UNIVERSITY OF BAHRAIN

College of Information Technology



Impact of National Culture and Information System Quality (ISQ) on Cloud Computing Adoption by SMEs in the Kingdom of Bahrain

A Thesis Submitted in Partial Fulfillment of the Requirement for the Master's Degree in Information Technology

Prepared by:
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ID number: 20112791

Supervised by:
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(Assistant Professor)

University of Bahrain

Kingdom of Bahrain
June, 2021

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Abstract

This study evaluates the impact of national culture and information system quality (ISQ) on SMEs' CC implementation in the Kingdom of Bahrain. To achieve this, the researcher has utilized structural equation modeling (SEM) to test various hypotheses and relied on a quantitative approach throughout the research process.

The data was gathered from Bahraini SMEs that were interested in implementing CC in their businesses.

In total, 444 responses were obtained from an online questionnaire distributed to a random sample of respondents from Bahrain. A structural model (national culture and ISQ framework) was developed using factors from three strong and international models: DeLone and McLean (D&M, 2003), Integrated TAM-TOE Model (Devis et al. (1986) and Tornatzky and Fleischer (1990), and Hofstede's Four Cultural Dimensions theory (Hofstede, 1980).

This study contributes to the body of knowledge on CC by showcasing the particularities of its implementation in the Bahraini context. This research suggests that information systems quality significantly impacts the SME's behavioural aim to implement CC in Bahrain. Second, cultural factors substantially affect the SME's behavioural target to adopt CC in Bahrain. Third, technological factors positively impact Bahraini SMEs ' information systems quality. Forth, organizational factors positively impact Bahraini SMEs' information systems quality. Fifth environmental factors positively impact Bahraini SMEs' information systems quality.

As this research sample only includes private sector organizations, future studies might consider other organizations and they might also consider using a broader sample size that involves several countries to better understand geographic and cultural variables pertaining to CC development.

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List of abbreviations

AVE: Average Variance Extracted

AMOS: Analysis of Moment Structures

C: Compatibility

CC: Cloud Computing

CF: Cultural Factors

ChiSq/df: Chi-Square/ Degree of Freedom

CFI: Comparative Fit Index

CFA: Confirmatory Factor Analysis

CO: Complexity

CP: Competitive pressure

CR: Composite Reliability

D&M Model: DeLone and McLean model

DF: Discriminant Validity

EF: Environmental Factors

GCC: Gulf Cooperation Council

H: Human Readiness

IACC: Intention to adopt cloud computing

IC: Individualism-collectivism

IS: Information System

IQ: Information Quality

IT: Information Technology

ISQ: Information System Quality

MF: Masculinity-femininity

MSV: Maximum Share Variance

O: Organizational Readiness

OF: Organizational Factors

PD: Power distance:

RA: Relative Advantage

RMSEA: Root Mean Square of Error Approximation

S: Security

SD: Standard Deviation

SEM: Structural Equation Modeling

SMEs: Small and Medium Enterprises

SPSS: Statistical Package for Social Science

SQ: System Quality

TAM: Technology Acceptance Model

TF: Technology Factors

TM: Top Management Support

TOE: Technology-Organizational-Environment

UA: Uncertainty avoidance:

VS: Vendor support

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Chapter One: Introduction

1.1 Background

Cloud computing is computing that provides services through network availability of computing assets. It can be quickly discharged with service provider interaction or inconsequential administration exertion and the preeminent, comprehensive CC depiction (Mell & Grance, 2011).

Cloud computing has become an important technological trend in recent years because it guarantees that virtualized IT resources are usable and accessible. To use the service, the vendor licenses a particular quantity of assets that clients are charged for per use. Information Systems (IS) has become an essential figure in supporting a corporation's business, and it may be a significant section for trade handlingeffectiveness. However, the term ISQ implies the superiority of program and IS items (Duggan and Reichgelt, 2006). Within the last few years, cloud computing has enhanced the esteem of IT by offering computing as a service that can spare organizations a considerable share of their budget without deploying software, hardware, and proficient IT resources. Also, it offers organizations more choices to save cost, represent liabilities to third-party suppliers, and run foundations. It hasopened up a new door for innovation in trade models that simplify businesses (Ramachandra et al., 2017). In this research, the researcher will explore whether national culture and information system quality (ISQ) impact CC implementation by SMEs in the Kingdom of Bahrain.

1.2 Problem Statement

Gangwar and Date (2016) expressed that cloud computing plays a noteworthy part in delivering IT support services by utilizing internet technologies. It offers an economic benefit for business as it reduces the price of existing applications and this is considered the leading motif for CC development and adoption. Furthermore, it provides numerous advantages to organizations that include a decrease in deficiencies, economic savings, individuals' access to applications from any place on-demand (Alharbi et al., 2016). Likewise, it is fundamental for autonomic computing, the process of virtualization, usage, and cloud computing services (Subashini and Kavitha, 2011; Benlian and Hess, 2011).

The adoption of cloud computing is gaining traction in developing countries. Many

organizations in the Middle East and the Gulf region have begun to investigate cloud computing, and some have already made the switch. However, while there are numerous advantages of migrating to the cloud, there have been always a risk and concern among top management that must be addressed in order to ensure a seamless and successful transition (Alnaji & Salameh, 2015). Moreover, GCC countries like Bahrain, Oman, Saudi Arabia, the United Arab Emirates, and Qatar have gained favorable advantages of cloud computing (Weber, 2011). Nonetheless, none of the past studies inspected the effect of national culture and ISQ on the transition toward CC adoption. As organizations continue to provide services focusing on economic benefits, the prerequisite to understand the importance of CC implementation becomes more vital. Therefore, to address this gap, the national culture and information system quality framework was proposed to assess the effect of the variables on the intention to implement CC. Thus, the researcher attempts to empirically research and evaluate the factors of national culture and information system quality (ISQ) that could affect the intention to adopt CC by Bahraini SMEs.

1.3 Research Problem Justification

Cloud computing refers to a collection of computers that offer computing facilities and services to customers (Buyya et al., 2008). It also denotes the method that provides in-house IT services (Choudhary and Vithayathil, 2013). Assessing the impact of national culture and ISQ on empowering the transition toward CC adoption is essential for researchers and practitioners.

Additionally, the immediate access to data and the development of a data warehouse results in excellent IQ in institutes (Lee et al., 2002). Nevertheless, to progress the association's capacity to transition towards cloud computing adoption, previous findings indicated that while interest in development is a significant facilitator of innovation, cultural perspectives despite everything matter and can propel innovation (Efrat, 2014).

The lack of research that evaluates the effect of national culture and ISQ on the intention to implement CC motivated the researcher to assess these factors of national culture and information system quality (ISQ) that could affect CC implementation. Additionally, information system quality is a main concern any organizationinterested in

improvingorganizational performance by managing the business processes which explains why the interest in cloud computing adoption is growing to enhance and support business procedures in the organizations by improving service delivery and performance and due to potential cost-saving and optimum resource utilization (Senyo et al., 2016). This study aims to evaluate the influence of national culture and ISQ on CC development by SMEs in the Kingdom of Bahrain.

1.3.1 Research Questions

According to the problem statement discussed in section (1.2), the researcher developed the following study questions. This study refers to the comprehensive understanding of CC adoption by describing, explaining, and measuring the critical factors of quality, organization, environment, technology and culture.

1. What are the critical factors that impact Bahraini SMEs' information system quality?
2. How do cultural factors impact the SME's behavioural intention to adopt cloud computing in Bahrain?
3. How does information system quality impact the SME's behavioural intention to adopt cloud computing in Bahrain?

1.3.2 Research Objectives

The main objectives of this research are:

1. To develop a structural model that introduces the national culture and ISQ framework.
2. To explore important factors that impact Bahraini SMEs' information system quality.
3. To examine the impact of cultural factors on the SME's behavioural intention to adopt cloud computing in Bahrain.
4. To assess the effects of information system quality on the SME's behavioural intention to adopt cloud computing in Bahrain.

1.4 Research Contribution

The researcher has found that none of the previous studies have evaluated the national culture and the ISQ effect on supporting the evolution towards CC adoption in the Bahraini context. As such, this research will evaluate the main factors of national culture and ISQ that affect the CC implementation by SMEs in the Kingdom of Bahrain.

In addition to that, this research proposes a theoretical framework that can assist researchers to empirically evaluate the combined effect of national culture and ISQ on SMEs CC implementation in the Kingdom of Bahrain.

Furthermore, the research findings may help to comprehend the impact of national culture and ISQ on supporting the evolution toward CC adoption by SMEs in the Kingdom of Bahrain.

1.5 Thesis Structure

A total of seven chapters make up this research: Chapter 1 is the introduction, Chapter 2 offers a review of the literature, and Chapter 3 discusses the research framework.". Chapter 4 describes the research methodology. Data Analysis and Research Findings are presented in Chapter 5, which is followed by a discussion in Chapter 6 and finally a conclusion and implications segment in Chapter 7. (see Figure 1).

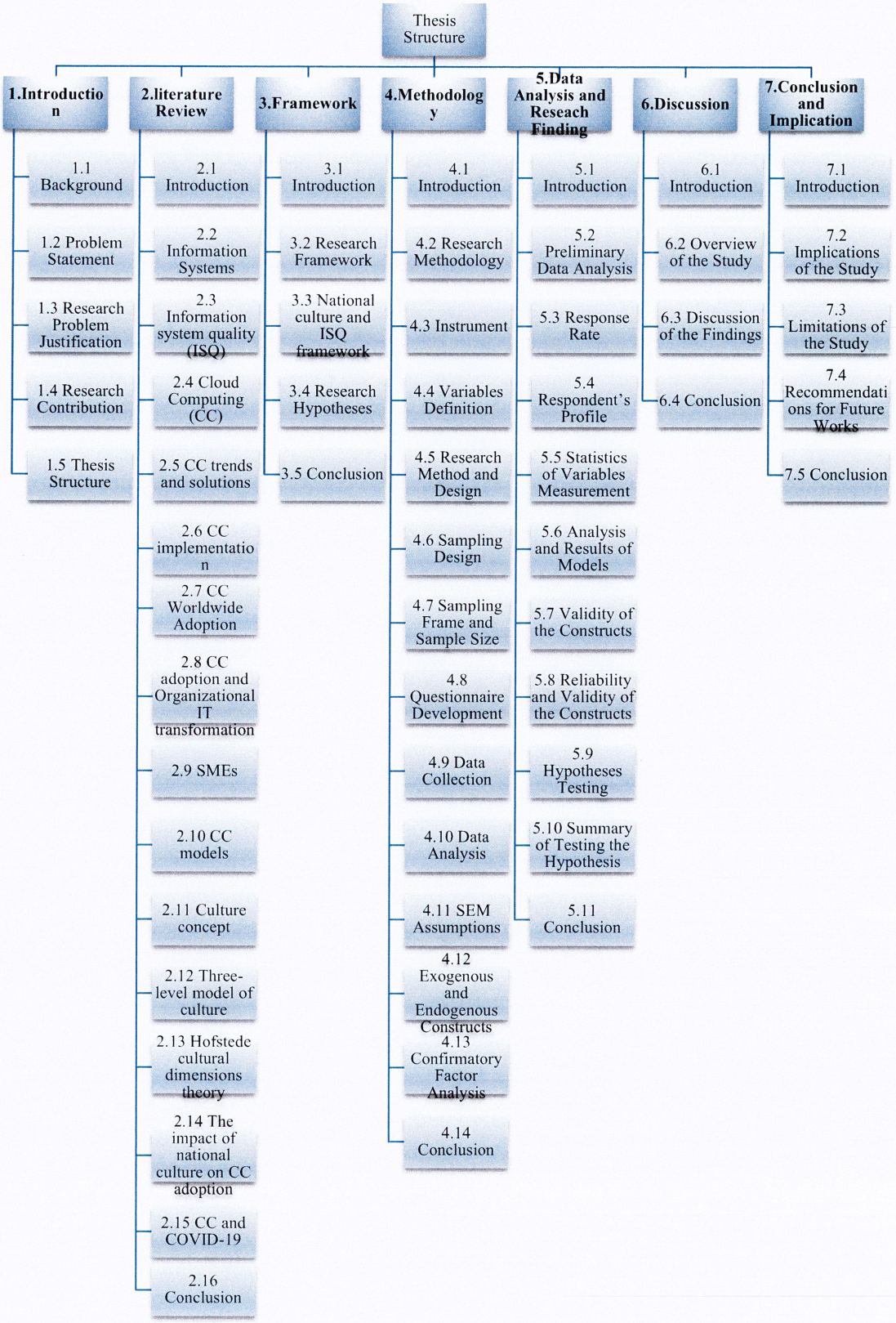


Figure (1.1): Thesis Structure

1.6 Conclusion

Nowadays, organizations are extremely dependent on information system quality (ISQ). This dependency drives the attention of SMEs toward the transition to CC implementation. Thus, it is crucial to comprehend and evaluate the effect of national culture and ISQ on empowering the transition toward cloud computing adoption. This chapter introduces the research shown in this project, which focuses primarily on studying the factors of national culture and ISQ that affect the transition toward CC adoption by Bahraini SMEs. It sheds light on the research background, and the study problem. In this thesis, the research questions are defined, the study objectives are specified, justifications are provided for the study and research constributions are presented..

Chapter Two: Literature Review

2.1 Introduction

The importance of cloud computing cannot be overstated in organizations. It inspired a revolution in the way information technology (IT) is utilized and italtered the way IT hardware and software are acquired in businesses (Armbrust *et al.*, 2009). Moreover, Sabi *et al.* (2016) stated CC has transposed in the supply of IT resources and services.

This chapter reviews the literature on national culture and information system quality (ISQ) and their impact on the development of CC by SMEs in the Kingdom of Bahrain. It is divided into three parts: the first part introduces the definition of the quality of the information system (ISQ), information quality (IQ), system quality, and service quality. The second part presents the cloud computing (CC) concepts, CC trends and solutions, CC implementation, CC worldwide adoption, CC adoption in the GCC, CC adoption, and IT transformation in organizations. The third and final part discusses SMEs, SMEs in Bahrain, the usage of CC in SMEs and CC models as well as presents the culture cohe ncept, tthree-level model of culture, Hofstede cultural dimensions theory and the impact of national culture on CC adoption.

2.2 Information Systems

The information system is about understanding organizational "best practice" software standards, providing valuable and ease of use applications, delivering high-quality performance, and increasing corporate profit. With the right information system and quality management practices, adequate system quality, and lower development cost, the project schedule will be improved in the organization (Gorla et al., 2010).

Most enterprises provide distinctive consideration for adopting, utilizing and evaluating beneficial information systems. Organizations employ information systems in computer-mediated communications, e-commerce, decision support system, and knowledge management system (Jiang et al., 2002).

