

Assessing the impact of organizational culture on achieving business excellence with a moderating role of ICT

An SEM approach

Rassel Kassem

Abu Dhabi School of Management, Abu Dhabi, United Arab Emirates

Mian Ajmal

College of Business, Abu Dhabi University, Al Ain, United Arab Emirates

Angappa Gunasekaran

School of Business and Public Administration,

California State University, Bakersfield, California, USA, and

Petri Helo

Department of Industrial Management, University of Vaasa, Vaasa, Finland

Impact of
organizational
culture

117

Received 17 March 2018
Revised 13 May 2018
Accepted 14 May 2018

Abstract

Purpose – The purpose of this paper is to discover the impact of different dimensions of organizational culture (mission culture, adaptability culture, involvement culture and consistency culture) on business excellence results criteria (customer results, people results, society results and business results) in the United Arab Emirates (UAE) and explore the moderating role of information and communication technology (ICT) use in both service and manufacturing industries.

Design/methodology/approach – Data were collected by questionnaire from 448 managers in nine companies that have won the Sheikh Khalifa Excellence Award in the last three years. Structural equation modeling was used to examine the data.

Findings – Organizational culture is significantly related to business excellence. However, these effects varied for different business excellence criteria. Three organizational culture types had a significant positive role in achieving excellent customer-related results. All four types of organizational culture had a positive role in achieving excellent people-related results. Only two culture types had significant role in achieving excellent society-related results. Business results were positively related to a balance between the four types of organizational culture. ICT use moderated the relationship between organizational culture and results related to customers, people and business, but not society.

Research limitations/implications – This study had some conceptual limitations. In particular, it considered the organizational culture as four types in the research model, but without structuring the indices under each type. It also had some methodological limitations. It was cross-sectional and used a self-administered questionnaire, which means that no causal relationships can be implied, and there may have been some bias in responding.

Originality/value – This is one of the first studies that investigate the relationship between organizational culture and business excellence in UAE excellence award-winning companies.

Keywords ICT, Organizational culture, United Arab Emirates, Business excellence

Paper type Research paper

1. Introduction

Organizational culture has been a topic of interest to researchers for more than 60 years and is still an active and interesting field of study. Researchers have continued to develop new definitions and interpretations of organizational culture and to conceptualize it in different ways, from a key part of the social fabric (Pettigrew, 1979), to the collective programming of the mind (Hofstede, 2004), or a pattern of norms, values, beliefs, assumptions and attitudes that



influences behavior within an organization (Chin-Loy and Mujtaba, 2007; Schein, 2010). Organizational culture studies have recently focused on the effect of culture on organizational performance, and using questionnaires as a quantitative tool to assess organizational culture (Denison *et al.*, 2014). The majority of researchers have found that organizational culture has a direct effect on performance (Sackmann, 2011). However, the relationship between organizational culture and business excellence, and how to achieve outstanding performance, is still ambiguous. Bolboli and Reiche (2013) admitted that it is still unclear how companies should manage organizational culture when applying business excellence models.

The idea of business excellence first appeared 30 years ago, as a new approach to help organizations to deal with the challenge of implementing total quality management (TQM) (Adebanjo, 2001). Business excellence was conceptualized through models developed by several different bodies around the globe, and then adopted by companies to improve performance and achieve business success (Enquist *et al.*, 2015; Ringrose, 2013). The implementation of business excellence models enabled companies to achieve success factors determined by organizational context (Najeh and Kara-Zaitri, 2007; Salaheldin, 2009). Success factors and fundamental concepts of excellence mainly focus on areas related to customers, employees, society and business performance (EFQM, 2013).

Although the culture–performance link has been widely studied (Ashkanasy *et al.*, 2011; Denison *et al.*, 2014), there is very little research on the relationship between organizational culture and business excellence. It is still not clear how corporations should manage organizational culture when applying business excellence models (Bolboli and Reiche, 2013), as lack of consideration of organizational culture is one of the major reasons why improvement projects fail within companies trying to implement business excellence models (Austin and Ciaassen, 2008). The gap in studying the organizational culture–business excellence link is more significant in the UAE and Middle East, because organizational culture research in Arab countries is rare (Klein *et al.*, 2009). There are also very few studies of companies and organizations that have achieved excellent performance, demonstrated by winning excellence awards (Ahrens, 2013; McAdam *et al.*, 2013). The relationship between organizational culture and business excellence is also a relatively new area for research (Gogheri *et al.*, 2013).

The focus in the UAE is to deliver excellent services and improve efficiency (Kassem *et al.*, 2017). This intention has been translated into dedicated strategic objectives on excellence in service delivery in the Abu Dhabi Plan 2020 (Abu Dhabi Plan, 2016), and has resulted in the establishment of quality and business excellence awards such as the Sheikh Khalifa Excellence Award (SKEA), the Mohamad Bin Rashid Government Excellence Award and the Abu Dhabi Award for Excellence in Government Performance, designed to improve performance and competitiveness in companies or government organizations. The UAE government prides itself on being a regional leader in using information and communication technology (ICT) and investing in building modern and advanced technological infrastructure. Government encouragement of ICT use is shown in various projects such as the e-government project, smart services initiatives, and strategic projects in the Abu Dhabi Plan 2020 to optimize and facilitate ICT enablers (Abu Dhabi Plan, 2016). One recent study ranked UAE first worldwide on the importance of ICT for achieving the government’s vision (Baller *et al.*, 2016), and the country is ranked 32 of 167 countries in the 2014 ICT Development Index (International Telecommunication Union, 2015).

The purpose of this study is to contribute to filling the gap in the literature and support efforts in the UAE to improve business excellence, as well as exploring the role of ICT utilization in the organizational culture and business excellence context. This will be done by examining the influence of organizational culture on business excellence in general, then looking at the effect of each organizational culture type (mission, adaptability, involvement and consistency) on each business excellence area (customers, people, society and business),

and examining the moderating role of ICT use on these relationships. In addition, this study will compare the culture-excellence link between service and manufacturing industries.

This study will therefore extend the previous research in several ways. First, it will frame the relationship between organizational culture and business excellence and examine it in the Middle Eastern context. Second, it is the first known study that attempts to comprehend and describe the association between organizational culture type and business excellence results criteria, considering the moderating effect of ICT use. Third, this study contributes to business excellence from an organizational culture perspective by examining the relationship between four types of organizational culture and four business excellence criteria. Fourth, it tests the moderation effect of ICT use on this relationship. Finally, it helps to better understand how the relationship between organizational cultures on business excellence differs in service and manufacturing industries.

2. Literature review

2.1 Organizational culture

The significance of organizational culture was recognized for the first time at the beginning of the second half of the twentieth century. In industrial firms, organizational culture was used to explain the low productivity environment and why rules and procedures failed to improve unhealthy relationships between supervisors and subordinates (Jaques, 1951). Around 30 years later, another new concept of organizational culture was introduced: the idea of culture as the social fabric of the organization, contributing to the collective process of establishing a unique organizational character (Pettigrew, 1979). Since then, a number of other definitions have been suggested, for example, considering organizational culture as a factor that differentiates between organizations on the basis of employee mindset, or “The collective programming of the mind which distinguishes the members of one organization from another” (Hofstede, 2004). Other researchers focused on the long-term beliefs characterizing groups and companies (Cameron and Quinn, 2005). Perhaps the most common definition is of organizational culture as a pattern of norms, values, beliefs, assumptions and attitudes that influences behavior within an organization (Chin-Loy and Mujtaba, 2007; Schein, 2010).

The literature also conceptualized organizational culture in different ways. Some researchers suggested that culture can be seen as a series of levels. Schein (2010), for example, identified three levels of organizational culture: symbols and artifacts, espoused values and the underlying assumptions. Culture can also be conceptualized by the unit of analysis. When a group of individuals with a shared objective work together, they will create a unique culture. Based on the level of analysis, different terms are used to articulate the phenomena emerging from these relationships. For example, if it occurs at the country or state level, we call it “national culture”; at an ethnic level, it is “ethnic culture”; and if the focus of study is the company, it is “organizational culture.” Here, culture is a tool created and used by a group of people to help them to survive and achieve their agreed objectives (Ostroff *et al.*, 2003).

Culture can also be categorized on the professional level, where each profession creates certain behaviors that are demonstrated by those who practice it (Burke *et al.*, 2016). Occupational culture can be identified as a level above organizational but below national culture; some occupations, however, may create cultures that include elements from organizational and national levels, such as the culture of management (Hofstede *et al.*, 2010). Organizational culture can be categorized into integration, differentiation and fragmentation perspectives as well. The integration perspective suggests that individual employees will agree about some elements of the organization’s culture and will usually describe it similarly, at least to some extent (Martin, 2002).

It is also possible to operationalize organizational culture in a number of ways, for example, holistically, metaphorically and quantitatively (Cameron and Quinn, 2005). Researchers use a holistic approach to gain a rich understanding of culture by contributing and noticing, almost attempting to become “native” to the company, as this gives them the opportunity for deeper understanding and the ability to describe the culture more accurately. Researchers using the metaphorical or language approaches apply techniques to identify cultural patterns in documents, conversations and other forms of language (Cameron and Quinn, 2005). This is relatively straightforward, but the quantitative approach remains easier to implement and provides faster results.

There are many different models used to assess organizational culture. Perhaps the most popular are the Denison Model (Denison and Mishra, 1995) and the Competing Values Framework (Cameron and Quinn, 2005). The Denison model is different from other organizational culture models. Most models are based on the culture effectiveness theory, but the primary theoretical framework of Denison Model is based on the field theory (Denison, 1984). The field theory (Lewin, 1997) has been used to describe different behaviors at the organizational level, but is also applicable to groups and individuals (Burnes and Cooke, 2013).

The Denison model is built on four characteristics that help companies improve their performance. These are adaptability, mission, involvement and consistency (Denison and Mishra, 1995). The work to construct this model used both quantitative and qualitative methods, and the results showed that overall, the top achieving organizations found ways to empower and involve their employees, enable harmonized activities and endorse consistent behaviors that showed commitment to the main organizational values. These organizations also had the ability to respond to changes in the business environment, providing a clear vision and future direction for employees (Denison, 1984; Denison and Mishra, 1995; Fey and Denison, 2003).

The characteristics of the Denison model are ordered into a structure that is aligned with modern theories of the dynamic tensions that exist as part of organizational effectiveness. These are grouped primarily by internal or external focus, and also by flexibility or stability. By considering the four model traits, we can categorize involvement and adaptability cultures as focused on flexibility, and mission and consistency cultures as tending towards stability (Denison and Mishra, 1995). The roots of the Denison model are similar to those of the competing values framework. There are, however, clear differences, such as the use of a profiling approach in making a cultural assessment for the Denison model. The Denison model also suggests that the best performing organizations are those that show complete or balanced profile, or high levels of all four cultural traits (Gillespie *et al.*, 2008).

Mission culture. A company with a mission culture has a robust sense of organizational direction and sets clear vision and goals. A mission culture covers establishing strategic direction and intent, and setting strategic objectives, goals and a vision for the organization. Companies that score highly for a mission culture will be able to handle their external environment by achieving stability (Denison *et al.*, 2014; Fey and Denison, 2003). The social contribution of the company and its external focus are obvious and clearly-stated, and good performance is determined by the ability to encourage employees and company to focus on goals (Denison *et al.*, 2014). Fey and Denison (2003) concluded that the mission culture consists of the following three indices:

- (1) Strategic direction – the company has a robust mission that helps to set individuals’ work in context. The mission is accompanied by a long-term vision and explained clearly to all the employees. The company develops a strategy to execute and cascade its future objectives.
- (2) Goals and objectives – the leaders of the organization agree on a set of goals directly linked to its mission and purpose. These organizational goals are challenging yet

achievable and there is a mechanism to measure progress toward those goals on an ongoing basis.

- (3) Vision – the leaders of the company and other employees are agreed on their view of the future and use short-term activities to achieve the desired results without compromising any of them. The company's vision is able to enthuse and inspire employees.

