean for each variable (construct). First the total values for all questions for a given construct are calculated. Then, the mean is calculated by dividing the total values by the number of respondents. Table C.1 shows the skewness, kurtosis, mean, and standard deviations.

Table C.1 The skewness, kurtosis, mean, and standard deviations of TQM and performance constructs

Constructs	Min	Max	Mean	Std. Dev.	Skew.	Kurt.
Leadership	22	40	34.225	4.298	-0.35	-0.53
Vision and Plan Statement	24	40	35.465	4.301	-0.49	-0.81
Customer Focus	16	30	26.705	3.131	-0.48	-0.51
Education and Training	16	30	24.488	3.683	-0.05	-0.81
Benchmarking	14	25	19.946	3.313	0.19	-1.05
Teamwork	15	25	22.178	2.602	-0.51	-0.39
Continuous Improvement Process	10	20	16.504	2.431	-0.14	-0.31
Employee Involvement	15	25	20.705	3.011	0.08	-0.85
Supplier Quality Management	15	25	21.364	2.537	0.16	-0.92
Recognition and Reward	14	25	21.093	3.083	-0.16	-1.03
Financial	12	20	17.496	2.219	-0.35	-0.69
Non-financial Performance	20	35	30.109	4.035	-0.17	-0.92

According to Dancey and Reidy (2007) and Hair et al. (2006), skewness values outside the range of -1 to +l indicate a substantially skewed or abnormal distribution. Similarly, kurtosis values outside the range of -3 to +3 indicate a substantially peaked or abnormal distribution. The values of skewness and

kurtosis for TQM and performance constructs indicate that the data for all the variables are normally distributed. The central limit theory, a sampling distribution on independent random variables, is an approximate normal distribution if a sample size exceeds 30 observations (McClave et al., 2005; Sekaran, 2006; Dancey and Reidy, 2007).

Appendix D

TQM Questionnaires

SURVEY ON THE IMPLEMENTATION OF TOTAL QUALITY MANAGEMENT IN INDONESIA

Introduction:
This survey is a part of a study on Total Quality Management – Aspects of Culture, Implementation and Performance: Empirical Investigations in Indonesia. The main objective of this survey is to determine the relationship between national and organizational culture, total quality management (TQM), and organizational performance in Indonesia. The information obtained will be used for research purposes only, and no attempt will be made to identify any individual or organizations in any of our publications.

Instructions:
This questionnaire consists of 5 (five) main sections. Please read the questions carefully before answering them.

SECTION 1: GENERAL INFORMATION (Company Information)

In this section, we would like to know about your organization in general. Please tick (□) in the appropriate boxes or fill in the blanks.

1. Company Name:

2. What is Company's type?
   □ manufacturing □ service

3. What is the approximate number of employees in your company?
   □ Less Than 50 □ 51- 250 □ 251-500 □ More than 500

4. How much is your annual sales per year?
   □ Less than $ 2,0 million □ $ 2,0 million to $ 10 million
   □ $ 10 million to $ 50 million □ More than $ 50 million

5. What is the type of industry?
   □ Food and beverage □ Textile, garments and leather
   □ Wood, forest product, and furniture □ Chemical and petrochemical
   □ Mining □ Agribusiness
   □ Others (Please specify) ……

6. What is the status of the ownership of your company?
   □ Family Company □ Joint Venture

□ State-owned Company □ Fully foreign
□ Others (Please specify) ……

7. What year is company established? (year)

8. Does your company implement TQM?
□ Yes □ No
[If yes, please go to question 9; if no, please go to question 11]

9. How long has your company implemented TQM?
□ Less than a year □ 1–2 years □ 2–3 years □ More than 3 year

10. Which of the following is your company certified to? (Tick as many as apply).
□ None □ MS ISO 14001
□ MS ISO 9001-2008 □ HACCP
□ Others (Please specify) ……..

11. What is your position in your company?
□ CEO/ General Manager/ Director □ QualityAssurance/Control Manager
□ Engineering Department Manager □ Production Manager
□ HRD Manager □ Others (Please specify) ……..

SECTION 2: NATIONAL CULTURE

1. Power distance

A. Managers should make most decisions without consulting subordinates.
B. It is frequently necessary for a manager to use authority and power when dealing with subordinates.
C. Managers should seldom ask for the opinions of employees.
D. Employees should not disagree with management decisions.
E. Managers should not delegate important tasks to employees.