In addition to that, the execution of IS and innovation have been investigated very widely (Arifin and Tajudeen, 2020). The success of IS and technology adoption is determined by client fulfillment, foundation, framework execution variables, and budgets (Choshin and

Ghaffari, 2017). Moreover, Yu et al. (2017) discovered the effective innovation implementation is influenced by users' computerized abilities and information proficiency.

2.3 Information System Quality (ISQ)

ISQ is related to "the quality of IS and software products." IS quality has numerous dimensions such as ease of admission and the utilization of of conveyed features, timely delivery, satisfactory reaction times, and benefits that outstrip the development cost (Duggan and Reichgelt, 2006). In addition to that, Moges, et al. (2013) suggested that ISQ assists the organizations in many dimentions like usefulness and feature consistency. It offers an extraordinary possibility of precise and reliable reply, scalability to include unexpected functionality, and ease in detecting system defects and procedures.

2.3.1 Information Quality (IQ)

IQ is about the outputs, attributes, and features of the IS (DeLone and McLean, 1992). Gustavsson and Wanstrom (2009) defined IQ as the "ability to satisfy stated and implied the needs of the information consumer." IQ emphasizes meeting customers' expectations. According to Wang and Strong (1996) IQ is "fitness for use". Also, it is described as the information that benefits information users.Furthermore, IS denotes databases information quality as well as data warehouses (Ballou and Pazer, 1995; Pipino et al., 2002; Wang and Strong, 1996).

Moreover, Shankaranarayanan and Cai (2001) mentioned that there is a need to develop complete measures of IQ to assess the organizational information implication. Also, organizational IQ is reliant on task tenacity (Lee, et al, 2002). Additionally, Huh *et al.* (1990) described consistency, completeness, accuracy, and currency, as the key four measurements of IQ.

2.3.2 System Quality

The quality of the system is expressed as the extent of IS processing required to produce outputs (Nelson et al., 2005). Seddon (1997) expressed that system quality implies that the system should be error-free. Also, it considers usability, documentation and program code quality, and interface consistency. Moreover, system quality consists of software and data constituents, and it is related to ISQ functioning (DeLone and McLean, 2003).

Furthermore, the scope of system quality introduces the customer's understanding of collaboration within the system over time. According to this advanced system, quality must have higher user-friendliness and practicality (Davis, 1989).

2.3.3 Service Quality

Service quality is the degree of deviation between users' service prospects and their understanding of service implementation (Gorla et al., 2010). Moreover, in service quality, expectations are referred to as what users estimate a service provider must perform instead of what the service provider would perform. Also, it is an inclusive attitude involving service superiority and advanced stages of service quality leading to greater consumer fulfillment (Prakash and Mohanty, 2011).

2.4 Cloud Computing (CC)

The word 'Cloud' is the internet itself, and its main goal is customer involvement and customization (Mathew, 2012). In addition to that, it means that organizations and consumers can easily have access to it whenever they are (von Rosing et al., 2011).

Sekhar and Nanaji (2010) mentioned that cloud computing is the internet ("cloud") constructed on the innovation and use of technology ("computing"). Users should be knowledgeable and have expertise to properly manage the technology structure "in the cloud" supporting them.

The first emergence of cloud computing was in the 21st century, and all the emphasis was on the application service provider which is referred to as Software as a Service (SaaS). However, it dated back to 1960. In the early 1990s, the term cloud referred to large ATM networks. Sekhar and Nanaji (2010) specified that there is less need for local computers with cloud computing as it applies in-house information technology services (Choudhary and Vithayathil, 2013). CC was primarily considered an essential and emerging subject in technical and educational arenas as opposed to local computer networks (Vats et al., 2012). The term cloud computing is expressed as the incorporation of two substantial parts of IT. First of all, the control of computers can be utilized more professionally. Secondly, it offers the possibility of utilizing equipment and program as a trading instrument for real-time applications and functions (Marston et al., 2011). In addition to that, Marks and Lozano (2010) stated that CC is a shared equipment for on-demand facilities and program assets

that are shared by others on the internet. Furthermore, it could be a browser through the web given by the supplier (Kim, 2009). In this sense, cloud computing denotes collecting on-demand infrastructure and software offered and retrieved utilizing the Internet (Zhao et al., 2014). For the purposes of this research and taking into consideration the definitions presented thus far, cloud computing is used henceforth to describe a procedure that provides internal IT services.

2.5 CC Trends and Solutions

The cloud computing perspective expressively altered during the last decade. Therefore, cloud infrastructure,providers, and services are now improving (Varghese and Buyya, 2017). Academia and instury have both supported these changes and recognized computing as a benefit and value (Buyya et al., 2009). Moreover, in recent years substitute models of using cloud infrastructure have been recommended, as were applications which support cloud infrastructure by using diverse resources from multiple providers (Grozev and Buyya, 2014). Furthermore, with decentralized cloud infrastructure, there are more opportunities to make the processing expedited and easier (Assuno et al., 2015).

According to cloud computing solutions, cloud computing should be attempted carefully as an evolving information technology due to concerns over protection and privacy (Modi et al.,2013). Therefore, several solutions enhance cloud computing privacy and security, such as developing and supporting secure client and host infrastructure and ensuring confidential access on both sides. Also, encryption and decryption keys should be conserved and protected, and providers must confirm the client's authenticity. There should be penetration testing at steady intervals to ensure that the vulnerabilities do not exist in the cloud. Moreover, cloud computing security and privacy should improve, and there must be a requirement for superior crypto algorithms (Mathew, 2012).

2.6 CC Implementation

It is vital to comprehend the variables that inspire CC utilization. CC implementation requires a challenging study due to its specificities. What can change how Information Technology is adopted and implemented is that computing services are to be leased rather than owned, meaning that computing services can be accessed using only the internet with

no need for hardware and software. Typically, implementing new service solutions is a significant subject (Mezghani and Ayadi, 2016) and therefore, certainly, the adoption of CC can increase the potential riskthat some companies may face (Dutta et al., 2013). Moreover, scholars and researchers have attempted to achieve more trust and confidence in Cloud Computing by using proactive research and educational methods (GaurangKumar and Minubhai, 2012). The numerous stages to attain certainty in the cloud were comprehensive. Additionally, management innovation might affect the organization's strength to implement CC and address the way that companies could overcome the obstructions to develop CC (Khanagha et al., 2013). In the end, Gupta et al. (2013) founded that simplicity and suitability should be the foremost noteworthy driver for the execution.

2.7 CC Worldwide Adoption

CC is a technology that permits universal and flexible network connectivity to enable the supply andmerging of computing resources that require minimal management effort (Lal and Bharadwaj, 2016)., It is theoutcome of different technological progressions such as the internet, software, hardware, distributed computing, and system management. Computation in the cloud is the same as using the internet (Buyya et al., 2011).

Recently, CC has had a huge impact on information technology aspects because of technological improvements, and economic ambiguity performs a great platform for cloud computing adoption (Yuvaraj, 2016). CC has been embraced in industrialized and developing countries (Senyo et al., 2016).Therefore, with this enhancement, businesses and governments around the world intend to improve service delivery and performance. Furthermore, factors such as cost, user-friendliness, consistency, cooperation, competitive pressure, the size of the organization, technology readiness, compatibility, top management provision, and availability have a vital function in adopting CC (Lal and Bharadwaj, 2016).

In addition to that, the adoption of CC can assist an organization in achieving efficiency, cost-effectiveness, and productivity. Thus, the importance of cloud services in IT is improving. The organizations become able to focus on central business strategies through the enhanced reliability and scalability of the systems of the organization (Ali et al., 2020).

Also, it can be adopted in various methods and manners by different organizations to make IT more beneficial (Cegielski et al., 2012).

2.7.1 CC Adoption in GCC

Interest in cloud computing is growing due to potential cost-saving and optimum resource utilization. As Grossman (2009) points out, cloud computing is cost-efficient because the user pays for the required services. Overall, system management and certifying costs can be provided at a lower price. In Oman, and shortly after Gulf Cooperation Council (GCC) countries in the Middle East, CC facilities were started in 2012 (Sharma et al., 2016).

Moreover, Al-Jabri and Tashkandi (2015) said that the largest facility in the Arab Gulf region is Saudi Arabia, making it a prospective CC marketplace. In addition to that, in the area, the implementation of CC facilities is expected to be the most rapid development capacity. Cloud computing has favourable benefits to the Middle East region and the GCC countries of Bahrain, Oman, Saudi Arabia, the United Arab Emirates, and Qatar (Weber, 2011).

2.7.1.1 CC Adoption in Bahrain

The government of Bahrain is dedicated to renovating government ICT and driving beneficial cloud computing services. Additionally, all future government institution projects are ought to transfer to CC as per the government-approved cloud-first policy. This movement to cloud migration employs Amazon Web Services Administrations (AWS) as the organizer of the seventh sequential year in Gartner's IaaS Magic Quadrant (iGA, 2017). Furthermore, CC in Bahrain sought reduction in the government ICT cost, enhancing safety by utilizing authorized programs, improving efficiency as well as proficiency, and elevating the quality ofservices (National Enterprise Architecture, 2019).

Moreover, the characteristics of cloud computing infer that it may be accommodated within the procedure of executing productive e-government services for the e-government. Likewise, CC advantages for e-government applicationswould improve the productivity and usefulness of e-government applications within companies (Mohammed and Ibrahim, 2015).

2.8 CC Adoption and Organizational IT Transformation

A few years ago, many organizations started to pay attention and pick up interestin cloud computing in computer science and information systems (IS) disciplines (Marston et al., 2011). CC initiates a vital alteration in the way of implementing, establishing, measuring, updating, paying for and maintaining IT facilities. An organization's transformation toward cloud services is basically about whether resources are positioned inside or outside the organization. Based on this, organizations, instead of overseeing and directing their internal resources, begun to manage and monitor the interactions with a service provider and other consumers (Carcary, 2014). In addition to that, with CC, IT can be used as a competitive instrument. It signifies two significant trends in IT, which are IT efficiency and business agility (Roehrig, P., 2009).

In the end, cloud services offer a new platform for organizations to adapt their IT aptitude. Progressive IT innovation supports organizations to transform into a novel cloud service-oriented commercial atmosphere (Yu, 2018).

2.9 Small and Medium Enterprises (SMEs)

Lukacs (2005) mentioned that SMEs are a different collection of businesses which function in diverse fields and operate in various levels of technology and ability. Also, the concept of SMEs differs between nations based on the number of personnel as well as the company's annual turnover. It is interesting to know that most of the larger companies governing economic development start as small businesses (Acs et al., 1997). Moreover, in this 21st century, the way of commerce and trading is continuously changing and progressing. The new economic environment and technology revolution forces businesses to improve the way their business is conducted in order to grow and compete (Pavic et al., 2007).

Furthermore, many enterprises have to adapt to survive due to the globalization of the economy. SMEs require new technologies as well as the implementation and exection of new business strategies (Caldeira and Ward, 2001). In addition to that, to motivate economic growth, countries should inspire innovation in SMEs and consider it a priority in the policy initiatives (Edward et al., 2005). Today, innovations have become an essential

feature in business practices. They can lead to future growth and make the adoption of innovations in SMEs a necessity rather than an option (Ehrenberger et al., 2015).

2.9.1 SMEs in Bahrain

The Ministry of Industry and Commerce in Bahrain has issued a definition of SMEs, according to the organization's annual profit and employee number within the enterprise (Singh et al., 2010). In Bahrain, businesses that employ 11 to 250 employees are defined as SMEs. National statistics specify that SMEs number in Bahrain is 6,435. The amount of small enterprises is 5,485, and the number of medium enterprises is 950 (Ministry of Industry and Commerce, 2010).

Darwish (2014) stated that Bahrain's SMEs play an essential role in industrial and economic activities in Bahrain and SMEs have a high impact on economic development. Also, strategic implementation besides the subsidized financial promotion became very critical for SME's improvement. SMEs have an essential responsibility for Bahraini financial development. The government of Bahrain has developed numerous organizations to encourage and support SMEs, such as Tamkeen. Tamkeen has established programs to assist and improve SME development, and it is also the most vital body to hold up SMEs in Bahrain. In addition to organizations that support SMEs, Bahrain Development Bank also supplies financing to SMEs (Abdulla and Amba, 2014).

2.9.2 The Usage of CC in SMEs

Belalem et al. (2011) pointed that some SMEs started to develop evolving initiative technologies, such as CC, in their commercial activities and procedures. CC development does not require SMEs to own the infrastructure. Instead, they can employ the resources as a service (Rittinghouse and Ransome, 2009). Moreover, CC implementation in SMEs resulted from the enterprises' inconvenience in achieving the IT infrastructure (Oduh et al., 2018).

Moreover, SMEs can utilize cloud computing in supporting the needed IT systems and applications. This processis necessary for the configuration and association of IT if an organization aims to obtain well-organized and capable business practices (Wilkin et al., 2016; Islam et al.,2017). Also, cloud computing delivers ease of administration, flexibility, tool, and availability and an express improvement for SMEs (TechRepublic et al. 2009).

SMEs are attracted to use cloud computing by integrating cloud infrastructure as part of SME's information technology strategy in order to improve efficiency and awareness. Additionally, cloud computing has a significant role in supporting innovation and creativity, adding value, empowering economic growth and providing viable and supportable societies (Tumer, 2010). Moreover, Sharma et al. (2010) discussed that cloud computing offers many opportunities for SMEs. It enables enormous savings of money and assists SMEs to acquire cost-effective business models. Also, it eliminates the implementation and functioning of in-house application costs for SMEs. They only have to pay for the operating expense instead of purchasing software licenses. Additionally, ease of use and convenience are significant factors for CC usage of SMEs (Gupta et al., 2013).

Additionally, cloud-based technologies enable SMEs to support innovation and improve their competitiveness and significant new competitive advantages (Chen and Song, 2011). That said, however, the usage of CC in SMEs is still inadequate and limited because some enterprises are unenthusiastic and hesitant about implementing such innovative technology (Asiaei and Zairah, 2019).

2.10 CC Models

In the literature, there are three models and a main theory developed to investigate the impact of CC adoption. These support researchers to examine the effect of national culture and ISQ on the CC implementation by Bahraini SMEs. Based on sixteen factors (information quality, system quality, security, relative advantages, complexity, compatibility, top management support, human readiness, organizational readiness, competitive pressure, vendor support, power distance, uncertainty avoidance, individualism-collectivism, masculinity-femininity and behavioral intention to adopt) delivered from three strong models and a theory by DeLone and McLean D&M (2003), as well as by the Integrated TAM-TOE Model by Devis et al. (1986), Tornatzky and Fleischer (1990), Technology-Organizational-Environmental (TOE) framework by Tornatzky and Fleischer (1990) and Hofstede's cultural dimensions theory (Hofstede, 1980). The research model discusses the variables that affect the transition of SMEs in the Kingdom of Bahrain toward CC adoption.

2.11 Culture Concept

Sackmann (1992) mentioned how culture had bordered in different studies as philosophies, comprehensive sets of principles, simple expectations, shared groups of fundamental standards and critical empathies.