Adaptability culture. An adaptability culture requires creating change, focusing on customers and organizational learning. Companies scoring high for adaptability will be able to perceive and react to the environment and their clients, and restructure their behaviors and processes to allow adaptation (Fey and Denison, 2003). The company will be able to perceive and use signs from the external environment, mainly from customers and competitors, to modify internal behaviors and permit more improvement and growth. The company will also react to the needs of its employees, because they are considered "internal customers" across all levels and sections, roles and responsibilities (Denison *et al.*, 2014). Fey and Denison (2003) concluded that the adaptability culture covers the following three indices:

- (1) Creating change – the company is able to analyze the industry environment carefully and effectively, and take fast actions to deal with its findings. It demonstrates a clear ability to forecast future scenarios.
- (2) Customer focus – the company takes care of its customers and listens to them. Customer observations and feedback are taken seriously and used to make changes within the company, and employees show a clear understanding of customer expectations and requirements.
- (3) Organizational learning – the company inspires innovation and supports initiatives to acquire organizational knowledge. It recognizes employees who take risks and try to be creative, and considers failures and faults as an opportunity for improvement.

Involvement culture. The companies with high scores for an involvement culture usually encourage employees to be more involved in their work and with their colleagues. They give them more responsibility and encourage a sense of ownership. Employees in these organizations act informally and do more work on a voluntary basis, and there is very little bureaucracy. Employee commitment to the organization is high, coming from the strong feeling of ownership. Companies with an involvement culture believe that decision-making is a collective process and should be carried out in participation with employees, to increase the wisdom and accuracy of decisions and ease implementation (Denison *et al.*, 2014; Fey and Denison, 2003). Fey and Denison (2003) concluded that an involvement culture shows three indices:

- (1) Empowerment – when employees have the power to handle their own duties, they do so by being initiators and showing a high level of ability. This generates feelings of possession and obligation toward the company.
- (2) Team orientation – employees feel jointly accountable with their colleagues for work that needs group cooperation. Team working is the preferred way of operating in companies with an involvement culture.
- (3) Capability building – companies invest in developing the skills of employees, with a focus on skills gaps. The aim is to improve the work output and enable employees to achieve their objectives.

Consistency culture. This attribute is frequently observed in companies with solid cultures. These companies show constancy, in that employees usually agree with one another. The consistency attribute includes values, agreement, coordination, and integration, and employees who work within a consistency culture are usually very committed and have

clear instructions on how to work, with strong roles and guidance and a clear code of conduct. When organizations build a consistency culture they tend to have high levels of internal promotions (Denison *et al.*, 2014).

The control within these organizations is implicit and based on employee commitment because of common values. When employees meet unfamiliar conditions, they respond in predictable ways. Organizations that score high for the consistency attribute usually have an internal focus, and provide stability for their workforce (Fey and Denison, 2003). Fey and Denison (2003) concluded that an involvement culture consists of the following three indices:

- (1) Coordination and integration – the different business units inside the organization are able to work together effectively to achieve the agreed organizational objectives. Cross-sectional projects are familiar and easy to implement.
- (2) Agreement – the company is capable of developing consensus on crucial subjects, including when there is a conflict or disagreement. Employees can deal with these conflicts in a professional manner.
- (3) Core values – employees agree on certain values, which establishes an organizational identity, and shapes a distinctive management style articulated by leaders who do what they say.

2.2 Organizational excellence

The concept of business excellence first emerged in the 1980s, based on TQM principles. Some researchers have argued that management theory served as the theoretical foundation for business excellence (Lu *et al.*, 2011; Gómez *et al.*, 2015). However, the most common definition of business excellence describes excellent organizations as those that attain and keep exceptional levels of performance that meet or go beyond the expectations of different groups of stakeholders (EFQM, 2013).

Alongside the rise of business excellence, models have been developed to operationalize this concept and provide a structured implementation process that can be used by different organizations (Ringrose, 2013). These business excellence models were established by different bodies that have also helped companies with implementation and developed excellence awards programs to celebrate their accomplishments (Ringrose, 2013). Companies that have adopted business excellence models have usually done so by using initiatives, tools, and techniques to achieve the desired results (Adebanjo, 2001).

The most common business excellence models are the EFQM model in Europe and the Malcolm Baldrige model in the United States (Samuelsson and Nilsson, 2002). More than 59 percent of business excellence models around the world, and 80 percent in Europe, are based on the EFQM Excellence Model (Boulter *et al.*, 2005). Several studies have found that the EFQM model is more universally applicable, and can be implemented in companies regardless of size or industry. The EFQM model focuses on results and may therefore be more appealing in for-profit organizations (Enquist *et al.*, 2015). Companies that have successfully implemented the EFQM model have been shown to perform better over both short and long time periods (Boulter *et al.*, 2005). This research, carried out in Europe over eleven years, compared award-winning organizations with companies of similar sizes from the same business segment. The results showed that award winners leveraged higher rises in share price, and had improved cost savings, sales growth and revenues.

The EFQM Model uses nine criteria covering enablers and results. The enabler criteria include what an organization does and how it does it, and the results criteria include what it achieves (EFQM, 2013). The five enablers are:

- (1) Leadership, which focuses on how leaders develop and deliver the future of the company. It includes being a role model of morals and principles, and stimulating

-
- trust, setting out that leaders should be flexible enough to enable the continued success of their organizations.
- (2) Strategy articulates how the company implements its vision and mission statements, and how it involves stakeholders when developing strategy. The company should demonstrate the use of proper policies, processes and goals to achieve its strategy.
 - (3) People explain that companies should be able to build a suitable organizational culture that facilitates the achievement of company and personal objectives. Companies should grow the competences of employees and endorse justice and fairness. To build commitment, they should take care of, recognize and motivate people.
 - (4) Partnerships and resources describe how companies should handle their ecological and social impact effectively, and ensure process effectiveness.
 - (5) Processes, products and services explain that outstanding companies plan, manage and develop their processes to add value for clients and other stakeholders (EFQM, 2013).

The four results criteria of the EFQM model are customer results, people results, society results and business results.

Customer results. Excellent organizations achieve and maintain exceptional results that meet or go beyond customers' needs and expectations (EFQM, 2013). If companies want to achieve excellent customer results, they need to have positive results in two main areas. The first is related to customer perceptions, and is often referred to as customer satisfaction. The second is customer results criterion which includes setting internal performance indicators and measures. Companies should monitor those to be able to predict their influence on customer satisfaction and to assess the implementation process for customer-related strategies (Gómez *et al.*, 2011; Saunders *et al.*, 2008).

People results. Excellent organizations achieve and maintain exceptional results that meet or go beyond their employees' needs and expectations (EFQM, 2013). If companies want to achieve excellent employee results, they need to have positive results in two main areas. The first is related to employee perceptions and is usually referred to as employee satisfaction. Like customer results, employee results require internal performance indicators and measures, which must be monitored to assess their influence on employee satisfaction and examine the implementation of employee-related strategies (Gómez *et al.*, 2011; Saunders *et al.*, 2008).

Society results. This area focuses on contribution to society in general and corporate social responsibility (CSR) in particular. These have become important issues in many countries. CSR is usually used to determine the effects of the company's business activities on society, and to highlight its environmental and social contributions. CSR tends to concentrate on the company's efforts to achieve environmental, economic and social sustainability (Jenkins, 2009). As a definition, CSR is the company's commitment to contribute to sustainable economic growth through establishing ways of working with public communities, ultimately to improve the quality of life (Jamali, 2006).

Excellent organizations achieve and maintain exceptional results that meet or go beyond the expectations of stakeholders within society. Society results tend to be measured by the perception of external stakeholders, and internal performance indicators and measures, which can be used to examine the process of implementing CSR strategies (Gómez *et al.*, 2011; Saunders *et al.*, 2008).

Business results. The traditional approach to measure organizational performance is based on a mixture of criteria such as the profitability of the company, quality of products

and services, and efficiency and effectiveness (Rolstadås, 1998; Sink and Tuttle, 1989). A mix of performance attributes may provide a more holistic view of the organization, and may be measured at company, core process, or departmental level (Tangen, 2003).

Business results are divided into financial and non-financial results. Organizations should consider both in different situations, depending on the nature of their business and their structure. At strategic level, measures should cover core process outcomes, such as service or product volume, achievement against company budget and perceptions of the main stakeholders. At operational level, indicators should include financial elements such as costs of initiatives and projects, and performance of vendors and partners (EFQM, 2013; Jafari, 2013).

Measuring business excellence. Traditionally, companies evaluated their performance using quantifiable measures such as return on investment, net profit and turnover. In the last few decades, however, there has been a growing understanding that companies should also consider quality-related characteristics to set business goals and measure performance Saleh and Watson (2017). TQM and later, business excellence therefore emerged as strategies for improving performance (Zairi and Alsughayir, 2011). Because business excellence is based on TQM principles, companies often use business excellence schemes to improve performance. More than 80 countries around the world have established business excellence or quality awards (Grigg and Mann, 2008). Business excellence models include an assessment mechanism that may be used internally as a self-assessment exercise, or externally, mainly by participating in quality and business excellence awards (Ahrens, 2013; Sharifi *et al.*, 2015).

The EFQM model provides different tools for self-assessment such as a questionnaire that asks employees to score their companies against a number of statements from the EFQM model. There are various versions available, and this tool gives the opportunity to collect opinions from a large number of employees (EFQM, 2013; Hides *et al.*, 2004; Samuelsson and Nilsson, 2002; Tari, 2006; Tari and Juana-Espinosa, 2007; Wiele and Brown, 1999).

Business excellence in the UAE. In the UAE, the EFQM model is the dominant model for business excellence, and almost all excellence awards are based fully or partially on this model (Nambiar, 2012). The SKEA was the first award established in Abu Dhabi Emirate, in 1999, and was heavily influenced by the EFQM model (Nambiar, 2012). The award aims to integrate worldwide business standards and best practices in the Abu Dhabi business sector (SKEA, 2008). The SKEA's objective was to create a favorable climate for competitive and sustainable businesses by recognizing organizations that demonstrate improved performance and sustained competitiveness based on the business excellence model. By adopting the EFQM model of excellence, the SKEA is able to recognize companies in different businesses and sectors, including manufacturing, services, trade, construction, finance, tourism, professional services and health (Lasrado and Uzbek, 2017). A robust assessment approach is used to identify strengths and areas for improvement among applicants, and to award scores that reflect progress in implementing excellence performance criteria. The score is used to determine the winning companies in three main categories: diamond, gold and silver.

2.3 Information and communication technology (ICT)

ICT is a significant source of economic value and important tool in the competitive international economic structure. Understanding ICT and acquiring the fundamental skills required to use it effectively have been crucial causes in growth and evolution (ICEL, 2001). ICT can be defined as the collection of primarily digital technologies designed to gather, organize, store, process and link information within and external to an organization (Ritchie and Brindley, 2005). Other researchers consider ICT as a technological tool that can be used by almost all countries regardless of size, population, or level of economic development (Apulu and Latham, 2011).

To identify suitable ICT tools, it is important to look at ICT as a concept that covers all technical activities used to progress information and to communicate it properly. This concept can be articulated by considering ICT as the sum of the technologies used in telecommunications and in information management. ICT tools therefore include mobile phones, computers, internet, e-commerce packages and e-mail (Nyandoro, 2016). ICT tools are grouped into categories based on communication time. Synchronous tools provide immediate communication in real time between different parties in different places. These include video conferencing and some social media applications. Asynchronous tools, such as e-mail, enable communication between parties in multiple locations but at different times. Some ICT tools help management to facilitate work and manage projects. These include data management tools, presentation tools and spreadsheets (Drigas *et al.*, 2011).