2. Uncertainty avoidance

A. It is important to have job requirements and instructions spelled out in detail so that employees always know what they are expected to do.
B. Managers expect workers to follow closely instructions and procedures.
C. Rules and regularities are important because they inform workers what the organization expects of them.
D. Standard operating procedures are helpful to employees on the job.
E. Instructions for operations are important for employees on the job.

3. Masculinity

A. Meetings are usually run more effectively when they are chaired by a man.
B. It is more important for men to have a professional career than it is for women to have a professional career.
C. Men usually solve problems with logical analysis; women usually solve

problems with intuition.

D. Solving organizational problems usually require an active, forcible approach which is typical of men.
E. It is preferable to have a man in a high-level position rather than a woman.

4. Collectivism

A. Group welfare is more important than individual rewards.
B. Group success is more important than individual success.
C. Being accepted by the members of your workgroup is very important.
D. Employees should pursue their goals after considering the welfare of the group

5. Time orientation

A. Employees must obey the company regulations, even if they think that this is not matching the company objectives
B. Tradition is important in our company.
C. If there is a mistake, we do not want our superior to lose face.

SECTION 3: ORGANIZATIONAL CULTURE

1. Dominant Characteristics

A. The organization is a very personal place. It is like an extended family. People seem to share a lot of themselves.
B. The organization is a very dynamic entrepreneurial place. People are willing to stick their necks out and take risks.
C. The organization is very results oriented. A major concern is with getting the job done. People are very competitive and achievement oriented.
D. The organization is a very controlled and structured place. Formal procedures generally govern what people do.

2. Organizational Leadership

A. The leadership in the organization is generally considered to exemplify mentoring, facilitating, or nurturing.
B. The leadership in the organization is generally considered to exemplify entrepreneurship, innovating, or risk taking.
C. The leadership in the organization is generally considered to exemplify a no-nonsense, aggressive, results-oriented focus.
D. The leadership in the organization is generally considered to exemplify coordinating, organizing, or smooth-running efficiency.

3. Management of Employees

A. The management style in the organization is characterized by teamwork, consensus, and participation.
B. The management style in the organization is characterized by individual risk-taking, innovation, freedom, and uniqueness.
C. The management style in the organization is characterized by hard-driving competitiveness, high demands, and achievement.
D. The management style in the organization is characterized by security of employment, conformity, predictability, and stability in relationships.

4. Organization Glue

A. The glue that holds the organization together is loyalty and mutual trust. Commitment to this organization runs high.
B. The glue that holds the organization together is commitment to innovation and development. There is an emphasis on being on the cutting edge.
C. The glue that holds the organization together is the emphasis on achievement and goal accomplishment. Aggressiveness and winning are common themes.
D. The glue that holds the organization together is formal rules and policies. Maintaining a smooth-running organization is important.

5. Strategic Emphases

A. The organization emphasizes human development. High trust, openness, and participation persist.
B. The organization emphasizes acquiring new resources and creating new challenges. Trying new things and prospecting for opportunities are valued.
C. The organization emphasizes competitive actions and achievement. Hitting stretch targets and winning in the marketplace are dominant.
D. The organization emphasizes permanence and stability. Efficiency, control and smooth operations are important.

6. Criteria of Success

A. The organization defines success on the basis of the development of human resources, teamwork, employee commitment, and concern for people.
B. The organization defines success on the basis of having the most unique or newest products. It is a product leader and innovator.
C. The organization defines success on the basis of winning in the marketplace and outpacing the competition. Competitive market leadership is key.
D. The organization defines success on the basis of efficiency. Dependable delivery, smooth scheduling and low-cost production are critical.

SECTION 4: TOTAL QUALITY MANAGEMENT

1. Leadership

1) Top management actively participates in quality management and improvement process.
2) Top management learns quality-related concepts and skills.
3) Top management strongly encourages employee involvement in quality
4) Top management empowers employees to solve quality problems
5) Top management arranges adequate resources for employee education and training
6) Top management discusses many quality-related issues in top management meetings.
7) Top management focuses on product quality rather than yields.
8) Top management pursues long-term business success

2. Vision and Plan Statement

1) Our company has a clear long-term vision statement.
2) The vision effectively encourages employees' commitment to quality improvement
3) Our company has a clear short-term business plan
4) Our company has a clear quality policy
5) Our company has a detailed quality goal
6) Our company has an effective quality improvement plan
7) Various policies and plans are well communicated to the employees
8) Employees from different levels are involved in making policies and plans