Others propose that culture includes obvious, apparent cultural objects such as standards and performances. Hofstede and Bond (1988) considered that culture has components, which are tacit and explicit (Jermier et al., 1991; DeLong and Fahey, 2000).

2.12 Three-level Model of Culture

Schein's (1985a, 1985b) three-level culture model emphasizes features that are less noticeable such as basic assumptions and values and more noticeable cultural featuressuch as artifacts.

- Basic assumptions

Based on Schein (1985a, 1985b), the fundamental feature of culture is basic assumptions, on which individuals build their belief and value system about the nature of theircharacteristics, behaviour, attitude, relationships, and truth. These basic assumptions signify the actual mental state of mind and awareness that individuals use in daily situations, events, and human interaction (Reichers and Schneider 1990; Sackmann 1992).

- Values

The second level of Schein's Model of Culture is values. Values represent culture, indicating the adoption of beliefs that carry importance to a specific cultural group. These values expose why people have different behaviour (Schein 1985) within organizations. The corporation's values create the groundwork of organizational culture and set the guidelines for acceptable work behaviour that are than molded into specific cultural forms and traditions (Deal and Kennedy 1982). Moreover, values are described as a collection of community standards that set collaboration and communication guidelines between people (Delong and Fahey 2000; Nadler and Tushman 1988). However, Schein (1985a, 1985b) clarifies that values are merely created due to primary assumptions related to culture.

- Artifacts

Schein's third level of Culture Model is related to artifacts and relics, which are the most visual cultural indicators. Artifacts consist of technology, art, innovations, history, language, myths, traditions, cultural ceremonies, and other observable and audible behaviour patterns (Pettigrew, 1979). Although the artifacts are the most challenging to interpret, they constitute thegreatest detectable culture model level. Particular artifacts like IT are not culturally unified and may introduce many variations of values influenced by the definition, utility and importance of underlying assumptions (Coombs et al. 1992; Scholz 1990).

2.13 Hofstede Cultural Dimensions Theory

A primary theory in multicultural management is Hofstede's cultural dimensions theory (Hofstede, 1980). The four dimensions of culture are masculinity-femininity, uncertainty avoidance, individualism-collectivism, and power distance.

- Power Distance (PDI)

Power distance indicates the power and distance differentials between managers and subordinates. Administrators and associates are separated from each other in elevated power distance corporations; thus, structural hierarchy is understandable. On the other hand, subdued power distance organizations have a flat structure in which there is little noticeable differentials among various organizational ranks (Wu and 2006).

- Uncertainty Avoidance (UAI)

Hofstede (1980) defined uncertainty avoidance as the level that individuals of a given culture see and respond to an unclear risk and ambiguous conditions. This situation interprets the level of stretch on and the need of consistency in rules both written and unwritten. Also, in societies where rules are exceedingly enthusiastic, uncertainty avoidance is solid. In addition to that, in a community with higher uncertainty avoidance, the aim of the culture is usually to reduce uncertainty and ambiguity by creating far more regulations, procedures, and rules (Palomino, 2007). In comparison, minimal uncertainty avoidance in culture involves entities with precarious and high tolerance for inaccurate information (Shanks, et al., 2000).

- Individualism-Collectivism (IDV-COL)

The individualism-collectivism dimension concentrates on whether a person favors a group or working individually (Hofstede, 1980).

Nowadays, groups take priority over the individual. Individuals are anticipated to primarily look after and prioritize themselves and their immediate family. Thus the coherence between the individuals is shaky. While in collectivist cultures, members of the group are safeguarded in exchange for loyalty to the group. Moreover, collectivist cultures motivate mutual respect while individualist countries usually support a competitive connection amongst colleagues (Palomino, 2007).

- Masculinity-Femininity (MAS-FEM)

The masculinity-femininity refers to the gender roles in organizations. In the masculinity-femininity dimension, the masculine cultures symbolize a choice in society for material reward, heroism, and achievement for success. In these cultures, assertiveness is a dominating value (Gallivan and Srite, 2005). In contrast, femininity stands in a choice for synergy, modesty, taking care of the weak and quality of daily life (Hofstede, 1980). Furthermore, in high-masculinity organizations, advanced salaries and positions belong to men and only a fewwomen have access to positions of power. In contrast to high masculinity, women in low masculinity organizations can obtain higherorganizational significance and take on leadership roles (Wu and 2006).

2.14 The Impact of National Culture on Organizational Level

The ability of an individual to influence or restrict the behavior of another individual is referred to as power. Individuals in high PDI cultures anticipate being led by a single individual, whereas power is expected to be distributed in low PDI cultures. Moreover, individual goals are influenced by IDV in terms of personal or context-specific interest in return it will affect the organization's goal. However, a failure signal from an individual is more problematic than one within the group in low IDV cultures. Furthermore, the preference for performance and success beyond compassion and consistency is influenced by MAS. The requirement for well-defined and predictable conditions is influenced by UAI. It will impact the accuracy of the process definition in corporations. Likewise, workflow, responsibilities, procedures, operation outputs, and standards are all made more clearer as a result (Vanhee *et al.*, 2013).

2.15 The Impact of National Culture on CC Adoption

National culture primarily incorporates collectivism, long-term orientation, masculinity, uncertainty avoidance, and power distance. It has an important responsibility in IT implementation and particularly in CC adoption. National culture is a substantial consideration in global information management (Gaurangkumar and Minubhai, 2012). Using cloud computing concerns many cultural apprehensions, which have not been explored yet. Furthermore, there are many unsettled difficulties with inappropriate content that Islamic officials have widely cited as a significant obstacle for more extensive internet implementation in the MENA area. Another undesirable influence on the CC development is the high cost of MENA internet, which is why it is considered a cause for slow adoption (Weber, 2011).

2.16 CC and Coronavirus (COVID-19)

COVID-19 is a virulent infection triggered by a novel coronavirus. The novel coronavirus (COVID-19) was first discovered in the district of Wuhan in Hubei Province, China, on the 31st of December 2019. Shortly after that, the virus began to spread worldwide (Wang *et al.,* 2020). Furthermore, many studies reported that CoV-2 is threatening people with weak immune systems, and patients with chronic diseases are more vulnerable to acute symptoms by COVID-19 (Liu *et al.,* 2020). With work from home becoming mandates in many countries and across many industries with the spread of the COVID-19 pandemic, it is unsurprising that CC adoption has picked up significantly since the pandemic.

Cloud computing offers applications that assist the workforces to efficiently complete their work by applying work-from-home solutions (Alashhab *et al.,* 2020). Systems must be able to keep up with the changing rate of collecting and processing large amounts of information. Storage and analytical systems may be characterized by scalability, which necessitates the availability of an IT base (Al-Sari *et al.,* 2019).

The massive shift to online experiences and planning is being aided by the public cloud and its inspiring technology. Recently, a cloud-based system of communication and commercial instruments has become popular (Investorplace, 2020). Finally, cloud computing can be conveyed exceptionally successfully to track the COVID-19, foresee the

development of the plague, and design techniques and policies to oversee the COVID_19 spread (Tuli *et al.,* 2020).

2.17 Conclusion

It is feasible to conclude that cloud computing is being widely used to enhance and support organizations, educational industries, companies, businesses, and the government. It offers several benefits such as cost cutting, shortage control, collaboration between facilities, and service provision. Cloud computing also helps users gain access to applications on-demand, no matter where they are in the world. Due to the strategic objectives that have been established to explore the influence of national culture and ISQ on this transition, the researcher will proceed to explore CC implementation among Bahraini SMEs. The main objective of this research has been derived because there are no researches that explore the effect of national culture and ISQ on SME's behavioural intention to develop CC in the Kingdom of Bahrain.

Chapter Three: Research Framework

3.1 Introduction

In chapter three, the research model developed is discussed as well as the factors that evaluate the impact of national culture and ISQ on supporting the evolution toward CC implementation by SMEs in the Kingdom of Bahrain and a description of the hypotheses.

3.2 Research Conceptual Framework

This study aims to evaluate the effect of national culture and information system quality (ISQ) on CC adaption by SMEs in the Kingdom of Bahrain. To achieve the aim of this study, a model has been created by combining variables from three different models. DeLone and McLean D&M model (2003), Integrated TAM-TOE model (1986 and 1990), and Hofstede's Cultural Dimensions Theory (1980).

Delone and McLean Model

This model is the foremost commonly used model for measuring the level of information systems satisfaction (Wang, 2008; Rouibah et al., 2014). The model was established in the year of 1992 to research the success rate in IS. In 2003, the model was evolved with an extension of six dimensions related to information systems' success. These six dimensions are System Quality, Service Quality, Information Quality, Use and the Intention to Use, User Satisfaction, and Net Benefit (Delone and McLean, 2003). In the figure below, a representation of the updated model (2003) is displayed:

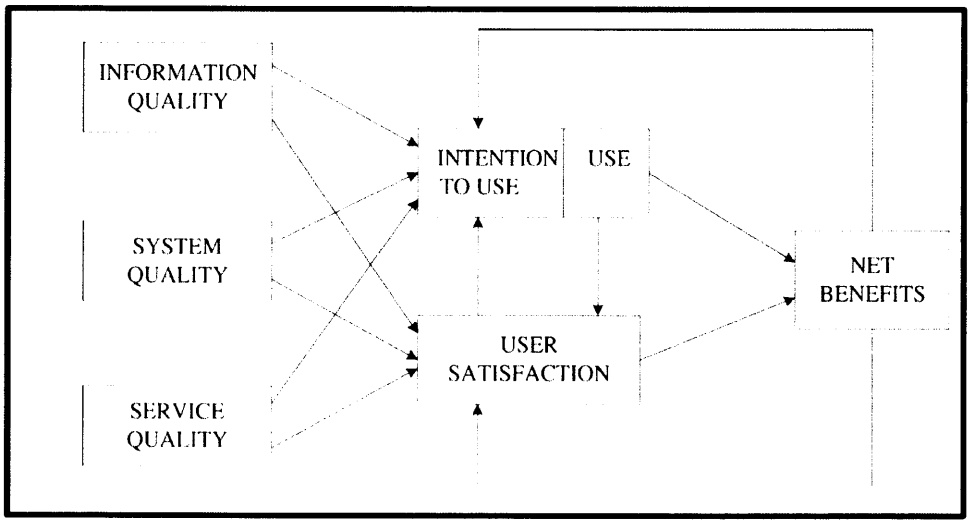


Figure (3.1): Delone and McLean IS Success Model 2003 Version
[Source: DeLone et al. (2008)]

Technology Acceptance Model (TAM)

This particular model was created by Davis (Davis, 1986). The TAM is a popular model of research used to forecast the utility and rate of acceptance of IS and IT. This model helps understand the utilization and adoption of Information Technology procedures because it elaborates the difference in behavioural intentions of users (Hong et al., 2006). It can also predict clients' acceptance of information technology and its uses (Au and Zafar, 2008).

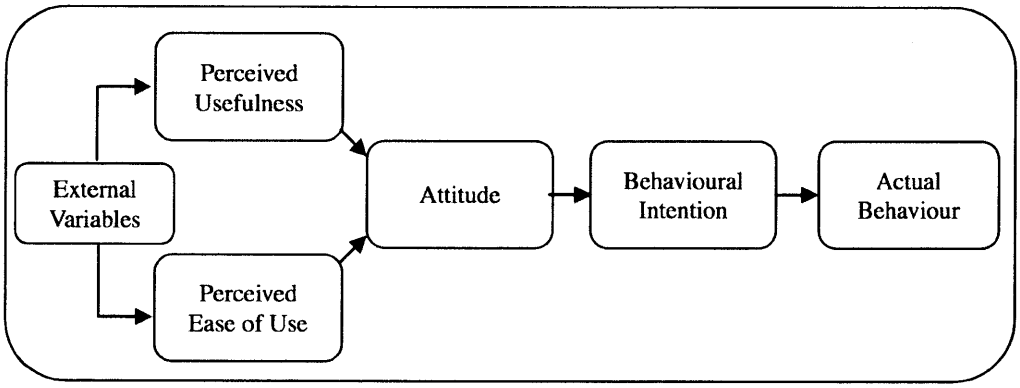


Figure (2.2): Technology Acceptance Model 1986 Version
[Source: Davis et al. (1986)]

The above figure displays the TAM that evolved from the Theory of Reasoned Action (Ajzen and Fishbein, 1980), which Davis had initially presented. It undertakes that the acceptance of an IS is introduced by a few significant variables, which are:

Perceived Usefulness

Which is the extent that individuals trust that a specific system will help the organization to enhance the work efficiency (Davis, 1989).

Usefulness

And that is a vital feature resulting from the user's trust, and utilizing cloud computing services, which implies the improvement in business efficiency, output, performance. It is very likely that they undergo cloud computing adoption (Senk, Christian 2013). Perceived Ease of Use

This concerns how easily a human can trust the ease of use of a particular system. It means that even users who carry minimal knowledge of the operation of cloud services would be

able to utilize IT resources and solutions. Both factors are powerful and robust motivators for using cloud services (CIO Magazine, 2011). Additionally, they are the most significant factors in the TAM (Lin *et al.*, 2012).

Moreover, the information systems community has considered the Technology Acceptance Model to be a durable and prevailing theory in recent years. Currently, academics believe that the TAM is one of the main field theories of IS, and have confidence in the research study that utilizes the theory of TAM (Lee *et al.*, 2003).

Technology-Organizational-Environmental (TOE) Framework

Tornatzky and Fleischer established the framework of Technology-Organization-Environmental which studies the degree of adoption of many Information System and Technology by firms (Tornatzky and Fleischer, 1990). What has made this framework more beneficial than other adoption models is the inclusivity of environmental, organizational, and technological factors (Hossain and Quaddus, 2011; Oliveira and Martins, 2010).