ICT in the UAE. The UAE has very modern technological infrastructure that can compete with most developed countries in the world. This has led to high levels of use of ICT tools in the last few years. The International Communication Union highlighted the use of ICT tools in the UAE in its report “Measuring the Information Society,” which showed that 90.4 percent of individuals used the internet in 2014, compared to only 68.0 percent in 2010. This percentage is very high, even compared with developed countries such as the USA (87.4 percent) and UK (91.6 percent) (International Telecommunication Union, 2015). The UAE also has a very high number of active mobile broadband subscriptions per 100 population, 114 in 2014 compared with 13.4 in 2010, and 96.9 in the USA and 98.7 in the UK.

3. Research questions and development of research hypotheses

The objective of this research is to investigate the influence of organizational culture on business excellence in the UAE. Organizational culture is considered a four-dimensional concept, across involvement, consistency, adaptability and mission. Business excellence is also considered to have four dimensions (customer results, people results, society results and business results).

This study also seeks to examine the moderating role of the use of ICT on the relationship between the various components of organizational culture and business excellence. And compare the culture-excellence link between service and manufacturing industries. The following questions were therefore constructed:

- RQ1. What are the relationships between the various dimensions and components of organizational culture and business excellence?
- RQ2. What is the moderating role of ICT on the relationships between the dimensions of organizational culture and of organizational excellence?
- RQ3. Does the relationship between organizational culture and business excellence vary in service and manufacturing?

3.1 Organizational culture and business excellence

The role of organizational culture in achieving business excellence requires more research, and empirical studies should take into consideration that business excellence should be reviewed from a systems perspective (Gogheri *et al.*, 2013). Some research has suggested that particular attributes of organizational culture can support successful implementation of business excellence models (Kujala and Lillrank, 2004; Metri, 2005). Companies with a robust culture, for example, are more likely to be successful, especially when the dominant culture type is aligned with the company’s values and beliefs (Polychroniou and Trivellas, 2018).

Austin and Ciaassen (2008) asserted that companies should identify the cultural changes needed to achieve business excellence. Most companies identify improvement activities

using business excellence criteria and develop implementation plans without considering the organizational culture aspects. That may cause problems if the activities do not fit with the existing organizational culture (Austin and Ciaassen, 2008). Employees may refuse to accept business excellence measures if these measures do not suit the existing corporate culture, particular the decision-making and action-planning roles (Bolboli and Reiche, 2014).

Although there have been many studies on organizational culture, there are few pieces of empirical research that guide decision-makers in organizations on how to deal with organizational culture when they start to implement business excellence models. Most of the available information suggests that companies should try to develop a culture of excellence and spread this among their employees (Morris, 1994).

The following hypothesis is therefore proposed:

- H1.* There is a significant relationship between organizational culture and business excellence.

3.2 Organizational culture and customer results

A number of studies have shown a relationship between achieving good customer results and certain cultural attributes. Entrekina and Pearson (1996), for example, found that the successful implementation of business excellence in areas like customer relationships required companies to implement cultural changes. This relationship was further demonstrated by Aydin and Ceylan (2011) who showed that organizational culture has a positive and significant correlation with customer orientation. The existence of different culture types as a balanced mix, described as a robust culture, was found to have a positive impact on customer satisfaction in the marketing industry (Conrad *et al.*, 1997).

Many empirical studies have focused on one particular aspect of culture, the service climate and how it relates to customer satisfaction (Schneider *et al.*, 1998). The literature indicates a relationship between all four types of organizational culture and customer satisfaction as a crucial element of excellent customer results. The following hypotheses were therefore developed:

- H2.* A mission culture has a significant and positive relationship with customer results.
H3. An adaptability culture has a significant positive relationship with customer results.
H4. An involvement culture has a significant and positive relationship with customer results.
H5. A consistency culture has a significant positive relationship with customer results.

Some organizational culture types are expected to have a stronger relationship with customer satisfaction. For example, the external focus of the mission and adaptability types means that they are expected to be more closely related to customer satisfaction than the involvement and consistency cultures, which reflect an internal focus. The adaptability culture is expected to have a stronger relationship with customer satisfaction than the mission culture, because of its emphasis on customer focus and creating changes to satisfy customer needs. The involvement culture's focus on building employee capabilities and skills to enable them to provide better services is expected to have a greater effect on customer satisfaction than the consistency culture.

The following hypothesis was therefore developed:

- H6.* The relationships between culture types and customer results will vary. The adaptability culture will have the strongest impact, followed by mission, involvement and then consistency.

3.3 Organizational culture and people results

A robust organizational culture leads to agreement and consistency in the organization. A weak culture will create an unhealthy environment, leading to employee dissatisfaction and tension. Frustration and negative feeling is likely to spread among employees (Shamsudin *et al.*, 2010). Assessing the effect of culture on employee satisfaction is impeded by its definition, since it is described as a system of common values and beliefs and shared expectations between employees. This, by definition, will affect behavior, attitudes and productivity (Moynihan and Pandey, 2007). Many studies have found a positive relationship between organizational culture and employee satisfaction (Chan *et al.*, 2004; Moynihan and Pandey, 2007; Rawashdeh *et al.*, 2015). Organizational culture will also influence interactions between employees and with those outside the organization (Aydin and Ceylan, 2011; Jones and George, 2010). The following hypotheses were therefore developed:

- H7. A mission culture has a significant and positive relationship with people results.
- H8. An adaptability culture has a significant positive relationship with people results.
- H9. An involvement culture has a significant positive relationship with people results.
- H10. A consistency culture has a significant positive relationship with people results.

Again, some culture types are expected to have a stronger relationship with employee satisfaction. For example, the internal focus of the involvement and consistency types means that they are expected to be more closely related to employee satisfaction than the mission and adaptability cultures. The involvement culture is expected to have a stronger relationship with employee satisfaction than the consistency culture, because of its emphasis on empowering employees and equipping them with the skills they need to do their jobs. The mission culture encourages companies to have a unified vision and objectives, and that will be reflected by employees since they will be helping to achieve the company's strategic goals. This will create a sense of participation, which is expected to lead to higher levels of satisfaction than the adaptability culture, which focuses more on customer satisfaction. This idea is supported by previous studies. For example, Lund (2003) found that clan and adhocracy cultures were positively related to job satisfaction, and market and hierarchy cultures were negatively related. The following hypothesis was therefore developed:

- H11. The relationships between culture types and people results will vary. The involvement culture will have the strongest impact, followed by consistency, mission and then adaptability.

3.4 Organizational culture and society results

The main dimension within society results as a business excellence criterion is the company's environmental impact, especially for manufacturing and large companies (Westlund, 2001). The EFQM model can help to integrate quality and environmental management systems in organizations (Tari and Molina-Azorin, 2010). The increasing demands of different groups of stakeholders push companies to show more commitment to different aspects that affect society and the environment. These aspects can broadly be characterized as economic, social and environmental (Gechevski *et al.*, 2016). CSR is one of the most significant elements in EFQM society results. The current conceptualization of CSR is relatively new, becoming popular in the 1990s, but its roots and fundamental ideas date from the industrial revolution (Snider *et al.*, 2003).

There are different ways to define CSR, based on the purpose and area of concern. The most common principles underpinning it are business sustainability, accountability

and ethics, environmental responsibility, and company citizenship, and the most common focus is the social and business environment (Bhattacharya and Sen, 2004). Blowfield and Murray (2008) defined CSR as “the proposition that companies are responsible not only for maximizing profits, but also for recognizing the needs of such stakeholders as employees, customers, demographic groups and even the regions they serve.” Organizations that implement effective CSR strategies and have a positive environmental influence are in a better position to generate more profit, improve their image and guarantee their future reputation (Tari and Molina-Azorin, 2010). The following hypotheses were therefore developed:

H12. A mission culture has a significant positive relationship with society results.

H13. An adaptability culture has a significant positive relationship with society results.

H14. An involvement culture has a significant positive relationship with society results.

H15. A consistency culture has a significant positive relationship with society results.

Again, some culture types are expected to have a stronger relationship with society results and CSR activities. Because of the focus of the involvement culture on employees and its linkage with company CSR components, and the learning aspect of the adaptability culture and its focus on satisfying external stakeholder needs, these two culture types are expected to be more closely related to society results than the mission and consistency cultures. Setting the strategic direction of the company and assigning vision, mission and goals will probably encourage most companies to include society-related initiatives in their plans, especially in the UAE, in the light of governmental recommendations. The following hypothesis was therefore developed:

H16. The relationships of culture types with society results will vary. The mission culture is expected to have the strongest impact, followed by involvement, adaptability and then consistency.

3.5 Organizational culture and business results

The EFQM business results criterion focuses on achieving outstanding strategic and operational performance results (EFQM, 2013). A popular hypothesis in the organizational culture literature is that a robust culture leads to better performance; cultural strength can be measured by the extent to which a culture exhibits the attributes of a single cultural type (Deal and Kennedy, 1983). The culture–performance link is supported by a review of a large number of related studies, which found that the majority support the idea that culture has a direct effect on organizational performance (Ashkanasy *et al.*, 2011). Some of the more recent studies concluded that effects can be moderated and that more studies are needed to understand the dynamic nature of this relationship in different contexts (Ashkanasy *et al.*, 2011). Some researchers have argued that although there are many studies on the culture–performance link, few have made a real contribution because of a variety of reasons, including the challenge of analyzing culture (Lee and Yu, 2004).

The level of cultural strength needed to ensure a company’s success is still under discussion. Some authors support the idea that a robust culture leads to higher performance (Barnes *et al.*, 2006), and others support a contingency theory where the required level of cultural strength is linked to the environment in which the company operates (Cameron and Quinn, 2005). Kotter and Heskett (1992) stated that companies that have a robust culture, emphasize their stakeholders and adjust to their environments will attain better levels of performance. Culture is a critical success factor in successful implementation of TQM

(Shibani *et al.*, 2012), and is crucial to organizational behavior and excellent performance (Peters and Waterman, 2004). The following hypotheses were therefore developed:

H17. A mission culture has a significant positive relationship with business results.

H18. An adaptability culture has a significant positive relationship with business results.

H19. An involvement culture has a significant positive relationship with business results.

H20. A consistency culture has a significant positive relationship with business results.

There is a clear theme in the literature suggesting that a balanced organizational culture is positively related to organizational performance. A balanced culture is shown by a robust culture with a high score for each culture type (Conrad *et al.*, 1997; Zhang *et al.*, 2008), so the following hypothesis was proposed:

H21. A balanced organizational culture has a significant positive relationship with business results.

3.6 *ICT and organizational culture*

The linkage between ICT and the components of organizational culture is well-discussed in the literature. A study in the construction sector found that organizational culture was one of the main success factors in using and adopting ICT in construction projects. This study considered only the fragmentation and differentiation dimensions of organizational culture because of the complexity of construction projects (Gajendran and Brewer, 2007).

Organizational culture type was found to have a positive impact on use of ICT. One study in Spain, across 300 companies, found that all four organizational culture types (market, adhocracy, clan and hierarchy) encouraged ICT use in knowledge management practices, but that the significance of the relationship varied by culture types (Lopez-nicolas and Meroño-cerdán, 2009).

3.7 *ICT and business excellence*

The literature shows that the use of ICT is positively associated with excellent results across each of the EFQM business excellence results criteria. ICT use is particularly helpful in improving customer satisfaction. A study on local government performance in Nigeria concluded that by using ICT tools, governments can achieve several benefits that will lead to better customer satisfaction (Teryima and Sunday, 2015). The relationship between ICT and job satisfaction is also addressed in the literature. A study in the USA on the influence of ICT on job satisfaction in the telework sector found a positive correlation between using ICT tools and employee satisfaction (Webster-Trotman, 2010). Contribution to society and creating a sustainable future is an aspect of achieving business excellence (EFQM, 2013). Adopting ICT can help organizations to manage and coordinate sustainability challenges (Prattipati, 2010). The link between ICT and business performance is well-established. A study from 2011 found that the use of ICT is appropriate for tourism businesses, and has a positive effect on business outcomes (Peña *et al.*, 2011). The association between ICT use and performance is not limited to any particular sector. A study of agricultural sector firms in 2013 found that adopting ICT could largely solve the challenges associated with information and communication with stakeholders and government (Prajanti *et al.*, 2013). The following hypotheses were therefore proposed:

H22. ICT moderates the relationships between organizational culture types and customer results.