3. Customer Focus

1) Our company collects extensive complaint information from customers
2) Quality-related customer complaints are treated with top priority
3) Our company conducts a customer satisfaction survey every year
4) Our company always conducts market research in order to collect suggestions for improving our products
5) Our company provides warranty on our sold products to customers.
6) Our company has been customer focused for a long time

4. Education and Training

1) Employees are encouraged to accept education and training in our company
2) Resources are available for employee education and training in our company
3) Most employees in our company are trained on how to use quality management methods (tools)
4) Quality awareness education is given to employees
5) Specific work-skills training is given to all employees
6) Employees are regarded as valuable, long-term resources worthy of receiving education and training throughout their career

5. Benchmarking

1) We are engaged in extensive benchmarking of competitors' products that are similar to our primary product
2) We have engaged in extensive benchmarking of other companies' business processes in other industries
3) Benchmarking to effectively improve our product
4) Our benchmarking activities have reduced product costs
5) Our Company will definitely continue benchmarking

6. Teamwork

1) Our Company uses teamwork to solve problems
2) Our Company has embraced the teamwork concept
3) Many work problems are now being solved through team meetings
4) During team meetings, we make an effort to get all team members' opinions and ideas before making a decision
5) Conflict between or among team members is handled promptly and effectively

7. Continuous Improvement Process

1) Our company have a quality improvement coordinating body (e.g. quality steering committee)
2) Improvement teams are active in all departments
3) Quality improvement tools and techniques are widely used
4) Our company does the practice of continuous improvement of all its products, services, and processes

8. Employee Involvement

1) Our company has cross-functional teams or quality circles
2) Employees are actively involved in quality-related activities
3) Our company implements suggestion activities extensively
4) Employees are very committed to the success of our company
5) Reporting work problems is encouraged in our company

9. Supplier Quality Management

1) Our company has established long-term cooperative relations with suppliers
2) Our company regards product quality as the most important factor in selecting suppliers
3) Our company always gives feedback on the performance of suppliers' products
4) Our company has detailed information about supplier performance
5) Our company regularly conducts supplier quality audit

10. Recognition and Reward

1) Our company has a salary promotion scheme for encouraging employee participating in quality improvement
2) Position promotions are based on work quality in our company
3) Excellent suggestions are financially rewarded
4) Employees' rewards and penalties are clear
5) Recognition and reward activities effectively stimulate employee commitment to quality improvement

SECTION 5: ORGANIZATIONAL PERFORMANCE

Financial and non-financial Performance

1. Return on assets has been increasing.
2. Profit to revenue ratio has been improving.
3. Revenue has growth.
4. Net earnings has been increasing.
5. Market share has growth.
6. Customer satisfaction has shown improvement.
7. The numbers of products/services defects, errors, or failures found by the customer has been decreasing.
8. The number of customer complaints has been decreasing.
9. Employee satisfaction has been increasing.
10. Employee turnover has been decreasing.
11. Reputation among major customer segments has been increasing.

List of Publication

Journal Publications

1. RZ Abdul Aziz and Hiroshi Morita. National culture, organisational culture, total quality management implementation, and performance: an empirical investigation, International Journal of Productivity and Quality Management (Accepted, January 2015).

International Conference Papers

1. RZ Abdul Aziz and Hiroshi Morita. Relationship between national culture, organizational culture, TQM implementation and performance in Indonesia, Paper presented at the 11th *Asian Network for Quality Congress*, Bangkok, Thailand, 2013.
2. RZ Abdul Aziz and Hiroshi Morita. Organizational Culture, TQM Implementation and Performance: A Comparative Study between TQM and TQM-ISO Firms, Paper presented at 12th *Asian Network for Quality Congress*. Singapore, 2014.
3. RZ Abdul Aziz and Hiroshi Morita. A Comparative Study of National Culture, Organizational Culture and Performance in TQM, ISO and Non-TQM Firms, Paper presented at *International Conference on Quality*. Tokyo, Japan, 2014.

National Conference Papers

1. RZ Abdul Aziz and Hiroshi Morita. Developing and Validating Instrument TQM Constructs and Organizational Performance in the Indonesia Context. Paper presented at 103th *Conferences JSQC Kansai*, Osaka, Japan, 2013.