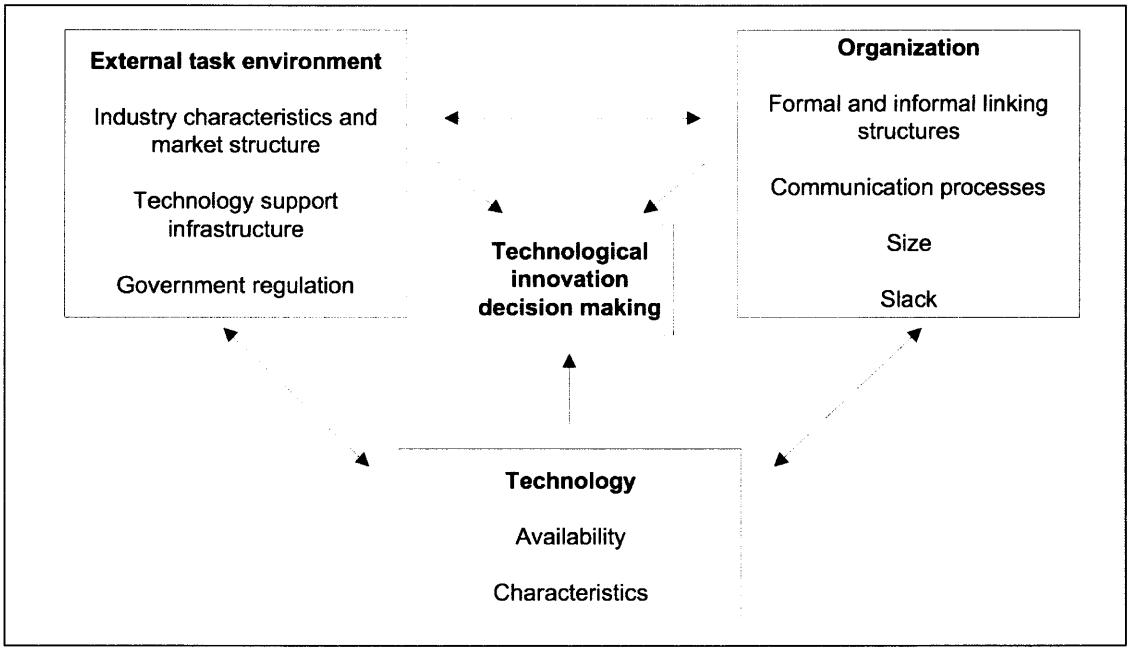


Figure (3.3): Technology-Organizational-Environmental (TOE) Framework

[Source: Tornatzky and Fleischer (1990)]

On the basis of the above model, the procedure of the implementation of IT is impacted by the following contexts. A technological aspect shows the technologies from both inside and outside the enterprise. Then, the organizational aspect, which is related to the company's resources and features. Finally, the environmental context signifies the competition, the field business, and technology service providers' existence (Baker, 2012). The three mentioned aspects provide the technology innovation with valuable opportunities (Tornatzky and Fleischer, 1990).

Integrated TAM-TOE Model

The Integrated TAM-TOE model has high power. It overcomes some of their limitations of the models because the TOE framework must be supported by assimilating it with the prototypes having definite paradigms such as the TAM model. The extensive collection of experiential and theoretical studies has defined the imperative, principal, and applicable part of the TAM and the framework of Technology-Organizational-Environmental in elaborating of the adoption of technology (Gangwar and Date, 2015).

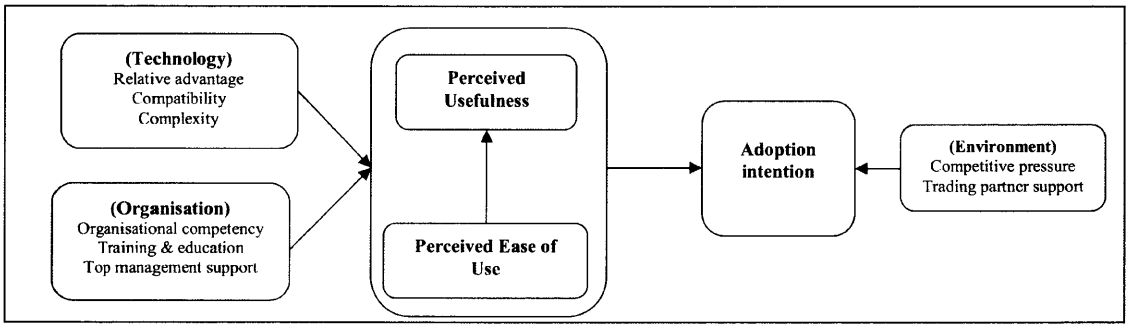


Figure (3.4): Integrated TAM-TOE Model

[Source: Devis et al. (1986) and Tornatzky and Fleischer (1990)]

The diagram above illustrates the integrated TAM_TOE model; it represents two models of technology adoptiom: the TAM model and the framework of TOE. According to Wang *et al.* (2010), the framework of Technology-Organizational-Environmental (TOE) has primary ambiguous concepts and is extremely general (Riyadh, 2009). Therefore, the TOE framework should be combined with the models with explicit constructs like the TAM model for more support. Furthermore, the combination of both models (TAM and TOE) is

difficult due to the differences in contexts and consideration of the external variables of both models (Gangwar and Date, 2015).

Hofstede's Four Cultural Dimensions Theory

A primary theory in multicultural management is Hofstede's Cultural Dimensions Theory (Hofstede, 1980). The related cultural dimensions are masculinity-femininity, power distance, uncertainty avoidance, and individualism-collectivism. The research model was developed according to the D&M Model, Integrated TAM-TOE Models, and Hofstede's theory.

3.3 National Culture and ISQ Framework

The model of the study was established according to the Delone and McLean Model, Integrated TAM-TOE Models, and Hofstede's theory of Cultural Dimensions. These models were chosen for the following reasons. Since the aim of the research is to examine the impact of national culture, the Hofstede's theory of Cultural Dimensions was selected to utilize from these factors, namely uncertainty avoidance, individualism-collectivism, masculinity-femininity, power distance in the developmental model. Additionally, in order to assess the effects of information system quality on the SME's behavioural intention to adopt cloud computing, Delone and McLean Model was used fortheir incorporation of two factors that are information quality and system quality. The researcher utilized some conceptual elements from the Integrated TAM-TOE Models by using exogenous variables which are technological, organizational, and environmental as well as behavioral intention to adopt.

Figure 3.5 illustrates the derived factors from those models and the theory. The proposed model consists of sixteen factors: information quality, system quality, uncertainty avoidance, individualism-collectivism, masculinity-femininity, power distance, relative advantages, compatibility, complexity, technology security, human readiness, top management support, behavioral intention to adopt, competitive pressure, organization readiness, and vendor support.

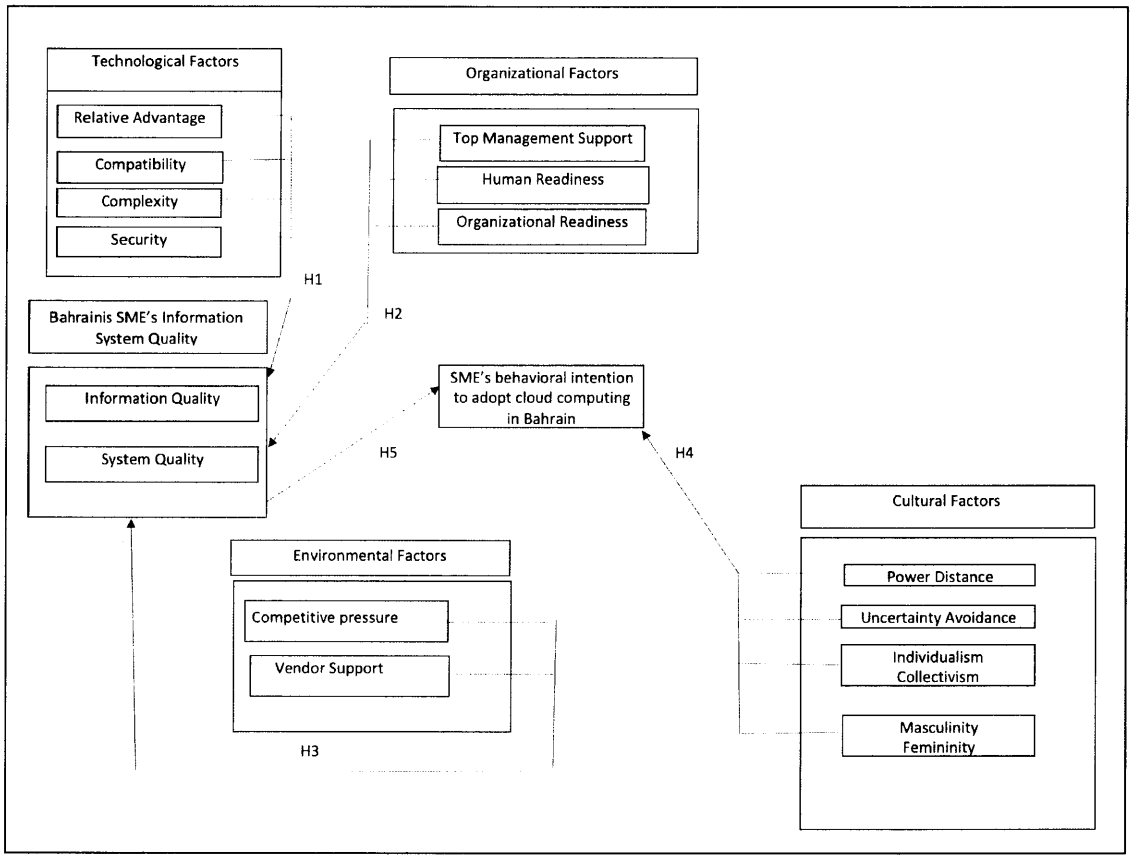


Figure (3.5): National Culture and ISQ Framework

3.4 Research Hypotheses

Figure (3.5) shows the research model, including those factors with their hypotheses. Technology factors are measured through complexity, security, compatibility, and relative advantage. Furthermore, the factors related to the organization are measured through top management support, human readiness, and organizational readiness. Also, the factors related to the environment are measured by competitive pressure and vendor support, and the information system quality is measured through information quality and system quality. Conclusively, uncertainty avoidance, individualism-collectivism, masculinity-femininity, power distance are all used to measure cultural factors. Based on the proposed framework, five hypotheses were developed.

3.4.1 Technology Factors

Organizations consider technological factors significant, whether external or internal (Rui, 2007; Oliveira and Martins, 2011). Moreover, Premkumar (2003) claims that more

research is needed to investigate the impact of technological factors within the organization.

- **Relative Advantage**

Rogers (1983) claims that the extent to which components of technology provide a superior advantage to the organization depends on the relative advantage. Relative advantage is viewed as a primary signal for the implementation of IS. The better the requirement for organizational invention, the more there will be an opportunity that the innovation will be adopted (Rogers, 2003). Cloud computing has advantages like reduced price and shared resources over some other technologies. IT infrastructure in the businesses costs them a great deal while under 10% of their servers are employed by the utilization of CC (Marston *et al.*, 2011). Shared resources are yet another benefit of cloud computing, allowing staff members to have admittance to resources saved on the cloud from different locations, hence saving money and time (Jain and Bhardwaj, 2010).

- **Compatibility**

Rogers (2003) defined compatibility as when invention and innovation are seen as reliable with past encounters, and that the values of both components are present and meet theadopter's requirements. Numerous scientific studies are published, mentioning its importance and the role of compatibility, which is vital in determining the adoption of IT innovation (Ching and Ellis, 2004). Compatibility clarifies that the group and the workers are prepared to recognize new technology and relate it to their present values, behavioural patterns, and experiences (Peng *et al.*, 2012).

- **Complexity**

Complexity refers to difficulty when innovation is seen as relatively not easy to utilize and recognize. The adoption might not materialize if the development is recognized as hard to work with (Rogers, 2003). In the adoption of CC, the calculation takes into account the time it takes to complete duties, incorporate applications with the particular infrastructure of the cloud, and ensure the effectiveness of transmission of information, the performance of the system, and layout of the interface (Parveen and Ainin Sulaiman, 2008).

- **Security**

The security of the technologies in cloud computing is all about overseeing the obstacles and issues that arise from the management of risk and privacy throughout the process of implementing CC (Jemal *et al.*, 2015; Acta *et al.*, 2014). Thus, the first hypothesis was established:

H1: Technological factors (Compatibility, Complexity, Relative advantage, and Security) positively affect Bahraini SMEs' ISQ.

3.4.2 Organizational Factors

- **Top Management Support**

Much like various other regulations on management, IT implementation has become associated as a job of top management support for commencement, adoption, and implementation of numerous solutions of information. Salwani *et al.* (2009) mentioned that top executive support is included in creating value for the organization as it considers top officials' actions on the convenience of technical development. Moreover, Gangwar (2015) mentioned that it guarantees long-term vision, optimal management, commitment of resources, and higher valuations of specific self-efficacy. It alsostrengthens help and values in overcoming resistance and barriers to change. In terms of literature, top management support continues to be perceived in a positive manner as useful and easy to use in the process ofimplementing information technologies.

- **Human Readiness**

Lian *et al.* (2014) looks at how the human dimension symbolizes problems faced by information systems employees when organizations indulge in innovative technology implementation. Yusof *et al.* (2008) stated the human dimension must be deliberated before implementing any Information Technology systems as it is among the variables that affect the implementation of IT Human readiness and it is thought to be about the preparedness of staff members to utilize cloud computing and their knowledge of IT. (Alharbi *et al.*, 2016; Lian *et al.*, 2014).

- **Organizational Readiness**

Tan *et al.* (2007) defined organizational readiness as related to the evaluation of executives and awareness of the level to which directors think there has been an understanding of the organization, its resources, commitment, and control over the adoption of technology innovation. Generally, organizational readiness is explained through financial and technological readiness. Financial readiness is the funding required to implement and start using cloud computing (Musawa and Wahab, 2012; Oliveira and Martins, 2010). In contrast, technical readiness is the organization's preparation to use cloud computing in terms of its existing technologies (Ahmadzada *et al.*, 2016; Wahsh and Dhillon, 2015; Abdollahzadehgan *et al.*, 2013; Mohammed and Ibrahim, 2013). So, the second hypothesis becomes as follows:

H2: Organizational factors (Organizational readiness, Top management support, and Human readiness) positively affect Bahraini SMEs' ISQ.

3.4.3 Environmental Factors

- **Competitive Pressure**

Zhu and Kraemer (2005) described the natural pressure of the competition as the level of stress which businesses perceive from rivals of the same industry. Competitors in the marketplace will directly impact the information technology adoption significantly, and new technologies will be required to participate in the market (Ramdani and Lorenzo, 2009). Cloud computing has an impact on competitive pressure. Consequently, implementing cloud computing in the company tends to gain substantial benefits in the terminology of smooth survival and competitive advantages.

- **Vendor Support**

Numerous businesses and companies rely on vendors for IT adoption, implementation, and design responsibilities (Pan and Jang, 2008). Many factual types of research have indicated that vendor support is a crucial element for implementing and utilizing IT (Chong and Ooi, 2008; Lin and Lin, 2008; Pan and Jang, 2008). Availability of assistance is the key ingredient needed for problem resolution for on-premises computing. In the situation that enterprises pay cloud service providers, vendor support in cloud computing is associated with the cloud service providers. It helps resolves issues through the useful set of tools offered by cloud service providers (Gangwar, 2015). Therefore, the following hypothesis

is developed:

H3: Environmental factors (Competitive pressure and Vendor support) positively affect Bahraini SMEs' ISQ.

3.4.4 Cultural Factors

The differences in culture among different countries affect the successful and competent deployment of universal IT. Culture is a macro-level phenomenon, while behavioural intention regarding CC adoption is an organizational-level concern. These supported cultural factors of uncertainty avoidance, power distance, masculinity-femininity, and individualism-collectivism are included in an extended model of cloud computing adoption (Srite and Karahanna, 2006).