H23. ICT moderates the relationships between organizational culture types and people results.

H24. ICT moderates the relationships between organizational culture types and society results.

H25. ICT moderates the relationships between organizational culture and business results.

Figure 1 shows research model for the study and 20 of the research hypotheses, since the remaining four compare the strengths of relationships between the four culture types and each excellence criterion.

3.8 Industry comparison

Recent studies concluded different results on the relationship between organizational culture and business excellence components in service and manufacturing sectors. Nikpour (2017) found a positive relationship between organizational culture and performance in education service sector where mission culture was the highest contributor among other culture types. The mission culture also found to have the strongest relationship with business excellence in oil and gas service sector, this study proved the culture-excellence relationship (Kassem *et al.*, 2016). On the other hand, a study covered number of Brazilian and Danish manufacturing firms in 2015, concluded that culture profiles has positive relationship with organizational performance especially in rational and group cultures (Gambi *et al.*, 2015). Also, a study covered 37 manufacturing firms in Indonesia found a positive relationship between organizational culture and performance. However, manufacturing strategy was found to have stronger effect on performance than culture (Siagian *et al.*, 2017). So, the following hypothesis was proposed:

H26. The relationship between organizational culture and business excellence vary in manufacturing and service industries.

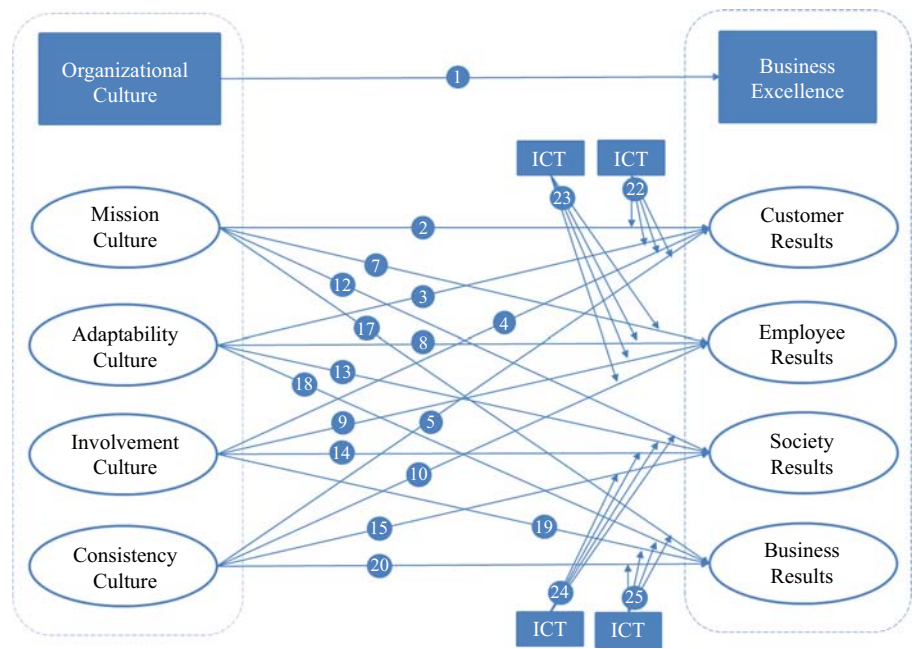


Figure 1.
Research hypotheses

4. Research design

The logical nature of this study required the use of a quantitative applied research approach, because it focuses on analyzing and evaluating several variables, as well as exploring their relationships. The quantitative approach allows comparisons between the cultures of several organizations (Cameron and Quinn, 2005). The four organizational culture types were the independent variables in this research. This approach enabled more focus on each culture type, to generate detailed and insightful conclusions. The EFQM organizational excellence results criteria were used as dependent variables.

4.1 Population and sample

The sample population is companies in the UAE who have demonstrated a high level of organizational excellence. Since this research targets excellent companies, the study focused on SKEA diamond and gold winners. It also targeted only winners from the last three cycles to avoid uncertainty about the current state of the company, and whether it has maintained its level of excellence. In total, this gave 31 organizations, and a convenience sampling technique was used to select 9 as a sampling frame that included a balanced mix of service and manufacturing companies, governmental and private organizations, and small and larger organizations.

All the respondents were managers in the selected organizations, working across any levels except top management. Managers were chosen because they can give informed feedback about the business excellence criteria, being more exposed to the results within the organization. Managers can also provide accurate information on the organizational culture, because they have both managers and subordinates. They also probably have a clearer view of cross-departmental communication within the company than more junior or senior staff.

4.2 Research instruments

A survey was used to collect data. The organizational culture questions were adapted from the Denison Organizational Culture Survey (DOCS) survey, which contains questions covering the four types of organizational culture, mission, adaptability, involvement and consistency culture, with three attributes under each culture type (Denison *et al.*, 2014; Denison and Mishra, 1995). The survey uses a five-point Likert-type scale ranging from strongly disagree to strongly agree. The organizational culture scale was modified to fit the UAE context, the dimensions and attributes kept the same but less questions used to test each attribute.

The DOCS is one of the most widely-used instruments to measure the effectiveness of organizations and its link to the existing organizational culture. The validity and reliability of this scale has been tested several times and shows good results compared to nine other culture assessment instruments (Denison *et al.*, 2014).

The business excellence questions were adapted from the EFQM self-assessment questionnaire, based on the EFQM model, and developed to measure the level of business excellence within organizations (EFQM, 2013). The number of questions were kept the same, however, few words were refined to align it with the UAE context. The tool's validity and reliability has been tested by many researchers in different countries. For example, Karimi *et al.* (2014) reported a value of 0.93 for Cronbach's α coefficient, indicating a high level of reliability.

For questions on ICT use, responses were categorized into two groups (Yes/No) to assess the use of a list of ICT tools in each company (emails, smart phones, video conferences, e-services and mobile apps).

4.3 Pilot study

A pilot study was used to test the research instruments and look for possible improvements. Before the pilot study, the questionnaire was assessed by two experienced academics.

Based on their comments, some questions were rephrased and simplified to better match the local environment and to avoid being very direct in some sensitive statements. These improvements were designed to encourage employees to respond to the questionnaire and ensure that responses were less likely to be biased.

Pilot testing was used to ensure that the research questions were clear and understandable for respondents and to spot any issues with the flow of the questions. A drop-off approach was used to distribute the questionnaires randomly to a sample that was smaller than planned for the study, but comparable: a single company in the UAE that had won the gold SKEA. Questionnaires were manually distributed to middle managers, including division and section heads, in the targeted organization. A total sample size of 45 managers was identified and 29 responses were received, a response rate of 64.44 percent. An internal consistency test was used to check the instrument's reliability, and the results showed a high level of reliability, with all values above the threshold value of 0.7 usually given for Cronbach's α (Nunnally and Bernstein, 1994). Collecting the data from the pilot study took more time than expected, mostly because of the drop-off method used to distribute the questionnaire. Some of the managers moved between sites or preferred an electronic version of the questionnaire, so an online questionnaire was used for the main study.

4.4 Data collection

An online survey platform (SurveyMonkey) was used to share the questionnaire and collect the data. Questions were translated from English to Arabic and then translated back again to ensure accuracy. A separate collector was created for each target organization, to ensure that it was possible to check the number of respondents from each company and to organize the follow-up process effectively. The total number of respondents was 392 managers from nine companies, a response rate of 61.16 percent overall, although this varied between companies.

5. Data analysis and results

The research model was created using exploratory factor analysis (EFA), and fit was measured using confirmatory factor analysis (CFA). The validity and reliability of the scales were tested. The hypotheses were tested by applying structural equation modeling (SEM) and path analysis. The hypothesized moderation effects were tested by applying the continuous interaction approach. Analyses used Microsoft Excel 2016, IBM SPSS Statistics 21 and IBM SPSS Amos 21.

5.1 Measures of central tendency

Table I shows the measures of central tendency related to each research construct. The standard deviation of the data ranged from 0.62 for an adaptability culture to one for people results. This indicates that the adaptability culture scores do not vary greatly, which may be because excellent companies all tend to adapt similarly to the external environment.

	MC	AC	IC	CC	CR	PR	SR	BR
Mean	2.99	3.80	3.40	3.75	3.82	3.35	2.91	3.75
Median	3.00	4.00	3.75	4.00	4.00	3.50	3.00	4.00
Mode	3.00	4.00	4.00	4.00	4.00	4.00	3.00	4.00
SD	0.98	0.62	1.00	0.93	0.75	1.00	0.99	0.96
Variance	0.96	0.38	1.00	0.86	0.56	1.00	0.98	0.92

Table I.
Measures of
central tendency

Notes: MC, Mission Culture; AC, Adaptability Culture; IC, Involvement Culture; CC, Consistency Culture; CR, Customer Results; PR, People Results; SR, Society Results; and BR, Business Results

5.2 Validity and reliability testing

To assess the validity of the scales, EFA was used with Eigenvalue value more than 1 to extract the number of factors. The Varimax method was used to rotate variables. This suggested that there were nine constructs and all variables were loaded under the related constructs. The loading values were above 0.5 and there were no cross-loading issues or low loading values. The reliability of the research model was also good. The values for Cronbach's α coefficient were within the range from 0.81 to 0.97, noticeably exceeding the standard threshold value of 0.7 (Nunnally and Bernstein, 1994). Table II shows the results for EFA and reliability testing. The total variance explained by the seven constructs is 80.46 percent.

5.3 Model fit

The next step was to verify the factors extracted in the EFA analysis. The two-stage SEM technique was used, the first stage for confirmation and the second for hypothesis testing. The confirmation stage was completed using AMOS software with maximum likelihood estimation. The CFA test supported the use of organizational culture as four separate

Factors	Items	Factor loading	Eigenvalue	Percentage of variance	Cronbach's α
MC	2	0.81	1.09	3.41	0.88
	1	0.78			
	3	0.77			
AC	2	0.84	1.71	5.35	0.87
	3	0.77			
	1	0.76			
IC	2	0.83	1.44	4.49	0.90
	3	0.76			
	1	0.74			
CC	1	0.82	1.19	3.71	0.81
	2	0.81			
	3	0.79			
CR	1	0.83	2.35	7.36	0.93
	2	0.82			
	3	0.81			
	4	0.78			
ER	1	0.79	1.89	5.91	0.94
	2	0.78			
	3	0.78			
	4	0.74			
SR	1	0.93	12.30	38.43	0.97
	2	0.92			
	3	0.90			
	4	0.89			
BR	1	0.87	2.83	8.84	0.96
	2	0.85			
	3	0.85			
	4	0.85			
ICT	1	0.77	1.07	3.35	0.83
	2	0.76			
	3	0.70			
	4	0.68			

Notes: MC, mission culture; AC, adaptability culture; IC, involvement culture; CC, consistency culture; CR, customer results; PR, people results; SR, society results; BR, business results; and ICT, information and communication technology

Table II.
Validity and
reliability tests

constructs, mission culture, adaptability culture, involvement culture and consistency culture ($\chi^2=72.29$, $df=22.01$, $\chi^2/df=3.28$, $GFI=0.97$, $CFI=0.99$, $RMSEA=0.04$, $p>0.05$), rather than one combined construct ($\chi^2=140.23$, $df=20.65$, $\chi^2/df=6.79$, $GFI=0.86$, $CFI=0.87$, $RMSEA=1.12$, $\Delta\chi^2=67.94$, $\Delta df=1.36$, $p<0.05$). The organizational culture construct was therefore maintained as a multi-dimensional construct.