- **Power Distance**

Power distance describes the variation of power dissemination amongst nations. The power that is characterized by low distance may be classified by flat organizational structures and minimal domination of power, but there is far more centralized hierarchy of authority (Shanks, *et al.*, 2000). There is an agreement on the hierarchical order with a high-power distance (Hofstede, 1980). Besides that, stakeholders in high power distance have insufficient feedback and discussion (Palomino, 2007).

- **Uncertainty Avoidance**

Uncertainty avoidance is a sign of a broad sense of being vulnerable because of uncertain conditions and trying to remain away from this uncertainty no matter what. This specific aspect emphasizes the level to which individuals with a cultural background impress discomfort towards ambiguity and uncertainty. This is redirected in steady careers, an abhorrence of animalistic suggestions or maybe actions (Hofstede, 1980). In a society with high uncertainty avoidance, the aim of the culture is usually to reduce uncertainty and ambiguity by creating far more regulations, procedures, and rules (Palomino, 2007). Compared to a lifestyle with minimal uncertainty avoidance, individuals tend to be more precarious and are more likely to tolerate inaccurate information (Shanks *et al.*, 2000). Implementing the latest technology consists of uncertainty and risk (Erumban and de Jong, 2006). Uncertainty indicates the extend to which innovation outcomes can be ensured

(Ostlund, 1974). Risk is usually present when applying brand new novel and changes. This occurs when the latest technology is adopted and leads to the participation of innovative material, and eventually leads to a higher scope of anxiety (Stoneman, 2001).

Individualism-Collectivism

The individualism-collectivism factor concentrates on the inquiries regarding whether individuals favor a network of close people or prefer being left alone to defend themselves. Furthermore, it represents how individuals see their social network; both concentrated upon their own beings (individualism) and on their cluster of individuals towards which they assume loyalty (collectivism) (Hofstede, 1980). Cultures of collectivism motivate mutual respect, while individualist countries usually support a competitive connection amongst colleagues (Palomino, 2007). In a culture of collectivism, inferior overall actions are managed by deviations in selected functions. In individualist countries, marketing is grounded on degrees of poor performance and expertise is penalized (Palomino, 2007).

- **Masculinity-Femininity**

Within this dimension, the cultures of masculinity symbolize a choice in society for material reward, heroism, and the achievement of success. In these cultures, assertiveness is a dominating value (Gallivan and Srite, 2005). On the other hand, femininity stands in a choice for collective energy, unobtrusiveness, taking care of the powerless, and quality of standard of living.

Also, administrators are more focused on individual goals than job goals, providing an excellent work environment and friendly atmosphere. Additionally, masculine cultures tend to be more concentrated on activities related to work, like acquiring property or finances, instead of taking care of other people or quality of life, as is the case in feminine cultures. (Hofstede, 1980). Thus, the following hypothesis was proposed:

H4: Cultural factors (Uncertainty avoidance, Power distance, Masculinity-femininity, and Individualism-collectivism) positively affect SME's behavioural intention to adopt cloud computing in Bahrain.

3.4.5 Information System Quality

The information system has an essential role in enhancing the organization's profit by providing user-friendly and profitable applications. Information system quality is alluded to as the conformance to certain prerequisites in design systems that coordinate the end-user's information needs and follow trade guidelines. Additionally, affording attractive and user-friendly service or product and satisfying the users' requirements for desires toward IS quality facilitates their effective work execution (Gorla, Somers, & Wong, 2010).

- **Information Quality (IQ):**

Based on Urbach and Muller (2012), quality of information is actually viewed as the main forerunner of intention to use. Nevertheless, the information quality sides are evaluating the information outputs (D and M, 2003).

- **System Quality (SQ):**

DeLone and McLean (2003) mentioned that information Systems emphasize system usability and functionality. A prevalent method of measurement is seen as the simplicity of usage instigated by a great deal of research investigation relevant to the TAM. Thus, the following hypothesis was proposed:

H5: Information system quality positively affects SME's behavioural intention to adopt CC in Bahrain.

3.4.6 Intention to Adopt Cloud Computing

DeLone and McLean (2003) defined adoption purpose as the extent to which a person will utilize cloud computing. Moreover, Roger 1995; and Limayem 2003 verified that the system should reflect user requirements based on the last adoption to increase the user's interest in using the system.

3.5 Conclusion

This chapter presented the model utilized to evaluate the influence of national culture and ISQ on the empowerment of the evolution towards implementation of CC by SMEs in the Kingdom of Bahrain. The hypotheses will be tested through this research.

Chapter Four: Research Methodology

4.1 Introduction

Chapter four investigates the procedures utilized to assess the factors that measure the effect of national culture and ISQ on the evolution concerning adopting CC by SMEs in the Kingdom of Bahrain. Additionally, it discusses the research method used to gather and analyze data.

4.2 Research Methodology

To assemble the data extracted from the distributed questionnaire, a quantitative method was conducted. A questionnaire can be used to collect data from a considerable amount of people, which is time effective and cost efficient. (Gorell *et al.*, 2011). This approach was used to collect information as many authors consider it as an excellent alternative to testing theories such that (D&M, 2003), (Wang & Liao, 2007), and (Hellsten & Karkove, 2006) utilize in their study. The research's target is to explore the influence of national culture and ISQ on SMEs' development of CC in the Kingdom of Bahrain.

4.3 Instrument

The survey was utilized to get the necessary data to measure the effect of national culture and ISQ on SMEs' move to CC adoption in Bahrain. The survey was created to assemble the necessary data based on the model as mentioned earlier (chapter three). Each factor in the model has some prepared questions based on the hypotheses. It focused on the factors in the adapted model, which considered information quality, masculinity-femininity, system quality, uncertainty avoidance, power distance, individualism-collectivism, complexity, compatibility, relative advantages, security, competitive pressure, top management support, human readiness, organization readiness, and vendor support.

4.4 Variables Definition

Within this segment, the researcher delivers a good illustration of the factors of the research model; each factor is defined conceptually and operationally. At that point, the researcher indicates the variables and constructs with the specific items.

4.4.1 Technology Factors

The technological variables that influence the motif to implement CC are discussed in the following section. This construct includes Relative Advantage, Compatibility, Complexity, and Security.

4.4.1.1 Relative Advantage

Conceptual Definition

Rogers (1983) states that relative advantage implies the extent to which technological components provide a superior advantage to the organization. The adoption of a new IS modernization is thought to be aided by relative advantage. The greater the company's apparent need for creativity, the more likely it is to implement invention (Rogers, 2003; Lee, 2003).

Operational Definition

The relative advantage could be determined by completing specific tasks faster, enhancing employee efficiency, accessing information at any period and from any location, and accessing cloud-based shared resources. (Oliveira *et al.*, 2014; Lin and Chen, 2012; Gangwar and Date, 2015). As shown in the table below, there are four items, which the researcher had borrowed from a previous study accompanied by Oliveira *et al.*, 2014; Lin and Chen, 2012; Gangwar and Date, 2015. Table 4.1 shows the items used to operationally define the relative advantage.

Table 0.1): Operational Definition of Relative Advantage

Variables	Items	References
Relative Advantage	1. Cloud computing will allow the organization to accomplish specific tasks more quickly.	(Oliveira *et al.*, 2014; Lin and Chen, 2012)
	2. Cloud computing will increase the productivity of the organization's staff.	
	3. Using cloud computing will allow the organization to access information from any time and place.	(Gangwar and Date, 2015)
	4. Using cloud computing will allow the organization to access the shared resources placed on a cloud.	

4.4.1.2 Compatibility

Conceptual Definition

Rogers (2003) defined compatibility as a situation in which innovation is seen as reliable

with the past encounters, present standards, and adopter's requirements. The adoption might not happen if innovation is considered difficult to use (Rogers, 2003). Perceived compatibility clarifies that the organization and its employees ready to accept new technology and innovation, according to existing values, behavioural patterns, and experiences (Peng *et al.*, 2012).

Operational Definition

It is measured through the compatibility of pioneering technology and an organization's existing interface, structural data, and setup. It should also be consistent with the corporation's current commercial plan as well as its information technology infrastructure. (Gangwar and Date, 2015; Oliveira *et al.*, 2014; Lin and Chen, 2012; Borgman *et al.*, 2013; Lian *et al.*, 2014; Alshamaila *et al.*, 2013; Tan *et al.*, 2012). As shown in the table below, there are three items, which the researcher had borrowed from previous research conducted by Gangwar and Date, 2015; Oliveira *et al.*, 2014; Lin and Chen, 2012; Borgman *et al.*, 2013; Lian *et al.*, 2014; Alshamaila *et al.*, 2013; Tan *et al.*, 2012. Table 4.2 shows the items used to define compatibility from an operational perspective.

Table 0.2): Operational Definition of Compatibility

Variables	Items	References
Compatibility	1. Cloud computing technology will be compatible with the organization's existing format, interface, and other structural data.	(Gangwar *et al.*, 2015)
	2. The changes introduced by cloud computing will be consistent with existing practices in the organization.	
	3. Cloud computing services will be compatible with the current business strategy of the organization.	(Oliveira *et al.*, 2014; Lin and Chen, 2012; Borgman *et al.*, 2013)
	4. Cloud computing technology will be compatible with the current organization's IT infrastructure (hardware/software).	(Lian *et al.*, 2014; Alshamaila *et al.*, 2013; Tan *et al.*, 2012)

4.4.1.3 Complexity

Conceptual Definition

Complexity refers to a situation in which an invention is seen as comparatively not easy to utilize and recognize (Rogers, 2003). The adoption might not happen if the innovation is recognized as challenging in the utilization (Rogers, 2003).

Operational Definition

Complexity could be measured when it is not flexible for an organization to interact with the innovation. It is difficult to combine current tasks with CC facilities, and executing several responsibilities at once takes too much time. (Gangwar and Date, 2015). As shown in the table below, there are three items which the researcher had borrowed from previous research conducted by Gangwar and Date, 2015. Table 4.3 shows the items used to define complexity from an operational perspective.

Table 0.3): Operational Definition of Complexity

Variables	Items	References
Complexity	1. The organization's staff will be flexible to interact with cloud computing.	(Gangwar and Date, 2015)
	2. It is easy to emigrate the existing work with the cloud-based services when using cloud computing.	
	3. It is easy to perform many tasks at one time when using cloud computing.	

4.4.1.4 Security

Conceptual Definition

The security of technology in cloud computing is about administrating difficulties and complications of confidentiality and risk management throughout the CC accomplishment (Jemal *et al.*, 2015; Acta *et al.*, 2014). Alberts and Dorofee (2002) stated that organizations should have a distinct idea and understanding of what they are trying to protect before choosing a specific solution. Additionally, security concerns are complicated and are usually embedded in organizational and business issues. Therefore, there must be a careful analysis of security needs.

Operational Definition

Security could be measured by detecting unauthorized data on internal systems and the difficulty for an organization to import existing data. Additionally, cloud computing will not be a security risk for an organization (Ackermann, 2012; Ackermann *et al.*, 2012; Jarvenpaa *et al.*, 2000; Pavlou and Gefen, 2004; Abid *et al.*, 2012). As shown in the table below, there are three items. The researcher borrowed them from previous research conducted by Ackermann, 2012; Ackermann *et al.*, 2012; Jarvenpaa *et al.*, 2000; Pavlou and Gefen, 2004; Abid *et al.*, 2012. Table 4.4 shows the items used to define security from an operational perspective.

Table 0.4): Operational Definition of Security

Variables	Items	References
Security	1.The employees will be able to detect unauthorized data on the internal system when using cloud computing.	(Ackermann, 2012; Ackermann *et al.*, 2012; Jarvenpaa *et al.*, 2000; Pavlou and Gefen, 2004)
	2. It will be secure for the organization to import existing data when using cloud computing.	
	3. Cloud computing will not be a security risk.	(Abid *et al.*, 2012)

4.4.2 Organizational Factors

The organizational factors that impact the goal to carry out CC are discussed in context of the following areas. Human readiness, top management support, and organizational readiness constitute essential elements of this discussion in the literature.

4.4.2.1 Top Management Support

Conceptual Definition

Salwani et al. (2009) stated that top management support incorporates producing value for the organization as it encompasses the arrangements and movements adopted by administrators to embrace the convenience of technological modernization. Information technology adoption, is considered in the literatre as related to the nature of top management support in the instigation, achievement, and implementation of IT systems.

Maersk *et al.* (2012) demonstrated that the success of the internet, public management, and accounting information systems have an immediate effect on top management support. A high degree of management support for IS/IT adaption will combine the commitment and continuous support for the project. Still, it is vital to provide the necessary resources, such as equipment, space, people, and time.

Operational Definition

Top management support could be measured during the CC process involvement in IS/IT projects and the support offered in the adoption of cloud computing (Oliveira *et al.*, 2014; Low *et al.*, 2011; Borgman *et al.*, 2013; Alshamaila *et al.*, 2013; Lumsden and Anabel, 2013; Chang *et al.*, 2013). As shown in the table below, there are two items, which the researcher had borrowed from previous research conducted by Oliveira *et al.*, 2014; Low *et al.*, 2011; Borgman *et al.*, 2013; Alshamaila *et al.*, 2013; Lumsden and Anabel, 2013; Chang *et al.*, 2013. Table 4.5 displays the items used to define top management support from an operational perspective

Table 0.5): Operational Definition of Top Management Support

Variables	Items	References
Top Management Support	1. The organization's top management in favor involves itself in the cloud computing process when it comes to IS/IT projects.	(Oliveira *et al.*, 2014; Low *et al.*, 2011; Borgman *et al.*, 2013)
	2. The organization's top management in favor supports the adoption of cloud computing.	(Alshamaila *et al.*, 2013; Lumsden and Anabel, 2013; Chang *et al.*, 2013)
	3.The organization's top management is willing to take risks (financial and organizational) involved in the adoption of cloud computing.	(Ali *et al.*, 2019)

4.4.2.2 Human Readiness

Conceptual Definition

According to Lian *et al.* (2014), human readiness represents concerns confronted by the IS staff when organizations engage in innovative technology adoption. Besides, human readiness is known about staff's level of IT awareness and the willingness of employees to adapt to cloud computing (Alharbi *et al.*, 2016; Lian *et al.*, 2014). Yusof *et al.* (2008) emphasized that human readiness is one of the utmost impactful variables that influence the judgment to implement the latest innovation. Also, it should be taken under consideration as a matter of priority before implementing any projects of IT.

Operational Definition

Human readiness could be measured when the organization's staff have the appropriate knowledge, skills, and adaptability to facilitate cloud computing adaption (Lokuge *et al.*,

2018). As shown in the table below, there are three items, and the researcher borrowed them from previous research conducted by Lokuge *et al.* 2018. Table 4.6 shows the items used to operationally define the human readiness.