The CFA test also supported the use of business excellence as four separate constructs, customer results, people results, society results and business results ($\chi^2=120.50$, $df=36.4$, $\chi^2/df=3.31$, $GFI=0.95$, $CFI=0.96$, $RMSEA=0.03$, $p>0.05$), rather than one combined construct ($\chi^2=188.66$, $df=34.30$, $\chi^2/df=5.50$, $GFI=0.89$, $CFI=0.84$, $RMSEA=1.27$, $\Delta\chi^2=68.16$, $\Delta df=2.19$, $p<0.01$). The business excellence construct was therefore maintained as a multi-dimensional construct. The measurement model was evaluated based on the fit measures advocated in various previous studies (Byrne, 2010; Hair *et al.*, 2013; Kline, 2011).

5.4 Correlation analysis results

Table III shows the Pearson product-moment correlation coefficient analysis results. The mission culture is positively related to customer results ($r=0.47$, $p<0.01$), people results ($r=0.49$, $p<0.01$), society results ($r=0.36$, $p<0.01$) and business results ($r=0.46$, $p<0.01$). The adaptability culture is positively related to customer results ($r=0.49$, $p<0.01$), people results ($r=0.44$, $p<0.01$), society results ($r=0.27$, $p<0.01$) and business results ($r=0.47$, $p<0.01$). The involvement culture is positively related to customer results ($r=0.51$, $p<0.01$), people results ($r=0.56$, $p<0.01$), society results ($r=0.36$, $p<0.01$) and business results ($r=0.43$, $p<0.01$). The consistency culture is positively related to customer results ($r=0.34$, $p<0.01$), people results ($r=0.45$, $p<0.01$), society results ($r=0.22$, $p<0.01$) and business results ($r=0.41$, $p<0.01$).

5.5 Hypothesis testing

The SEM analysis provided estimated coefficient values for the hypothesized relations in the path diagram. The goodness-of-fit results for the structural model were acceptable and close to the values obtained for the measurement model fit indices ($\chi^2=145.13$, $df=40.31$, $\chi^2/df=3.60$, $GFI=0.96$, $CFI=0.95$, $RMSEA=0.03$, $p>0.05$). Figure 2 shows the estimated coefficients for organizational culture types and business excellence results criteria.

To test the moderating role of ICT use on the relationship between each organizational culture type and excellence results, the interaction effect of each culture type was tested separately, by adding the moderation relationships to the global model. To check the difference between the service and manufacturing industries, the SEM analysis were

	<i>M</i>	<i>SD</i>	<i>MC</i>	<i>AC</i>	<i>IC</i>	<i>CC</i>	<i>CR</i>	<i>PR</i>	<i>SR</i>	<i>BR</i>
<i>MC</i>	2.99	0.98	1							
<i>AC</i>	3.80	0.62	0.570**	1						
<i>IC</i>	3.40	1.00	0.505**	0.461**	1					
<i>CC</i>	3.75	0.93	0.475**	0.437**	0.425**	1				
<i>CR</i>	3.82	0.75	0.477**	0.497**	0.514**	0.349**	1			
<i>PR</i>	3.35	1.00	0.493**	0.442**	0.567**	0.451**	0.572**	1		
<i>SR</i>	2.91	0.99	0.360**	0.272**	0.366**	0.228**	0.352**	0.471**	1	
<i>BR</i>	3.75	0.96	0.462**	0.479**	0.435**	0.415**	0.547**	0.610**	0.343**	1

Notes: MC, mission culture; AC, adaptability culture; IC, involvement culture; CC, consistency culture; CR, customer results; PR, people results; SR, society results; and BR, business results. **Significant at the 0.01 level (two-tailed)

Table III.
Mean, standard
deviation and
correlation among
variables

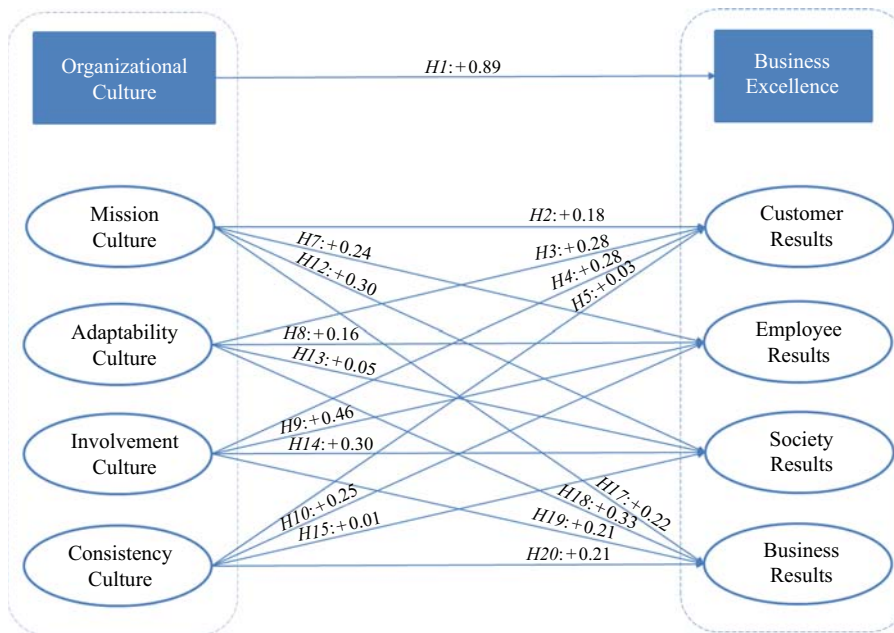


Figure 2.
Hypothesis
testing results

repeated for each group and the estimated coefficient between organizational culture and organizational excellence was +0.91 for service sector companies comparing to +0.79 for manufacturing companies.

Table IV shows the full hypothesis testing results, most hypotheses were supported. Three types of organizational culture were found to have a significant positive relationship with excellent customer results. The adaptability and involvement cultures had the strongest influence, followed by mission culture. The consistency culture had no significant relationship with customer results. The four types of organizational culture all had a positive relationship with excellent people results, with the involvement culture having the biggest influence, followed by consistency, mission and finally adaptability culture.

Only two organizational culture types had a significant positive relationship with excellent society results. The mission and involvement cultures were significantly related, but the adaptability and consistency cultures were not. The data analysis findings supported the hypothesis that a balanced organizational culture would have a positive relationship with excellent business results.

ICT use was found to moderate the relationship between organizational culture and customer, people, and business results, but not between organizational culture and society results. The relationship between organizational culture and business excellence found stronger in service companies comparing to manufacturing companies.

6. Discussion

The results show that there is a significant relationship between organizational culture and business excellence. This is consistent with the conclusion drawn by Bolboli and Reiche (2013) that organizational culture is crucial to sustained organizational excellence. Different organizational culture types had different effects on customer results. The adaptability culture had the biggest effect on customer results, which is consistent with previous findings (Gillespie *et al.*, 2008). The involvement culture also had a significant positive

Hypotheses	Description	Type of relationship	Result
<i>H1</i>	There is a significant relationship between organizational culture and business excellence	+	Supported
<i>H2</i>	A mission culture has a significant positive relationship with customer results	+	Supported
<i>H3</i>	An adaptability culture has a significant positive relationship with customer results	+	Supported
<i>H4</i>	An involvement culture has a significant positive relationship with customer results	+	Supported
<i>H5</i>	A consistency culture has a significant positive relationship with customer results	None	Not supported
<i>H6</i>	The relationships between culture types and customer results will vary. Adaptability will have the strongest impact, followed by mission, involvement, and then consistency	+	Supported
<i>H7</i>	A mission culture has a significant positive relationship with people results	+	Supported
<i>H8</i>	An adaptability culture has a significant positive relationship with people results	+	Supported
<i>H9</i>	An involvement culture has a significant positive relationship with people results	+	Supported
<i>H10</i>	A consistency culture has a significant positive relationship with people results	+	Supported
<i>H11</i>	The relationships between culture types and people results will vary. Involvement will have the strongest impact, followed by consistency, mission, and then adaptability	+	Supported
<i>H12</i>	A mission culture has a significant positive relationship with results	+	Supported
<i>H13</i>	An adaptability culture has a significant positive relationship with society results	None	Not supported
<i>H14</i>	An involvement culture has a significant positive relationship with society results	+	Supported
<i>H15</i>	A consistency culture has a significant positive relationship with society results	None	Not supported
<i>H16</i>	The relationships between culture types and society results will vary. Mission will have the strongest impact, followed by involvement, adaptability, and then consistency	+	Supported
<i>H17</i>	A mission culture has a significant positive relationship with business results	+	Supported
<i>H18</i>	An adaptability culture has a significant positive relationship with business results	+	Supported
<i>H19</i>	An involvement culture has a significant positive relationship with business results	+	Supported
<i>H20</i>	A consistency culture has a significant positive relationship with business results	+	Supported
<i>H21</i>	A balanced organizational culture has a significant positive relationship with business results	+	Supported
<i>H22</i>	ICT moderates the relationships between organizational culture types and customer results	+	Partial moderation
<i>H23</i>	ICT moderates the relationships between organizational culture types and people results	+	Partial moderation
<i>H24</i>	ICT moderates the relationships between organizational culture types and society results	None	No moderation
<i>H25</i>	ICT moderates the relationships between organizational culture types and business results	+	Partial moderation
<i>H26</i>	The relationship between organizational culture and business excellence vary in manufacturing and service industries	+	Supported

Table IV.
Summary of
hypothesis testing

relationship with customer results. The adaptability and involvement cultures explain more than 50 percent of the changes in customer results. The mission culture also had a positive relationship with customer results. Organizations that set a clear mission and build solid goals and objectives and share these with their employees to guarantee a common understanding will be in a better position to achieve high customer satisfaction. The consistency culture had no significant relationship with customer results. The consistency culture implies a high level of coordination across departments, and that employees share common perspectives and have the ability to reach consensus in difficult situations. The internal focus of the consistency culture, plus its stable nature, may limit its effect on customer results. The defensive national culture style in the UAE (Klein *et al.*, 2009) may also affect employee behaviors and push them toward consistency and being less sensitive to customer needs and changing requirements.

Unlike customer results, employee results were most closely related to the involvement culture, a finding consistent with previous studies, especially on the relationship between the indices of the involvement culture and employee satisfaction, as the most important factor in employee results. Reddy *et al.* (2013) found that staff satisfaction is strongly related to involving and empowering employees. If companies want to improve employee results and increase satisfaction they should focus on three areas. First, they should empower employees and involve them in decision-making, providing the right information at the right time. Second, they should encourage team work and cross-departmental collaboration, and support horizontal management instead of hierarchical control. Third, they should focus on skills development.

The consistency culture was also significantly related to excellent people results. This finding was expected, given the internal focus of this culture type's attributes. Setting a clear strategic plan and objectives, as indices for the mission culture, had a positive relationship with people results. This is consistent with the work of Ángel Calderón Molina *et al.* (2014).

The adaptability culture had a weak positive relationship with employee satisfaction, less than other culture types. That reflects the two themes in the literature. Some studies have found that the adaptability culture has a significant association with job satisfaction, especially through provision of a learning environment (Su-Chao and Ming-Shing, 2007), and enabling an environment of innovation (Belias and Koustelios, 2014). Others have found that companies with a high level of the adaptability culture, particularly those that implement a lot of changes and updates to respond to the external environment, have low levels of employee satisfaction (Rawashdeh *et al.*, 2015).

Only two culture types had a significant positive relationship with society results. The mission culture, with its external focus, plays an important role in achieving excellent society results. Strategic planning activities should consider the needs and expectations of different stakeholder groups including society and social partners. Most companies in the UAE consider social aspects in developing strategic plans, and some have a standalone CSR strategy. Satisfying the needs of social partners through proper plans and strategic initiatives will strengthen the company's ability to achieve improved society results. Galbreath (2010) concluded that strategic planning activities are positively related to the successful implementation of CSR. Looking at the elements of the mission culture, setting ambitious and achievable targets had the greatest weight in achieving society results, including the social aspects.

In contrast, the adaptability culture was not related to society results. This finding is contradictory to the conclusions of some previous studies, perhaps because many companies in the UAE are relatively new, and were established after the oil revolution in the Gulf region. The adaptability culture indices, such as fostering innovation and enhancing organizational learning and focusing on creating change, may therefore be concentrated on building internal capabilities and increasing profitability and efficiency in these companies, rather than

improving their social contribution. The consistency culture was also found to be unrelated to society results. This is probably because of the internal focus of the consistency culture indices, since this culture emphasizes building agreement among employees and consensus on organizational values, which are not directly linked to social activities.