Table (0.6): Operational Definition of Human Readiness

Variable	Items	References
Human Readiness	1. In the organization, the organization staff has the appropriate knowledge that facilitates cloud computing adoption.	(Lokuge *et al.* 2018)
	2. In the organization, the organization staff has the appropriate skills that facilitate cloud computing adoption.	
	3. In the organization, the organization staff has the appropriate adaptability that facilitates cloud computing adoption.	

4.4.2.3 Organizational Readiness

Conceptual Definition

According to Tan *et al.* (2007), organizational readiness is the manager's awareness and assessment of the level that they consider the company has the knowledge, capital, guarantees, and industry standing to embrace the latest innovations. The concept of organizational readiness in IT/S the literature has been described as the extent to which new information technology are suitable for the organization (Happ, 1996; Southon *et al.*, 1997). Snyder-Halpern (2001) stated that successful IT or IS innovation outcome requires a high degree of readiness and it also leads to a subordinate invention risk level.

Operational Definition

Organization readiness could be measured as a situation in which the technology is accessible to and understood by all members of an organization. Information technology infrastructure can provide sustenance when adopting cloud computing, which leads to the organization making better use of its technological resources to reach its objectives. Also, has sufficient budgets to adopt CC and the implementation of CC can decrease the cost of

IT function in the organization (Oliveira *et al.*, 2014 and Low *et al.*, 2011; Lumsden and Anabel, 2013; Alharbi *et al.*, 2016). Financial readiness (financial readiness for CC development and operation expenses throughout usage). (Musawa and Wahab, 2012; Oliveira and Martins, 2010) and technological readiness (readiness of existing technologies in the organization) (Ahmadzada *et al.*, 2016; Wahsh and Dhillon, 2015; Abdollahzadehgan *et al.*, 2013; Mohammed and Ibrahim, 2013) are two dimensions that can be measured. As shown in the table below, there are four items. The researcher borrowed them from previous research conducted by Oliveira *et al.*, 2014 and Low *et al.*, 2011; Lumsden and Anabel, 2013; Alharbi *et al.*, 2016. Table 4.7 shows the items used to operationally define the organizational readiness.

Table (4.7): Operational Definition of Organization Readiness

Variables	Items	References
Organization Readiness	1. The organization has the ability to provide the cloud computing access to all its members.	(Oliveira *et al.*, 2014 and Low *et al.*, 2011)
	2. The organization's IT infrastructure can support the adoption of cloud computing.	(Lumsden and Anabel, 2013)
	3. The organization makes the best use of IT resources to adopt cloud computing.	(Alharbi *et al.*, 2016)
	4. The organization has enough budgets in order to implement cloud computing technology.	

4.4.3 Environment Factors

4.4.3.1 Competitive Pressure

Conceptual Definition

Competitive pressure is defined as thechallenges and opportunities for technological innovation such as cloud computing (Tornatzky and Fleischer, 1990). Information technology adoption is directly affected by competition in the market. When technology influences rivalry, it plays an essential role in developing new types of machinery to strive in the marketplace (Ramdani and Lorenzo, 2009). As a result, implementing cloud computing tends to gain considerable benefits regarding sleek survival and competitive advantages.

Operational Definition

Competitive pressure could be measured when there is awareness of cloud computing implementation in competitor organizations and when there is an obvious recognition of the competitive advantages that cloud computing can provide in a particular industry (Gangwar and Date, 2015). As shown in the table below, there are two items which the researcher had borrowed from previous research conducted by Gangwar and Date, 2015. Table 4.8 shows the items used define competitive pressure from an operational perspective.

Table 0.8): Operational Definition of Competitive Pressure

Variables	Items	References
Competitive Pressure	1. The employees are aware of cloud computing implementation in their competitor organizations.	(Gangwar and Date, 2015)
	2.The employees are aware that the cloud computing implementation will help the organization to exceed its competitors.	
	3. In the organization, staffs in the industry understand the competitive advantages offered by cloud computing.	
	4. The level of pressure from competitors will be reduced by adopting cloud computing.	(Raut *et al.*, 2018)

4.4.3.2 Vendor Support

Conceptual Definition

Vendor support is vital for an organization or firm's decision to adopt Information Technology (Pan and Jang, 2008). It is also a significant variable in the use of IT (Chong and Ooi, 2008; Lin and Lin, 2008; Pan and Jang, 2008).

Operational Definition

Vendor support could be measured while enabling adequate technical support for cloud computing adoption, and a respectable association with other vendors is considered to be fundamental (Alshamaila et al., 2013). As shown in the table below, there are two items which the researcher had borrowed from previous research conducted by Alshamaila *et al.*,

2013. Table 4.9 displays the items used to define vendor support from an operational perspective

Table 0.9): Operational Definition of Vendor support

Variables	Items	References
Vendor support	1. The vendor will provide adequate technical support when the organization adopts cloud computing.	(Alshamaila *et al.*, 2013)
	2. When adopting cloud computing, I believe that a good relationship with other vendors will be crucial.	
	3. The vendor will provide high availability architecture and tested platforms and applications for the readiness of cloud computing services.	(Gangwar *et al.*, 2015)

4.4.4 Cultural Factors

The cultural variables that affect an individual's behavioral intention to use CC are discussed in the following section. Masculinity-femininity, uncertainty avoidance, power distance, and individualism-collectivism are all part of this discussion in the literature.

4.4.4.1 Power Distance

Conceptual Definition

Power distance is defined as the variance of power dissemination between countries. Low power distance can be categorized by horizontal structural constructions and intense domination of authority but in high dominance coldness. There is more hierarchy and centralization of power in this scenario (Shanks *et al.*, 2000). Additionally, stakeholders in high power distance lack discussion and feedback (Palomino Murcia MA, 2007).

Operational Definition

Power distance can be evaluated when superiors are in charge of making the majority of decisions without consulting their employees and when subordinates do not question the managerial decisions. Likewise, decision-making authority stays with the executive in the

institution (Srite and Karahanna, 2006). As shown in the table below, there are three items which the researcher had borrowed from previous research conducted by Srite and Karahanna, 2006. Table 4.10 shows the items used to define power distance from an operational perspective.

Table(4.10): Operational Definition of Power Distance

Variables	Items	References
Power Distance	1. Decision-making power stays with the top management in the organization.	(Srite and Karahanna, 2006)
	2. Managers make most decisions without consulting subordinates.	
	3. Staff in the organization does not question their manager's decisions.	

4.4.4.2 Uncertainty Avoidance

Conceptual Definition

Uncertainty avoidance is about the spirit of being vulnerable by indecision and endeavoring to evade this. This dimension expresses the level to which the employees face difficulties with insecurity. The goal of an organization is to minimize ambiguity and uncertainty by producing more regulations, instructions, and procedures (Palomino, 2007). In comparison to low uncertainty avoidance culture, people are far more precarious and have a higher tolerance for incorrect information (Shanks G, et al., 2000).

Operational Definition

Uncertainty avoidance is displayed when the organization's rules and policies are established or when job descriptions, requirements and, tasks are apparent and understood. Similarly, providing opportunities to be innovative is essential (Srite and Karahanna, 2006). As shown in the table below, there are three items which the researcher had borrowed from previous research conducted by Srite and Karahanna, 2006. Table 4.11 shows the items used to define uncertainty avoidance from an operational perspective

Table 0.11): Operational Definition of Uncertainty Avoidance

Variables	Items	References
Uncertainty Avoidance	1. Rules and regulations of the organization inform workers what the organization expects from them.	(Srite and Karahanna, 2006).
	2. It is important to have a job requirement and instruction spelt out in detail so that staffs always know what they are expected to do.	
	3. In the organization, providing opportunities to be innovative is more important than requiring standardized work procedures.	

4.4.4.3 Individualism-Collectivism

Conceptual Definition

The individualism-collectivism aspect emphasizes whether a person prefers to work alone or as a group of people. Moreover, it denotes the vision of people, either concentrated around their team or themselves, to fulfill loyalty (Hofstede, 1980). Variations in selected functions are used to manage inferior overall performance in a collectivist culture. In individualist countries, marketing is grounded on degrees of poor performance, and expertise is penalized (Palomino, 2007).

Operational Definition

This aspect describes when individuals are considered as a group member in an organization rather than remaining independent. Individual success is less recognized than cluster success, and cluster loyalty is appreciated much greater than personal benefits (Srite and Karahanna, 2006). As shown in the table below, there are three items which the researcher had borrowed from previous research conducted by Srite and Karahanna, 2006. Table 4.12 displays the items used to define individualism-collectivism from an operational perspective

Table 0.12): Operational Definition of Individualism-Collectivism

Variables	Items	References
Individualism-Collectivism	1. In the organization, being accepted as a member of a group is more important than being independent.	(Srite and Karahanna, 2006)
	2. In the organization, group success is more important than individual success.	

	3. In the organization, being loyal to a group is more important than individual gain.	

4.4.4.4 Masculinity-Femininity

Conceptual Definition

Masculine cultures focus on obtaining achievements, bravery, and being reasonably rewarded for achieved goals, all the while remaining confident and independent (Gallivan and Srite, 2005). Feminine cultures prefer teamwork, being thoughtful and humble, and placing importance on the value of living. Feminine cultures create a more friendly work environments. Moreover, unlike feminine cultures, masculine cultures tend to be more concentrated on job activities, for instance acquiring property or budget, instead of caring for others or improving life quality (Hofstede, 1980).

Operational Definition

This aspect can describe when a male is more preferred to hold a higher position than a female employee because men are perceirved as being more assertive and possessing better problem-solving skills. Typically, men value job recognition and appreciation much more than women do (Srite and Karahanna, 2006). As shown in the table below, there are three items which the researcher had borrowedfrom previous research conducted by Srite and Karahanna, 2006. Table 4.13 shows the items used to define masculinity-femininity from an operational perspective.

Table 0.13): Operational Definition of Masculinity-Femininity

Variable	Items	References
Masculinity-Femininity	1. In the organization, it is preferable to have a man in high-level positions rather than a woman.	(Srite and Karahanna, 2006).
	2. In the organization, solving organizational problems requires the active forcible approach, which is typical of men.	
	3. In the organization, the women do value recognition and promotion in their work as much as men do.	

4.4.5 Information System Quality

4.4.5.1 Information Quality

Conceptual Definition

Information quality indicates information system outputs quality (DeLone and McLean, 1992). Information is an essential organizational resource and one of the best major components in the quality of organizational decisions and behavior. (Gasser *et al.*, 2007). Based on Urbach and Muller (2012) IQ is a crucial antecedent of purpose to utilize an innovative IT.

Operational Definition

DeLone and McLean (1992) stated that IQ could measure semantic success. Nevertheless, information quality sides evaluate the information outputs (DeLone and McLean, 2003). Furthermore, IQ is determined by the accuracy of information, currency, and completeness (Wangpipatwong *et al.*, 2005; Nelson *et al.*, 2005). As shown in the table below, there are three items. The researcher borrowed them from aprior research by Wangpipatwong *et al.*, 2005 and Nelson *et al.*, 2005. Table 4.14 illustrates the items utilized to operationally define the IQ.

Table (0.14): Operational Definition of Information Quality

Variables	Items	References
Information Quality	1. The use of cloud computing will provide me with accurate information.	(Wangpipatwong *et al.*, 2005)
	2. The use of cloud computing will provide me with up-to-date information.	
	3. The use of cloud computing will provide me, all the information I will need.	(Nelson *et al.*, 2005)

4.4.5.2 System Quality

Conceptual Definition

DeLone and McLean (2003) specified that information systems emphasize the usability and performance of the system. Furthermore, system quality signifies the IS dispensation quality, which includes both software as well as data components.

Seddon (1997) expressed that system quality implies that the system should be error-free. Also, it considers usability, documentation and program code quality, and interface consistency.

Operational Definition

DeLone and McLean (1992) stated that system quality can assess technical achievement. Moreover, It is evaluated by its system performance, consistency of the service, and efficiency of the organization (Wangpipatwong *et al.*, 2005). As shown in the table below, there are four items., The researcher borrowed them from previous research conducted by Wangpipatwong *et al.*, 2005. Table 4.15 shows the items used to define system quality from an operational perspective.

Table 0.15): Operational Definition of System Quality

Variables	Items	References
	1. When using cloud computing services, it will work correctly.	

System Quality	2. Cloud computing services will be available at all times.	(Wangpipatwong *et al.*, 2005)
	3. The procedure of using cloud computing will save the organization time.	
	4. The procedure of using cloud computing will save the organization expenses.	

4.4.6 Intention to Adopt Cloud Computing

Conceptual Definition

Countless findings have implemented TAM to clarify and forecast the adoption of IT. Also, TAM has been used to forecast users' objectives to undertake or implement technology and information system (Kuo and Yen, 2009). Moreover, DeLone and McLean (2003) used the term" Intention to Adopt" to measure the likelihood that an individual will use the system.

Operational Definition

Adoption intention of cloud computing may be measured when using cloud computing services is beneficial, This is especially so when the organization planns to follow cloud computing services in the following two years (Gangwar and Date, 2015; Alharbi et al., 2016). As shown in the table below, there are three items. The researcher borrowed them from previous research conducted by Gangwar and Date, 2015, Pavlou, 2003 and Alharbi et al., 2016. Table 4.16 shows the items used to define the purpose to implement CC from an operational perspective.

Table 0.16): Operational Definition of Intention to Adopt Cloud Computing

Variables	Items	References
Intention	1. The organization expects that using cloud computing services will be advantageous.	(Gangwar *et al.*, 2015)

to Adopt Cloud Computing	2.The organization favors to use cloud computing services.	
	3. The organization intends to use cloud computing services in the future.	Pavlou, P.A. (2003)
	4. The organization intends to adopt cloud computing services in the next two years.	(Alharbi *et al.*, 2016)

4.5 Research Method and Design

To analyze the relationships between variables, promote the validity standard, and deduce results from a sample and applying it to a population, the researcher in this study used a quantitative research approach. For this research, the quantitative research method was the best option. Numerical data could be obtained from an illustrative sample, evaluated using statistical methods, and then generalized from a sample to a population (Bloomberg and Volpe, 2008; Vogt, 2007). Information can be obtained from quantitative data by transferring the data into digits using a methodical process (Burns and Grove, 1993). Nevertheless, one of the drawbacks of self-reporting surveys is that respondents can be subjected to bias or have inaccurate answers (Vogt, 2007). Thus, the Cronbach's Alpha and Confirmatory Factor Analysis (CFA) for every construct were calculated to make certain the validity and accuracy of the data gathered from the participants (Hox and Bechger, 1998; Joreskog, 2000).

4.6 Sampling Size and Frame

The sampling of this research is convenience sampling, where the researcher chose small and medium-size organizations. Organization which had no experience of using cloud computing were considered as eligible elements of the sample. According to Etikan *et al.* (2016) the nonprobability or nonrandom sampling method is referred to as convenience sampling in which respondents from the target population must encounter explicitly applied principles. Like convenience approachability, obtainability is measured by a certain time, or an inclination to contribute. In order to generalize the findings, it is

important to use a reliable and valid sample in the current study. Therefore, Krejci and Morgan's table was utilized in this research, as shown in Appendix (A). The table provides an effective method of measuring the sample size to ensure a good outcomes for a given population. Thus, this research has used the variables below for the sampling methodology:

Population Size: How many people in total?