This study found that the four culture types all had a positive relationship with excellent business results. The findings support a strong theme in the literature that suggests that a balanced and strong organizational culture is essential for high performance. The four types of organizational culture in the Denison model have previously been found to be valid criteria for high-performing organizations (Denison *et al.*, 2012; Denison *et al.*, 2004; Fey and Denison, 2003).

The results of this study suggest that the Denison culture types and indices are applicable to top performing organizations in the UAE. This complements the previously-established relationships between a balanced organizational culture (mission, adaptability, involvement, and consistency) and organizational performance in many other countries (Denison *et al.*, 2012; Daniel R. Denison *et al.*, 1996; Daniel R. Denison and Mishra, 1995).

This study found that ICT use moderates the relationships between some organizational culture types and most of the business excellence results criteria. Some researchers have previously suggested that some organizational culture types support ICT use (Lopez-nicolas and Meroño-cerdán, 2009; Welch and Feeney, 2014). The conclusion of this study provides a new insight on the relationships between ICT use, business excellence, and organizational culture, and therefore adds to the findings of previous studies. National culture often has an association with ICT use, particularly the uncertainty avoidance and power distance elements (Erumban and de Jong, 2006). The UAE's national culture scores high for both those attributes (Hofstede, 1980), which may encourage use of ICT.

The use of ICT tools was found to partially moderate the relationships between the four organizational culture types and customer results. The results also showed that ICT moderates the relationships between the four organizational culture types and people results. The moderation is partial for mission, involvement and consistency cultures, and full for adaptability culture. In contrast, ICT use was not found to moderate the relationship between organizational culture types and society results. This may be because companies in the UAE tend to use ICT to provide better services, take care of their customers and enable employees to communicate more effectively, rather than to improve CSR. The concept of CSR is still relatively new to the UAE, which may be why there are few mature and structured CSR practices among local companies to affect the optimal use of ICT tools in this domain. ICT use also partially moderated the relationship between the four culture types and business results, which means using ICT tools will strengthen this relationship.

The different types of organizational culture are more associated with business excellence results in service sector comparing to manufacturing sector. This may be due to the nature of the services and the direct contact between employees and customers. The beliefs of employees directly affect their behaviors toward customers which may affect the quality of services, and customer-related results, which in turn affect the ability to achieve business excellence.

7. Implications

This research has several implications at both theoretical and practical levels.

7.1 Theoretical implications

This research had clear theoretical implications. As far as known, no previous studies have examined the relationship between organizational culture and the four results criteria of business excellence, together with the moderating effect of ICT use. The results of this

research also expand the body of knowledge about the influence of organizational culture, by showing that organizational culture types are differently related to business excellence criteria.

7.2 Practical implications

Companies can use these research findings to improve their overall performance. This may be by building a balanced and robust organizational culture. It is crucial for companies to start by assessing the existing organizational culture and then make improvements designed to achieve a more balanced status. To encourage particular organizational culture types, companies should pay attention to the underlying indices and attributes for that culture type. It takes time to change culture, and managers should be patient and plan improvement actions carefully, with regular follow-up to make sure of the implementation process.

7.3 Limitations

As with any study, this one had a number of limitations. First, the research design was cross-sectional and so could not capture changes in employee opinions over time. Second, no control variables were included. Third, the study used an online self-administered questionnaire to collect data, which required respondents to interpret the questions for themselves, and may have introduced some errors into the data.

References

- Abu Dhabi Plan (2016), available at: <https://ourabudhabi.ae/en/our-journey/abu-dhabi-plan.html> (accessed August 16, 2016).
- Adebanjo, D. (2001), "TQM and business excellence: is there really a conflict?", *Measuring Business Excellence*, Vol. 5 No. 3, pp. 37-40.
- Ahrens, T. (2013), "Assembling the Dubai Government excellence program: a motivational approach to improving public service governance in a monarchical context", *The International Journal of Public Sector Management*, Vol. 26 No. 7, pp. 576-592.
- Ángel Calderón Molina, M., Manuel Hurtado González, J., Palacios Florencio, B. and Luis Galán González, J. (2014), "Does the balanced scorecard adoption enhance the levels of organizational climate, employees' commitment, job satisfaction and job dedication?", *Management Decision*, Vol. 52 No. 5, pp. 1010-1083.
- Apulu, I. and Latham, A. (2011), "Drivers for information and communication technology adoption: a case study of Nigerian small and medium sized enterprises", *International Journal of Business and Management*, Vol. 6 No. 5, pp. 51-60, available at: <https://doi.org/10.5539/ijbm.v6n5p51>
- Ashkanasy, N.M., Wilderom, C.P.M. and Peterson, M.F. (2011), *The Handbook of Organizational Culture and Climate*, Sage, Thousand Oaks, CA.
- Austin, M.J. and Ciaassen, J. (2008), "Impact of organizational change on organizational culture", *Journal of Evidence-Based Social Work*, Vol. 5 Nos 1-2, pp. 321-359, available at: https://doi.org/10.1300/J394v05n01_12
- Aydin, B. and Ceylan, A. (2011), "What is the joint effect of employee satisfaction and customer orientation on the organizational culture in metalworking manufacturing?", *International Journal of Human Resource Management*, Vol. 22 No. 5, pp. 1203-1215, available at: <https://doi.org/10.1080/09585192.2011.556805>
- Baller, S., Dutta, S. and Lanvin, B. (2016), "The global information technology report", World Economic Forum, p. 254, available at: www3.weforum.org/docs/GITR2016/WEF_GITR_Full_Report.pdf?bcsi_scan_a07a6598c0a22d03=0&bcsi_scan_filename=WEF_GITR_Full_Report.pdf (accessed June 3, 2017).

- Barnes, J.W., Jackson, D.W. Jr, Hutt, M.D. and Kumar, A. (2006), "The role of culture strength in shaping sales force outcomes", *Journal of Personal Selling & Sales Management*, Vol. 26 No. 3, pp. 255-270, available at: <https://doi.org/10.2753/PSS0885-3134260301>
- Belias, D. and Koustelios, A. (2014), "Organizational culture and job satisfaction: a review", *International Review of Management and Marketing*, Vol. 4 No. 2, pp. 132-149.
- Bhattacharya, C.B. and Sen, S. (2004), "Doing better at doing good: when, why, and how consumers respond to corporate social initiatives", *California Management Review*, Vol. 47 No. 1, pp. 9-24.
- Blowfield, M. and Murray, A. (2008), *Corporate Responsibility: A Critical Introduction*, OUP Oxford, Oxford and New York, NY.
- Bolboli, S.A. and Reiche, M. (2013), "A model for sustainable business excellence: implementation and the roadmap", *TQM Journal*, Vol. 25 No. 4, pp. 331-346, available at: <https://doi.org/http://dx.doi.org.adezproxy.adu.ac.ae/10.1108/17542731311314845>
- Bolboli, S.A. and Reiche, M. (2014), "Culture-based design and implementation of business excellence", *TQM Journal*, Vol. 26 No. 4, pp. 329-347, available at: <https://doi.org/http://dx.doi.org.adezproxy.adu.ac.ae/10.1108/TQM-01-2014-0015>
- Boulter, L., Bendell, T., Abas, H., Dahlgaard, J. and Singhal, V. (2005), "Report on EFQM and BQF funded study into the impact of the effective implementation of organisational excellence strategies on key performance results", The Centre of Quality Excellence, University of Leicester, available at: www.siq.se/res/Arkiv/efqm_report_2005.pdf (accessed October 23, 2016).
- Burke, L., Teague, M., Ward, D. and Worrall, A. (2016), "Probation occupational cultures for the future? A focus group discussion", *British Journal of Community Justice*, Vol. 14 No. 1, pp. 29-43.
- Burnes, B. and Cooke, B. (2013), "Kurt Lewin's field theory: a review and re-evaluation", *International Journal of Management Reviews*, Vol. 15 No. 4, pp. 408-425, available at: <https://doi.org/10.1111/j.1468-2370.2012.00348.x>
- Byrne, B.M. (2010), *Structural Equation Modeling With AMOS: Basic Concepts, Applications, and Programming*, Third Edition, 2nd ed., Taylor and Francis Group, New York, NY.
- Cameron, K.S. and Quinn, R.E. (2005), *Diagnosing and Changing Organizational Culture: Based on the Competing Values Framework*, John Wiley & Sons, San Francisco, CA.
- Chan, L.L.M., Shaffer, M.A. and Snape, E. (2004), "In search of sustained competitive advantage: the impact of organizational culture, competitive strategy and human resource management practices on firm performance", *The International Journal of Human Resource Management*, Vol. 15 No. 1, pp. 17-35, available at: <https://doi.org/10.1080/0958519032000157320>
- Chin-Loy, C. and Mujtaba, B.G. (2007), "The influence of organizational culture on the success of knowledge management practices with North American companies", *International Business & Economics Research Journal*, Vol. 6 No. 3, pp. 15-28.
- Conrad, C.A., Brown, G. and Harmon, H.A. (1997), "Customer satisfaction and corporate culture: a profile deviation analysis of a relationship marketing outcome", *Psychology & Marketing*, Vol. 14 No. 7, pp. 663-674.
- Deal, T.E. and Kennedy, A.A. (1983), "Culture: a new look through old lenses", *The Journal of Applied Behavioral Science*, Vol. 19 No. 4, pp. 498-505, available at: <https://doi.org/10.1177/002188638301900411>
- Denison, D. (1984), "Corporate culture and organizational culture and effectiveness", *Organization Science*, Vol. 6 No. 2, pp. 204-223.
- Denison, D., Nieminen, L. and Kotrba, L. (2014), "Diagnosing organizational cultures: a conceptual and empirical review of culture effectiveness surveys", *European Journal of Work and Organizational Psychology*, Vol. 23 No. 1, pp. 145-161.
- Denison, D., Hooijberg, R., Lane, N. and Lief, C. (2012), *Leading Culture Change in Global Organizations: Aligning Culture and Strategy*, 1st ed., Jossey-Bass, San Francisco, CA.