Margin of Error: (Confidence Interval): 5%

Confidence Level 95%: 95%-Z score=1.96

Standard of Deviation: .5

Necessary Sample Size = (Z-score) ^2 * StdDev*(1-StdDev) / (margin of error) ^2

4.7 Sampling Design

The target of this study is to look at how national culture and ISQ can help SMEs in the Kingdom of Bahrain make the transition to CC adoption. A questionnaire was supplied to Bahraini SMEs based on the following criteria:

1. Small-sized organizations that employ 100 or fewer employees.

2.Medium-sized organizations that employ from 200 to less than 1,000 employees.

3.Organizations which demonstratethe behavioural intention to implement cloud computing either partially or fully.

All executives, managers, and operational employees of SMEs in the Kingdom of Bahrain were included asthe study's target population. According to the availability of the research data, the target population was selected. The targeted population was suitable for the study's objective because data obtained from a sample population were utilized to evaluate research hypotheses and address the research questions (Zikmund, 2003).

4.8 Survey Development

In the first stage of the questionnaire development, a widespread literature review was conducted to collect questions relevant to the variables selected in the research framework. This was to ensure that the main issues were incorporated into the questionnaire. The design of the questionnaire was as follows: the first part included questions about the respondent's profile, and the second part contained the main questions relevant to the variables selected in the research framework. They comprised of six parts. Part A contained the intention to implement CC, part B included the technological factors, part C

encompassed the organizational factors, part D included the cultural factors, part E consists of quality factors, and, lastly, part E covered environmental factors. Several modifications were made to the questionnaire draft before it was finalized.

4.8.1 Pre-Test Study

This study conducted a pre-test among five academic experts and professors from the IT College, University of Bahrain. The aim of the pre-test was to validate the assumption that, overall, the questions were readable and clear. Another drive was to classify the issues related to questionnaire guidelines and the time needed to fill the survey. The professors provided recommendations for improvement of the instruments. They gave the opportunity for the researcher to add and modify the measurement items in the survey. According to the feedback received from the professors, the survey was updated with the required modifications.

4.8.2 Pilot Test

After conducting the pre-test, a pilot test was carried out among 18 executives, managers, and operational employees from different SMEs as a small sample of the study's target population. The data obtained during the pilot test were only used to verify the survey and were not encompassed in the conclusive data analysis. The participants were asked to respond to the questionnaire. They were also asked to offer their opinion on the survey to obtain recommendations, feedback, and constructive criticism. After that, the questionnaire was supplemented with further amendments. Some of the terminology in the questions were changed, so that all employees in any department with any qualification can understand the questions clearly. Also, some questions were presented in a negative format in order to ensure that the respondent answers the questions will full attention and not randomly. The order of some questions based on the constructs was changed, to make it more interesting to the respondent. Some questions were added to each construct in order to get the precise answer from a different dimension within the same factor. The reliability test was conducted using the quantitative approach, Cronbach's alpha, to verify the accuracy of the proposed tool. After completing these steps, the finalized questionnaire was ready for distribution. The complete questionnaire is attached in Appendix (B). Table 4.17 demonstrates the reliability of the variables used in the questionnaire.

Table 0.17): Reliability of the Pilot Test

No	Variables	Cronbach's Alpha > 7.00
1	Adoption Intention	.878
2	Technological Factors	.915
3	Organizational Factors	.945
4	Cultural Factors	.871
5	Quality Factors	.930
6	Environmental Factors	.930

After conducting a reliability test on the proposed instrument in the pilot study (using SPSS version 25.0), the data were prepared for distribution to the selected respondents.

4.9 Data Collection

As stated earlier, this research used quantitative data gathering techniques. The objective of the research is to evaluate the effect of ISQ and national culture on the Bahraini SMEs' behavioural intention to implement CC. As a result, this research used an online questionnaire to gather data in order to address the research questions. Respondents would find an online survey to be the most convenient option, which reduces the research cost and makes it faster and quicker to analyze the data. The survey was created using Google form software. A secure survey link with a cover letter that momentarily illustrated the study was sent via mainly email and other platforms like social media, such as Facebook, Twitter, LinkedIn, and WhatsApp group, to target respondents that worked in the SMEs to access the published survey. Each participant provided individual responses, and the Google form captured the responses for future measurement and analysis. Each survey participant was asked to answer a total of 62 questions. The data collection was scheduled for three months, but the time period where the data collection took place was four months from June till September 2020. The 62 questions were designed to capture and measure the demographics of the target respondents and the six constructs of the study, namely: adoption intention, technological factors, organizational factors, cultural factors, quality factors, and environmental factors. (see Appendix B). Furthermore, the distribution of gender that responded to the survey, approximately 60% (Male) 40% (Female). Since there is the element of masculinity and femininity as part of the culture's item, the bias would be likely to occur. In order to increase the trust in the results. The researcher has chosen three respondents from the previous respondents, two females and one male. Then, the researcher asked them to answer the questions of the survey carefully and completely. The researcher found out that, the new responses do not differ a lot to make a gap between the new responses and previous responses and had no effect on the results trust.

4.10 Data Analysis

After collecting data from the illustrative sample of the population, the next task was to evaluate the data and examine the research hypotheses. Before analyzing the data, it was important to edit the data and code the questionnaire to remove the data that did not meet

the criteria set by this study. Various analytical applications are utilized for quantitative data, such as Statistical Package for the social science (SPSS version 25.0) and Analysis of Moment Structure (AMOS version 23.0). To conduct data analysis the SPSS program was used to overview the data regarding mean, percentage, frequency, exploratory factor analysis, standard deviation, and reliability. This study also used AMOS software for CFAto ensure the construct validity and reliability, path analysis, and SEM to assess the research hypotheses.

4.11 Structural Equation Modeling (SEM) Assumptions

SEM is identified as the covariance structure, latent variable, and path analysis. The minimum sample size should be determined to apply the SEM analysis, and data must meet certain assumptions. In order to have a stable covariance and correlation, the sample size should be adequate. A sufficient sample size provides higher power to identify the significant path coefficients and leads to higher satisfaction goodness-of-fit indices (Awang, 2014). This research followed Hair *et al.* (2010) latest guidelines, which recommended that the minimum sample size is set by the model complication; the basic measurement model characteristics are shown in Table 4.18.

Table 0.18): Minimum Sample Size required for Model

Model Characteristics	Number of latent constructs and items	Minimum sample required
Five or less latent constructs	Each latent construct has more than three items.	100 sample
Seven or less latent constructs	Each latent construct has more than three items.	150 sample
Seven or less latent constructs	Some construct has less than three items (just identified model)	300 sample
More than seven latent constructs	Some construct has less than three items (just identified model)	500 sample

[Source: Hair et al. (2010)]

Since six latent constructs were used in this study and all latent constructs, have at least three items, the minimum sample needed for the analysis of variables in this research is 300.

4.12 Exogenous and Endogenous Constructs

In SEM, exogenous variables, function as independent variables, while endogenous variables act as dependent variables. Exogenous variables have path arrows pointing outwards, but no path arrows pointing inwards, influencing other variables. In the meantime, an endogenous factor has at least one direction that leads to it, indicating the impact of other factors (Kay Wong, 2013).

This study used four exogenous constructs, namely: technology factors, organizational factors, cultural factors, and environmental factors. Intention to adopt CC and information system quality are the study's endogenous constructs.

4.13 Confirmatory Factor Analysis (CFA)

CFA is a kind of Structural Equations Modeling (SEM) that particularly contracts with models of measurement. That is the connection between observed indicators and latent variables or factors and a measurement model. CFA for example, specifies consideration of the covariation between a set of indicators (Joreskog, 1971). The aim of accompanying Confirmatory Factor Analysis (CFA) in practice is to identify the construct validity. The measurement model's validity, reliability, and uni-dimensionality can be measured using this method. Two orders exist under Confirmatory Factor Analysis. Confirmatory Factor Analysis is divided into two orders: first-order and second-order. The lower-level variables in the first-order CFA are error-containing measured/observed variables. Lower-level variables influence their calculated measures in the second-order CFA, and they are latent variables. These particular variables could be latent variables having impacts on concrete assessments (Milfont & Duckitt, 2004). The purpose CFA of the first-order CFA is a factor measurement model that evaluates how satisfactorily measured variables constitute a small construct. On the other hand, second-order CFA is performed to attain a substantial model fit to the data obtained and theoretical encouragements behind the developed model (Hafiz *et al.*, 2013).

4.13.1 Uni-dimensionality

The existence of one construct creates a basic collection of things that are evaluated using convergent validity, according to the concept of unidimensionality. The scale items are uni-dimensional if they follow two criteria: first, they are characterized by internal consistency, which infers the items ought to hang together while measuring the same construct; and second, they contain external consistency, which means that no item is ought to tap more than one construct. The factor loading for a recently created item ought to be 0.5 or greater to customize AMOS. To ensure the measurement model's Uni-dimensionality, the factor loading for the currently built-up item ought to be 0.6 or greater. Low factor loading in an item implies the elimination of the item (Awang, 2014).

4.13.2 Validity and Reliability

To conduct Confirmatory Factor Analysis (CFA), it is fundamental to make discriminant and convergent validity as well as reliability. Composite Reliability (CR), Average Variance Extracted (AVE), Average Shared Variance (ASV), and Maximum Shared Variance (MSV) are beneficial measures for ensuring reliability and validity.

Based on Hair *et al.* (2010), the gateway for the values deliberated is present in the table below (Table 4.19).

Table 0.19): Validity and Reliability Measures

No.	Validity and Reliability Measures	Thresholds
1	Reliability	CR> 0.7
2	Convergent Validity	AVE> 0.5
3	Discriminant Validity	MSV< AVE The Square root of AVE greater than inter-constructed correlations

4.14 Conclusion

In this chapter, research methodology issues are elaborated and explained. This chapter comprehensively deliberated the description of the research model variables, research design, the formulation of the research framework, sampling size and frame, sampling design, development of the survey, data collection instrument, and it introduced an overview of the analysis of data which will be discussed in further detail in the following chapter.

Chapter Five: Data Analysis and Research Findings

5.1 Introduction

Chapter five illustrates and describes the outcomes and data analysis obtained from this study. First, the preliminary data analysis, respondent profile, and statistics of the variable's measurement are introduced. Then, the confirmatory factor analysis, path analysis of the research model is explained, followed by the model testing and the relationship between the constructs. Finally, a final structural model is presented.

5.2 Preliminary Data Analysis

Researchers' consideration turns toward data analysis when data is gathered from the participants. In any case, the researcher cannot immediately begin analyzing the data until the final data has been collected. To prepare the data for review, there are a few steps that must be completed. Data editing and coding, as well as data scanning, are common approaches (Srinivasan and Lohith, 2017). In this section, data editing and coding, and data screening are discussed.

5.2.1 Data Editing and Coding

After steering the data gathering procedure, the assembled data were meticulously entered into the SPSS template. Editing the raw data was performed to determine whether the data is correct and reliable. Data editing and coding are characterized as the method, including the audit and adjustment of collected survey data to control the quality of the collected data. Data editing ensures that beyond any doubt, all the data entered is correct and contains no botches. Data coding utilizes numbers to represent the answers so that one can numerically represent the data (Bemmel, 2003).

5.2.2 Data Screening

The screening of data was needed to begin the data analysis process since it entails screening and cleaning the data on three levels: searching for defects, locating potential errors in the file, and eliminating them from the data file. Data screening was conducted to ensure that data has been entered accurately as well as conform to the variables normal distribution (Drake et al., 2010). Based on this, the researcher carried out three steps of

preliminary data analysis.Specifically these are the assessment of the normality, detecting outliers, and exploring omitted data.

5.2.2.1 Missing Data

When the applicants do not successfully respond to survey questions, even one question, data is considered missing. Missing data leads to two fundamental issues. First, it weakens the test statistic's tendency to represent the relationship within the data set. Secondly, it causes inclination in estimating the parameters (Kang, 2013). However, this research utilized an online questionnaire, and the participants were forced to respond to all the questions. Therefore no missing data wasdetected.

5.2.2.2 Outliers

This study used the Mahalanobis d-squared using the AMOS software to recognize the Outliers. Exceptions regularly happen by the mistakes of the respondents when replying to the survey. To make sure the researcher or the analyzer has entered the data into the data file accurately the outliers should be recognized to ensure that the entered data is free from any outliers (Drake et al., 2010). Also, errors can emerge during recording the data when respondents don't demonstrate the population targeted group. A few outliers are considered effective, such as when evacuating the outliers can make considerable changes to the estimation of analysis. In this study, in order to improve that data set, some cases with high outliers were removed. (Appendix C).

5.2.2.3 Normality

Before starting the analysis, for all the research variables, a normality test must be performed. Also, it should be applied to indicate that the sample of data has been taken from an ordinary distributed populace. This research attempted to explore the normality for all the research framework variables presented in Appendix (C). In this research, the items skewness and kurtosis measurement are performed by using the AMOS software.

While skewness means the asymmetry that veers off from the normal distribution, in a set of data and kurtosis differs with the skewness in distinguishing extreme values in one versus the other tail as well as measuring extreme values in either tail (Hair *et al.*, 2010). In social sciences, data distribution within the appropriate skewness range of -2.0 and +2.0 is relatively normally distributed (Leedy and Ormrod, 2001).

However, acceptable values of kurtosis fall between – 10 and +10 when utilizing SEM (Brown, 2006). The researcher discovered that each variable's normality in the construct was within the acceptable range after applying the skewness and kurtosis.

5.3 Response Rate

To target respondents for the published survey, 960 questionnaires were sent to bahraini SMEs via email and social media networks such as Facebook, Twitter, LinkedIn, and WhatsApp groups, in order to target respondents to access the published survey. However, 662 surveys were received out of 960, creating a response rate of 69%. Since the participants did not meet the study's criteria, The researcher dropped 205 questionnaires from individuals working in SMEs that use cloud computing. The requirements for the research is that the questions should be answered by people who work in SMEs who intend to adopt cloud computing. Therefore, 205 questionnaires were excluded due to this issue. During checking the data for outliers, sixteen cases were also dropped because of the problem of outliers. As a result, a total of 444 returned surveys were available for review. This amounted to 46.2% of the total response rate (see Table 5.1).

Table(0.1): Respondent Rate

	Number of Questionnaires	**Percentage**
Total surveys sent to the respondents	960	100%
Total surveys received from the respondents	662	69%
Unusable respondents	205	21.3%
The issue of outliers	16	1.7%
Achievable sampling	444	46.2%

5.4 Respondent's Profile

Eight questions were covered about the respondent's profile. Gender distribution in the sample displays 61.9% of the participants were male, while 38.1% were female. Most of the respondents were between the ages of 31 and 40 with 39.2%, 38.7% of the respondents were between the ages of 23 and 30, and 22.1% of the respondents belonged to the 41 and above age group. Table (5.2) shows the respondent's profile.