- Denison, D.R. (1984), "Bringing corporate culture to the bottom line", *Organizational Dynamics*, Vol. 13 No. 2, pp. 4-22.
- Denison, D.R. and Mishra, A.K. (1995), "Toward a theory of organizational culture and effectiveness", *Organization Science*, Vol. 6 No. 2, pp. 204-223.
- Denison, D.R., Haaland, S. and Goelzer, P. (2004), "Corporate culture and organizational effectiveness: is Asia different from the rest of the world?", *Organizational Dynamics*, Vol. 33 No. 1, pp. 98-109, available at: <https://doi.org/10.1016/j.orgdyn.2003.11.008>
- Denison, D.R., Hart, S.L. and Kahn, J.A. (1996), "From chimneys to cross-functional teams: developing and validating a diagnostic model", *Academy of Management Journal*, Vol. 39 No. 4, pp. 1005-1023, available at: <https://doi.org/10.2307/256721>
- Drigas, A., Koukianakis, L. and Papagerasimou, Y. (2011), "Towards an ICT-based psychology: E-psychology", *Computers in Human Behavior*, Vol. 27 No. 4, pp. 1416-1423, available at: <https://doi.org/10.1016/j.chb.2010.07.045>
- EFQM (2013), "EFQM model criteria", available at: www.efqm.org/efqm-model/model-criteria (accessed September 12, 2015).
- Enquist, B., Johnson, M. and Rönnbäck, Å. (2015), "The paradigm shift to business excellence 2.0", *International Journal of Quality and Service Sciences*, Vol. 7 Nos 2/3, pp. 321-333.
- Entrekin, L.V. and Pearson, C.A.L. (1996), "A comparison of values espoused by quality and other managers", *Asia Pacific Journal of Human Resources*, Vol. 33 No. 3, pp. 130-139, available at: <https://doi.org/10.1177/103841119603300311>
- Erumban, A.A. and de Jong, S.B. (2006), "Cross-country differences in ICT adoption: a consequence of culture?", *Journal of World Business*, Vol. 41 No. 4, pp. 302-314.
- Fey, C.F. and Denison, D.R. (2003), "Organizational culture and effectiveness: can American theory be applied in Russia?", *Organization Science*, Vol. 14 No. 6, pp. 686-706.
- Gajendran, T. and Brewer, G. (2007), "Integration of information and communication technology: influence of the cultural environment", *Engineering, Construction and Architectural Management*, Vol. 14 No. 6, pp. 532-549, available at: <https://doi.org/http://dx.doi.org/adezproxy.adu.ac.ae/10.1108/09699980710829003>
- Galbreath, J. (2010), "Drivers of corporate social responsibility: the role of formal strategic planning and firm culture", *British Journal of Management*, Vol. 21 No. 2, pp. 511-525.
- Gambi, L.D.N., Boer, H., Gerolamo, M.C., Jørgensen, F. and Carpinetti, L.C.R. (2015), "The relationship between organizational culture and quality techniques, and its impact on operational performance", *International Journal of Operations & Production Management*, Bradford, Vol. 35 No. 10, pp. 1460-1484.
- Gechevski, D., Mitrevska, M. and Chaloska, J. (2016), "Corporate social responsibility based on EFQM framework", *Annals of the Faculty of Engineering Hunedoara*, Vol. 14 No. 1, pp. 115-120.
- Gillespie, M.A., Denison, D.R., Haaland, S., Smerek, R. and Neale, W.S. (2008), "Linking organizational culture and customer satisfaction: results from two companies in different industries", *European Journal of Work and Organizational Psychology*, Vol. 17 No. 1, pp. 112-132.
- Gogheri, A.S., Nawaser, K., Vesal, S.M., Jahanshahi, A.A. and Kazi, R. (2013), "Which organizational culture moves towards organizational excellency", *Asian Social Science*, Vol. 9 No. 11, pp. 221-236, available at: <https://doi.org/10.5539/ass.v9n11p221>
- Gómez, J.G., Costa, M.M. and Lorente, Á.R.M. (2015), "EFQM excellence model and TQM: an empirical comparison", *Total Quality Management & Business Excellence*, Vol. 28 Nos 1/2, pp. 88-103.
- Gómez, J.G., Costa, M.M. and Martínez Lorente, Á.R. (2011), "A critical evaluation of the EFQM model", *The International Journal of Quality & Reliability Management*, Vol. 28 No. 5, pp. 484-502, available at: <https://doi.org/http://dx.doi.org/adezproxy.adu.ac.ae/10.1108/02656711111132544>
- Grigg, N. and Mann, R. (2008), "Rewarding excellence: an international study into business excellence award processes", *The Quality Management Journal*, Vol. 15 No. 3, pp. 26-40.

- Hair, J.F., Black, W.C., Babin, B.J. and Anderson, R.E. (2013), *Multivariate Data Analysis*, Pearson Education, New York, NY.
- Hides, M.T., Davies, J. and Jackson, S. (2004), "Implementation of EFQM excellence model self-assessment in the UK higher education sector – lessons learned from other sectors", *The TQM Magazine*, Vol. 16 No. 3, pp. 194-201.
- Hofstede, G. (1980), *Culture's Consequences: International Differences in Work-Related Values*, SAGE Publications, London.
- Hofstede, G. (2004), *Cultures and Organizations: Software for the Mind: Software for the Mind*, McGraw-hill, New York, NY.
- Hofstede, G., Hofstede, G.J. and Minkov, M. (2010), *Cultures and Organizations: Software of the Mind*, 3rd ed., McGraw Hill Professional, New York, NY.
- International Co-operation Europe Ltd (ICEL) (2001), *Generic ICT Skills Profiles: Future Skills for Tomorrow's World*, International Co-operation Europe Limited, Brussels, available at: <http://eric.ed.gov/?id=ED459344>
- International Telecommunication Union (2015), Measuring the Information Society Report No. 978-92-61-15791-3, International Telecommunication Union, Switzerland, p. 252, available at: www.itu.int/en/ITU-D/Statistics/Documents/publications/misr2015/MISR2015-w5.pdf (accessed January 9, 2018).
- Jafari, H. (2013), "Application of EFQM excellence model to Persian Gulf Marine passenger terminal", *Journal of Asian Business Strategy*, Vol. 3 No. 8, pp. 200-209.
- Jamali, D. (2006), "Insights into triple bottom line integration from a learning organization perspective", *Business Process Management Journal*, Vol. 12 No. 6, pp. 809-821, available at: <https://doi.org/http://dx.doi.org.adezproxy.adu.ac.ae/10.1108/14637150610710945>
- Jagues, E. (1951), "The changing culture of a factory", Tavistock Institute of Human Relations, London.
- Jenkins, H. (2009), "A 'business opportunity' model of corporate social responsibility for small- and medium-sized enterprises", *Business Ethics*, Vol. 18 No. 1, pp. 21-36, available at: <https://doi.org/http://dx.doi.org.adezproxy.adu.ac.ae/10.1111/j.1467-8608.2009.01546.x>
- Jones, G.R. and George, J.M. (2010), *Essentials of Contemporary Management*, McGraw-Hill/Irwin, New York, NY.
- Karimi, S., Atashpour, B., Papi, A., Nouri, R. and Hasanzade, A. (2014), "Performance of the libraries in Isfahan University of medical sciences based on the EFQM model", *Journal of Education and Health Promotion*, Vol. 3 No. 1, pp. 122-122, available at: <https://doi.org/http://dx.doi.org.adezproxy.adu.ac.ae/10.4103/2277-9531.145934>
- Kassem, R., Ajmal, M. and Khan, M. (2016), "The relationship between organizational culture and business excellence: case study from United Arab Emirates", *International Journal of Information Systems in the Service Sector*, Vol. 8 No. 3, pp. 16-35, available at: <https://doi.org/10.4018/IJISSS.2016070102>
- Kassem, R., Ajmal, M.M., Hussain, M. and Helo, P. (2017), "Critical factors for culture of judicial excellence: benchmarking study of Emirati courts", *Benchmarking: An International Journal*, Vol. 24 No. 2, pp. 341-358.
- Klein, A., Waxin, M.F. and Radnell, E. (2009), "The impact of the Arab national culture on the perception of ideal organizational culture in the United Arab Emirates: an empirical study of 17 firms", *Education, Business and Society: Contemporary Middle Eastern Issues*, Vol. 2 No. 1, pp. 44-56, available at: <https://doi.org/http://dx.doi.org.adezproxy.adu.ac.ae/10.1108/17537980910938479>
- Kline, R.B. (2011), *Principles and Practice of Structural Equation Modeling*, 3rd ed., The Guilford Press, New York, NY.
- Kotter, J.P. and Heskett, J.L. (1992), *Corporate Culture and Performance*, Free Press, New York, NY.
- Kujala, J. and Lillrank, P. (2004), "Total quality management as a cultural phenomenon", *The Quality Management Journal*, Vol. 11 No. 4, pp. 43-55.

- Lasrado, F. and Uzbeck, C. (2017), "The excellence quest: a study of business excellence award-winning organizations in UAE", *Benchmarking: An International Journal*, Vol. 24 No. 3, pp. 716-734.
- Lee, S.K.J. and Yu, K. (2004), "Corporate culture and organizational performance", *Journal of Managerial Psychology*, Vol. 19 No. 4, pp. 340-359.
- Lewin, G.W. (1997), "Field theory and experiment in social psychology (1939)", in Lewin, K. (Ed.), *Resolving Social Conflicts and Field Theory in Social Science*, American Psychological Association, Washington, DC, pp. 262-278.
- Lopez-nicolas, C. and Meroño-cerdán, Á.L. (2009), "The impact of organizational culture on the use of ICT for knowledge management", *Electronic Markets*, Vol. 19 No. 4, pp. 211-219, available at: <https://doi.org/http://dx.doi.org.adezproxy.adu.ac.ae/10.1007/s12525-009-0020-4>
- Lu, D., Betts, A. and Croom, S. (2011), "Re-investigating business excellence: values, measures and a framework", *Total Quality Management & Business Excellence*, Vol. 22 No. 12, pp. 1263-1276, available at: <https://doi.org/10.1080/14783363.2011.631336>
- Lund, D.B. (2003), "Organizational culture and job satisfaction", *Journal of Business & Industrial Marketing*, Vol. 18 No. 3, pp. 219-236, available at: <https://doi.org/10.1108/0885862031047313>
- McAdam, R., Keogh, W., Tigani, A.A.E. and Gardiner, P. (2013), "An exploratory study of business excellence implementation in the United Arab Emirates (UAE) public sector", *The International Journal of Quality & Reliability Management*, Vol. 30 No. 4, pp. 426-445, available at: <https://doi.org/http://dx.doi.org.adezproxy.adu.ac.ae/10.1108/02656711311308402>
- Martin, J. (2002), *Organizational Culture: Mapping the Terrain*, SAGE Publications, Thousand Oaks, CA.
- Metri, B.A. (2005), "TQM critical success factors for construction firms", *Management: Journal of Contemporary Management Issues*, Vol. 10 No. 2, pp. 61-72.
- Morris, L. (1994), "Organizational culture and TQM implementation", *Training & Development*, Vol. 48 No. 4, pp. 69-71.
- Moynihan, D.P. and Pandey, S.K. (2007), "Finding workable levers over work motivation: comparing job satisfaction, job involvement, and organizational commitment", *Administration & Society*, Vol. 39 No. 7, pp. 803-816.
- Najeh, R.I. and Kara-Zaitri, C. (2007), "A comparative study of critical quality factors in Malaysia, Palestine, Saudi Arabia, Kuwait and Libya", *Total Quality Management & Business Excellence*, Vol. 18 Nos 1/2, pp. 189-200.
- Nambiar, V.R. (2012), *A Grounded Theory Study on Business Excellence Models in the United Arab Emirates (DBA)*, University of Phoenix, AZ, available at: <http://search.proquest.com.adezproxy.adu.ac.ae/docview/1222928951/abstract/2A10BE3FD3D640F7PQ/1?>
- Nikpour, A. (2017), "The impact of organizational culture on organizational performance: the mediating role of employee's organizational commitment", *International Journal of Organizational Leadership*, Ardabil, Vol. 6 No. 1, pp. 65-72.
- Nunnally, J.C. and Bernstein, I.H. (1994), *Psychometric Theory*, 3rd ed., McGraw-Hill, New York, NY.
- Nyandoro, C.K. (2016), *Factors Influencing Information Communication Technology (ICT) Acceptance and Use in Small and Medium Enterprises (SMEs) in Kenya (DBA)*, Capella University, MN, available at: <http://search.proquest.com.adezproxy.adu.ac.ae/docview/1769012171/abstract/CCFDA6AF79CE4ABDPQ/2>
- Ostroff, C., Kinicki, A.J. and Tamkins, M.M. (2003), "Chapter 22: organisational culture and climate", in Borman, W.C., Ilgen, D.R. and Klimoski, R.J. (Eds), *Handbook of Psychology, Industrial and Organizational Psychology*, Vol. 18, John Wiley and Sons, NJ, pp. 565-593.
- Peña, A.I.P., Jamilena, D.M.F. and Molina, M.Á.R. (2011), "Impact of market orientation and ICT on the performance of rural smaller service enterprises", *Journal of Small Business Management*, Vol. 49 No. 3, pp. 331-360.

- Peters, T.J. and Waterman, R.H. (2004), *In Search of Excellence: Lessons from America's Best-Run Companies*, Collins, London.
- Pettigrew, A.M. (1979), "On studying organizational cultures", *Administrative Science Quarterly*, Vol. 24 No. 4, pp. 570-581, available at: <https://doi.org/10.2307/2392363>
- Polychroniou, P. and Trivellas, P. (2018), "The impact of strong and balanced organizational cultures on firm performance: assessing moderated effects", *International Journal of Quality and Service Sciences*, Vol. 10 No. 1, pp. 16-35.
- Prajanti, S.D.W., Djuniadi and Soesilowati, E. (2013), "Evaluation on benefits and development of Information and Communication Technology (ICT) to improve the performance of agricultural extension in Central Java", *International Journal of Organizational Innovation*, Vol. 6 No. 2, pp. 243-253, available at: <https://search.proquest.com/openview/5678ea61d98075d00167a553e1fb7983/1?pq-origsite=gscholar&cbl=55118>
- Prattipati, S.N. (2010), "Sustainability and the role of information and communications technologies", *Business Renaissance Quarterly*, Vol. 5 No. 2, pp. 23-40.
- Rawashdeh, A., Al-Saraireh, A. and Obeidat, G. (2015), "Does organizational culture matter for job satisfaction in Jordanian private aviation companies?", *International Journal of Information, Business and Management*, Vol. 7 No. 2, pp. 107-115.
- Reddy, P.R., Sudheer, A.K. and Karthik, E.K. (2013), "A study on employee involvement, employee empowerment and job satisfaction in Indian corporate sector", *International Journal on Global Business Management & Research*, Vol. 2 No. 1, pp. 34-38.
- Ringrose, D. (2013), "Development of an organizational excellence framework", *TQM Journal*, Vol. 25 No. 4, pp. 441-452, available at: <https://doi.org/http://dx.doi.org.adezproxy.adu.ac.ae/10.1108/17542731311314917>
- Ritchie, B. and Brindley, C. (2005), "ICT adoption by SMEs: implications for relationships and management", *New Technology, Work and Employment*, Vol. 20 No. 3, pp. 205-217, available at: <https://doi.org/10.1111/j.1468-005X.2005.00154.x>
- Rolstadås, A. (1998), "Enterprise performance measurement", *International Journal of Operations & Production Management*, Vol. 18 Nos 9/10, pp. 989-999.
- Sackmann, S.A. (2011), "Culture and performance", in Ashkanasy, N.M., Wilderom, C.P.M. and Peterson, M.F. (Eds), *The Handbook of Organizational Culture and Climate*, 2nd ed., SAGE Publications, Thousand Oaks, CA, pp. 188-224.
- Salaheldin, I.S. (2009), "Problems, success factors and benefits of QCs implementation: a case of QASCO", *The TQM Journal*, Vol. 21 No. 1, pp. 87-100, available at: <https://doi.org/10.1108/17542730910924772>
- Saleh, A. and Watson, R. (2017), "Business Excellence in a Volatile, Uncertain, Complex and Ambiguous environment (BEVUCA)", *The TQM Journal*, Vol. 29 No. 5, pp. 705-724.
- Samuelsson, P. and Nilsson, L.E. (2002), "Self-assessment practices in large organisations: experiences from using the EFQM excellence model", *International Journal of Quality & Reliability Management*, Vol. 19 No. 1, pp. 10-23, available at: <https://doi.org/10.1108/02656710210413426>
- Saunders, M., Mann, R. and Grigg, N. (2008), "Review processes for improving business excellence frameworks", *The International Journal of Quality & Reliability Management*, Vol. 25 No. 9, pp. 928-942, available at: <https://doi.org/http://dx.doi.org.adezproxy.adu.ac.ae/10.1108/02656710810908089>
- Schein, E.H. (2010), *Organizational Culture and Leadership*, John Wiley & Sons, San Francisco, CA.
- Schneider, B., White, S.S. and Paul, M.C. (1998), "Linking service climate and customer perceptions of service quality: test of a causal model", *Journal of Applied Psychology*, Vol. 83 No. 2, pp. 150-163.
- Shamsudin, A.S.B., Kassim, A.W.B.M., Hassan, M.G. and Johari, N.A. (2010), "Preliminary insights on the effect of Islamic work ethic on relationship marketing and customer satisfaction", *The Journal of Human Resource and Adult Learning*, Vol. 6 No. 1, pp. 106-114.

- Sharifi, M., Shahriari, M. and Golzari, O. (2015), "A study on the effects of EFQM excellence model with regard to customer results in Mazandaran Province Gas Company (MPGC)", *Journal of Current Research in Science*, Vol. 3 No. 1, pp. 96-101.
- Shibani, A., Soetanto, R., Ganjian, E., Sagoo, A. and Gherbal, N. (2012), "An empirical investigation of total quality management in Libya: a proposed guideline of implementation", *International Journal of Information Systems in the Service Sector*, Vol. 4 No. 1, pp. 40-52, available at: <https://doi.org/10.4018/IJISS.2012010103>
- Siagian, H., Semuel, H. and Widjaja, W.G. (2017), "The effect of organizational culture and manufacturing strategy on firm performance through business process re-engineering", *International Journal of E-Education, e-Business, e-Management and e-Learning; Singapore*, Vol. 7 No. 3, pp. 191-201, available at: <https://doi.org/http://dx.doi.org.adezproxy.adu.ac.ae/10.17706/ijeec.2017.7.3.191-201>
- Sink, D.S. and Tuttle, T.C. (1989), *Planning and Measurement in Your Organization of the Future*, Industrial Engineering and Management Press, Norcross, GA.
- SKEA (2008), Sheikh Khalifa Excellence Award, March 13, available at: http://adnoc-ae.ueuo.com/AdnocNews_Detailsd936.html?NewsID=1b6b06ed-a5f1-482b-8a5e-356a0fe9bd49&newid=162&mid=162 (accessed September 11, 2015).
- Snider, J., Hill, R.P. and Martin, D. (2003), "Corporate social responsibility in the 21st century: a view from the world's most successful firms", *Journal of Business Ethics*, Vol. 48 No. 2, pp. 175-187.
- Su-Chao, C. and Ming-Shing, L. (2007), "A study on relationship among leadership, organizational culture, the operation of learning organization and employees' job satisfaction", *The Learning Organization*, Vol. 14 No. 2, pp. 155-185, available at: <https://doi.org/http://dx.doi.org.adezproxy.adu.ac.ae/10.1108/09696470710727014>
- Tangen, S. (2003), "An overview of frequently used performance measures", *Work Study*, Vol. 52 Nos 6/7, pp. 347-354.
- Tari, J.J. (2006), "An EFQM model self-assessment exercise at a Spanish university", *Journal of Educational Administration*, Vol. 44 No. 2, pp. 170-188, available at: <https://doi.org/http://dx.doi.org.adezproxy.adu.ac.ae/10.1108/09578230610652051>
- Tari, J.J. and Juana-Espinosa, S. (2007), "EFQM model self-assessment using a questionnaire approach in university administrative services", *The TQM Magazine*, Vol. 19 No. 6, pp. 604-616, available at: <https://doi.org/http://dx.doi.org.adezproxy.adu.ac.ae/10.1108/09544780710828449>
- Tari, J.J. and Molina-Azorin, J.F. (2010), "Integration of quality management and environmental management systems: similarities and the role of the EFQM model", *TQM Journal*, Vol. 22 No. 6, pp. 687-701, available at: <https://doi.org/http://dx.doi.org.adezproxy.adu.ac.ae/10.1108/17542731011085348>
- Teryima, S.J. and Sunday, A. (2015), "The role of Information Communication Technology (ICT) in enhancing productivity in local government administration in Benue State, Nigeria", *International Journal of Business and Economic Development*, Vol. 3 No. 1, pp. 110-124, available at: <http://search.proquest.com.adezproxy.adu.ac.ae/docview/1721669202/abstract/2C0A708B50CF4BDEPQ/23>
- van der Wiele, T. and Brown, A. (1999), "Self-assessment practices in Europe and Australia", *The International Journal of Quality & Reliability Management*, Vol. 16 No. 3, pp. 238-251.
- Webster-Trotman, S.P. (2010), *A Correlational Study of Telework Frequency, Information Communication Technology, and Job Satisfaction of Home-Based Teleworkers*, Walden University, available at: <http://search.proquest.com.adezproxy.adu.ac.ae/docview/851224770/2A4FAF1C85B14703PQ/1>
- Welch, E.W. and Feeney, M.K. (2014), "Technology in government: how organizational culture mediates information and communication technology outcomes", *Government Information Quarterly*, Vol. 31 No. 4, pp. 506-512, available at: <https://doi.org/10.1016/j.giq.2014.07.006>
- Westlund, A.H. (2001), "Measuring environmental impact on society in the EFQM system", *Total Quality Management*, Vol. 12 No. 1, pp. 125-135, available at: <https://doi.org/10.1080/09544120020010147>

- Zairi, M. and Alsughayir, A.A. (2011), "The adoption of excellence models through cultural and social adaptations: an empirical study of critical success factors and a proposed model", *Total Quality Management & Business Excellence*, Vol. 22 No. 6, pp. 641-654.
- Zhang, M., Li, H. and Wei, J. (2008), "Examining the relationship between organizational culture and performance: the perspectives of consistency and balance", *Frontiers of Business Research in China*, Vol. 2 No. 2, pp. 256-276, available at: <https://doi.org/http://dx.doi.org/adezproxy.adu.ac.ae/10.1007/s11782-008-0015-6>

About the authors

Dr Rassel Kassem is currently working as Adjunct Instructor in Abu Dhabi School of Management and heading the organizational development for one of Abu Dhabi's government entities. He has past experience in the private, semi-government and government sectors with background in management consultancy. Kassem has been active professionally in the quality and business excellence domain since 2004. He is Assessor Team Leader and judge for several quality and business excellence awards in different countries. He holds a Doctorate degree with honor in Business Administration from Abu Dhabi University and Master's degree with distinction in Business Administration from New York Institute of Technology. He authored two management books and number of booklets and published his research work in international academic journals. In addition, he is a regular contributor to a number of reputable management magazines like *Harvard Business Review Arabic*.

Dr Mian Ajmal is currently working as Associate Professor of Management at Abu Dhabi University, Abu Dhabi, UAE. He holds Doctorate and Master's degree in Business Administration and Economics. He earned his Doctoral degree in Industrial Management from University of Vaasa, Finland during 2009. He has been involved in several European Union research projects in the last few years. He has also been teaching in different Scandinavian Universities like University of Vaasa, Swedish School of Economics (HANKEN) and Oulu Business School. His research interests pertain to knowledge, project and supply chain management; entrepreneurship; social sustainability; and organizational behavior and culture. He has published a number of research articles in several internationally known journals like *Project Management Journal*, *Knowledge Management Journal*, *Business Process Management Journal*, *International Journal of Performance and Productivity Management*, *International Journal of Innovation and Learning*, *Journal of Manufacturing Technology Management* and *The TQM Journal*.

Professor Angappa Gunasekaran is Dean of School of Business and Public Administration, California State University, Bakersfield, USA. He has been a Professor of Operations Management at UMass Dartmouth since 1998. He has a PhD in Industrial Engineering and Operations Research from the Indian Institute of Technology (Bombay). Over the years, he also has held academic positions in the UK, Australia, Finland, India and Canada. He served as Chairperson of the Department of Decision and Information Sciences at UMass Dartmouth from 2006 to 2012. Professor Gunasekaran has published more than 300 articles in peer-reviewed journals, presented about 60 papers, published 60 articles in conferences and given a number of invited talks in many countries. He is on the editorial board of several journals and has organized several international workshops and conferences in the emerging areas of operations management and information systems. He has been a visiting professor at several international universities and received many research grants. Professor Gunasekaran is also the founding Director of the Business Innovation Research Center (BIRC) at UMass Dartmouth. Professor Angappa Gunasekaran is the corresponding author and can be contacted at: agunasekaran@csu.edu

Professor Petri Helo is Professor of Industrial Management, Logistics Systems in the Networked Value Systems Group at the University of Vaasa, Finland. His research addresses the management of logistics processes in supply demand networks and decision support systems. He is also involved in developing logistics information systems at Wapice Ltd as a partner.