Table (0.1): Respondents Profile

Variable	Category	Frequency	Percentage
Gender	Female	175	39.4
	Male	269	60.6
Age	23-30	172	38.7
	31-40	174	39.2
	41 and above	98	22.1
Organization	Banking and Finance	38	8.6
	Retailing	117	26.4
	Manufacturing	42	9.5
	Entertainment	23	5.2
	Construction	27	6.1
	Catering	42	9.5
	Services	110	24.8
	Other	45	10.1
Employee Role	Executive	68	15.3
	Managerial	121	27.3
	Operational	255	57.4
Current position	Below 2 years	91	20.5
	2-5 years	188	42.3
	6-9 years	87	19.6
	9 years and more	78	17.6
Education level	Doctorate Degree	0	0
	Master's Degree	86	19.3
	Bachelor's Degree	296	66.7
	Diploma or below	62	14
intention to develop CC in the close future	Yes, partially going to implement CC	399	89.9

	Yes, fully going to implement CC	45	10.1

Based on the organization sector, approximately half of the respondents were from the retail and service sectors with a total percentage of 51.2%. With 26.4% from retailand 24.8% from service, 9.5% from catering, 9.5% from manufacturing, 8.6% from banking and finance, 6.1% from construction, 5.2% from entertainment, and 10.1% from other sectors. According to employee role, the percentage for an operational role within the enterprise was 57.4%, managerial 27.3%, and executive role 15.3%. When asked how long they had been in their current job, 42.3% said they had 2-5 years of experience working, 20.5% had less than two years, 19.6% had 6-9 years, while 17.6% said they had more than nine years of working involvement in their present position. Considering the education level, the highest percentage belongs to the respondents that hold bachelor's degree with 66.7%, 14% of the respondents hold a diploma or below, and 19.3% had an education up to the master's degree. As shown in Table (5.2), in terms of partially or fully adopting cloud computing, most of the respondents were partially going to adopt cloud computing (89.9%), and only (10.1%) were fully going to adopt cloud computing in their enterprise.

5.5 Statistics of Variables Measurement

The statistics for independent variables (technology factors, organizational factors, cultural factors and, environmental factors) and dependent variables (information system quality and target to implement CC) were calculated. Tables (5.3-5.8) display the standard deviation (SD), the mean, kurtosis, and skewness of all the variables used in this research.

5.5.1 Measuring Technology Factors

The statistics for technology factors that impact the Bahraini SME's information system quality have been measured. Four variables measure the technological factors, namely: Relative Advantages, Compatibility, Complexity, and Security. Table (5.3) expresses the technology factors along with the presentation of four categorical columns that are mean, SD, skewness, and kurtosis of the variables.

Mean is the average, and it is determined by accumulating all of the sample's outcome variables and dividing the result by the overall amount of events. SD, which is meant to

address the square root of the variance and informs us how the data values lie from the mean (Livingston, 2004). Skewnessis used to express the degree of falsification from the normal distribution. It also calculates the lack of symmetry or balance in data distribution and the standard acceptable skewness value ranges between -2.0 and +2.0. Finally, kurtosis is used to display the outliers present in the data distribution (Groeneveld and Meeden, 1984).

Table 0.1): Measuring Technology Factors

	Mean	**Standard Deviation (SD)**	**Skewness**	**Kurtosis**
Relative Advantages				
Cloud computing will allow the organization to accomplish specific tasks more quickly.	5.869	1.015	-1.306	2.306
Cloud computing will not increase the productivity of the organization's staff.	5.617	1.133	-1.083	1.548
Using cloud computing will allow the organization to access information from any time and place.	5.709	0.994	-0.596	0.306
Using cloud computing will allow the organization to access the shared resources placed on a cloud.	5.619	1.035	-0.388	-0.503
Average	5.704	1.044	-0.84325	0.91425
Compatibility				

Cloud computing technology will be compatible with the organization's existing format, interface, and other structural data.	5.946	0.874	-0.605	0.233
The changes introduced by cloud computing will be consistent with existing practices in the organization.	5.711	1.016	-0.565	-0.074
Cloud computing technology will be compatible with the current organization's IT infrastructure (hardware/software).	5.631	1.007	-0.685	0.641
Cloud computing services will not be compatible with the current business strategy of the organization.	5.624	1.065	-0.949	1.527
Average	5.728	0.991	-0.701	0.58175
Complexity				
The organization's staff will not be flexible to interact with cloud computing.	5.599	1.195	-.986	1.305
It is easy to emigrate the existing work with the cloud-based services when using cloud computing.	5.856	1.109	-1.175	2.088
It is easy to perform many tasks at one time when using cloud computing.	5.507	1.055	-0.613	0.477
Average	5.654	1.120	-0.92467	1.29

Security				
The employees will be able to detect unauthorized data on the internal system when using cloud computing.	5.860	1.014	-0.772	0.254
It will be secure for the organization to import existing data when using cloud computing.	5.412	1.066	-0.162	-0.556
Cloud computing will not be a security risk.	5.480	0.864	-0.253	1.070
Average	5.584	0.981	-0.39567	0.256

As shown in Table (5.3), this construct measures the effect of four factors on the Bahraini SME's information system quality: specifically, relative advantages, compatibility, complexity, and security. Four items were used to assess the relative advantages. Also, four items were used to assess the compatibility, as well as three items, were used to assess the complexity, and three items were used to assess the security. The participants were requested to identify that the extent to which they agree or disagree with the statements on a seven-point Likert scale, ranking 1 being "strongly disagree," and 7 being "strongly agree." The measurement item's mean values were between 5.412 and 5.946 as illustrated in the results. As Table (5.3) clarifies, the SD is between 0.864 and 1.195 and the mean is between 5.584 and 5.728. The coding of item 2 of relative advantage, item 4 of compatibility, and item 1 of complexity were reversed because these items were worded in the questionnaire negatively. This specifies that, overall, the respondents had agreed with the items given for the relative advantages, compatibility, complexity, and security.

5.5.2 Measuring Organizational Factors

The statistics for organizational factors that impact the Bahraini SME's information system quality have been measured. Three variables measure the organizational factors, namely: Organizational Readiness, Human Readiness, and Top Management Support. Table (5.4) shows the organizational factors along with the presentation of four categorical columns, which are mean, SD, skewness, and kurtosis of the variables.

Table 0.2): Measuring Organizational Factors

	Mean	**Standard Deviation (SD)**	**Skewness**	**Kurtosis**
Top Management Support				
The organization's top management in favors involves itself in the cloud computing process when it comes to IS/IT projects.	5.752	0.887	-0.291	-0.282
The organization's top management in favors supports the adoption of cloud computing.	5.608	0.916	-0.294	-0.257
The organization's top management is willing to take risks (financial and organizational) involved in the adoption of cloud computing.	5.430	0.984	-0.232	-0.287
Average	5.560	0.929	-0.27233	-0.27533
Human Readiness				
In the organization, the organization staff does not have the appropriate knowledge that facilitates cloud computing adoption.	5.583	0.994	-0.155	-0.682

In the organization, the organization staff has the appropriate skills that facilitate cloud computing adoption.	5.676	0.940	-0.164	-0.599
In the organization, the organization staff has the appropriate adaptability that facilitates cloud computing adoption.	5.432	0.920	-0.123	-0.199
Average	5.564	0.951	-0.1435	-0.49333
Organization Readiness				
The organization has the ability to provide cloud computing access to all its members.	5.455	1.177	-1.246	2.216
The organization's IT infrastructure can support the adoption of cloud computing.	5.340	0.971	-0.085	-0.576
The organization makes the best use of IT resources to adopt cloud computing.	5.423	1.008	-0.339	0.107
The organization does not have enough budgets in order to implement cloud computing technology.	5.250	1.059	-0.009	-0.490
Average	5.367	1.054	-0.41975	0.31425

To measure the top management support, three items were used. Also, three items were utilized to assess human readiness, and four items were utilized to assess organizational readiness. The participants were asked to identify the extent to which they agree or disagree with the statements on a seven-point Likert scale, ranking 1 being "strongly disagree," and 7 being "strongly agree." The measurement item's mean values were between 5.250 and 5.752 as illustrated in the findings. As Table (5.4) clarifies, the average mean founded for each variable is between 5.367 and 5.564, and the SD is between 0.887 and 1.177. The

coding of item 1 of human readiness and item 4 of organizational readiness were reversed because these items were worded in the questionnaire negatively. This specifies that, overall, the respondents relatively agree with the items given for top management support, human readiness, and organizational readiness.

5.5.3 Measuring Cultural Factors

The statistics for cultural factors that impact the Bahraini SME's information system quality have been measured. Four variables measure the cultural factors, namely: Individualism-Collectivism, Uncertainty Avoidance, Masculinity-Femininity, and Power Distance. Table (5.5) displays factors of the culture along with the presentation of four categorical columns that are mean, SD, skewness, and kurtosis of the variables.

Table (0.3): Measuring Cultural Factors

	Mean	**Standard Deviation (SD)**	**Skewness**	**Kurtosis**
Power Distance				
Decision making power stays with the top management in the organization.	4.964	1.233	-0.409	-0.161
Managers make most decisions without consulting subordinates.	4.989	1.197	-0.405	0.089
Staffs in the organization do not question their manager's decisions.	5.266	1.046	0.129	-0.892
Average	5.073	1.159	-0.22833	-0.32133
Uncertainty Avoidance				
Rules and regulations of the organization do not inform workers what the organization expects from them.	5.950	1.029	-1.669	4.059

It is important to have a jobs requirement and instruction spelled out in detail so that staffs always know what they are expected to do.	5.948	0.996	-1.198	2.291
In the organization providing opportunities to be innovative is more important than requiring standardized work procedures.	5.624	1.231	-0.918	0.642
Average	5.841	1.085	-1.26167	2.330667
Individualism-Collectivism				
In the organization, being accepted as a member of a group is more important than being independent.	5.435	1.265	-0.730	0.174
In the organization, group success is more important than individual success.	5.430	1.247	-0.673	0.055
In the organization, being loyal to a group is more important than individual gain.	5.146	1.450	-0.931	0.528
Average	5.337	1.321	-0.778	0.252333
Masculinity-Femininity				
In the organization, it is not preferable to have a man in high-level positions rather than a woman.	5.469	1.090	-1.133	2.148

In the organization, solving organizational problems requires the active forcible approach, which is typical of men.	3.160	1.607	0.814	0.059
In the organization, the women do value recognition and promotion in their work as much as men do.	5.890	0.935	-0.757	1.302
Average	4.840	1.211	0.0285	1.169667

In order to assess the power distance, uncertainty avoidance, and individualism-collectivism, the researcher utilized three items. To evaluate masculinity-femininity, however, four items were utilized. The participants were asked to describe the extent to which they agree or disagree with the statements on a seven-point Likert scale, ranking 1 being "strongly disagree," and 7 being "strongly agree." The measurement item's mean values were between 3.160 and 5.948 as illustrated in the findings. As Table (5.5) clarifies, the average mean for each variable is between 4.840 and 5.841, and the SD is between 0.996 and 1.607. The coding of item 1 of uncertainty avoidance was reversed because this item was worded in the questionnaire negatively. This specifies that, overall, the respondents relatively agree with the items given for the individualism-collectivism, uncertainty avoidance, and with most of the items given for the power distance and masculinity-femininity.

5.5.4 Measuring Environment Factors

The statistics for environmental factors that impact the Bahraini SME's information system quality have been measured. Two variables measure the cultural factors, namely: Competitive Pressure, and Vendor Support. Table (5.6) shows the environmental factors along with the presentation of four categorical columns that are mean, SD, skewness and kurtosis of the variables.

Table 0.4): Measuring Environmental Factors

	Mean	Standard Deviation (SD)	Skewness	Kurtosis
Competitive Pressure				
The employees are aware of cloud computing implementation in their competitor organizations.	5.239	1.245	-0.740	0.434
The employees are aware that the cloud computing implementation will help the organization to exceed its competitors.	5.315	1.215	-0.832	0.797
In the organization, staff in the industry does not understand the competitive advantages offered by cloud computing.	5.383	1.086	-0.308	-0.422
The level of pressure from competitors will be reduced by adopting cloud computing.	4.975	1.181	-0.182	-0.018
Average	5.228	1.182	-0.5155	0.19775
Vendor Support				
The vendor will provide adequate technical support when the organization adopts cloud computing.	5.043	1.223	-0.364	-0.195
When adopting cloud computing, I believe that a good relationship with other vendors will not be crucial.	5.002	1.169	-0.455	0.197
The vendor will provide high availability architecture, tested platform, and	5.047	1.204	-0.137	-0.718

applications for the readiness of cloud computing services.				
Average	5.031	1.199	-0.31867	-0.23867

In order to measure the competitive pressure, four items were used while three items were used to measure vendor support. The participants were asked to describe the extent to which they agree or disagree with the statements on a seven-point Likert scale, ranking 1 being "strongly disagree," and 7 being "strongly agree." The measurement item's mean values were between 4.975 and 5.383 as demonstrated in the findings. As Table (5.6) clarifies, the average mean calculated for each variable is 5.228 and 5.031, and the SD is between 1.086 and 1.245. The coding of item 3 of competitive pressure and item 3 of vendor support was reversed because these items were worded in the questionnaire negatively. This specifies that, overall, the respondents relatively agree with the items given for the competitive pressure and vendor support.

5.5.5 Measuring Bahraini SME's Information System Quality

The statistics for Bahraini ISQ that impact the SME's behavioural intention to implement CC in Bahrain have been measured. Two variables measure the Bahrainis ISQ, namely: IQ and System quality. Table (5.7) illustrates the Bahraini information system quality along with the presentation of four categorical columns that are mean, SD, skewness, and kurtosis of the variables.

Table 0.5): Measuring Bahraini SME's Information System Quality

	Mean	**Standard Deviation (SD)**	**Skewness**	**Kurtosis**
Information Quality				
The use of cloud computing will not provide me with accurate information.	5.390	1.066	-0.410	0.237
The use of cloud computing will provide me with up-to-date information.	5.388	1.062	-0.457	0.250

The use of cloud computing will provide me, all the information I will need.	5.387	1.042	-0.561	0.611
Average	5.388	1.057	-0.476	0.366
System Quality				
When using cloud computing services, it will work correctly.	5.180	1.073	-.0286	-0.297
Cloud computing services will be available at all times.	5.257	1.026	-0.366	-0.022
The procedure of using cloud computing will not save the organization time.	5.297	0.986	0.085	-0.925
The procedure of using cloud computing will save the organization expenses.	5.181	1.062	-0.216	-0.213
Average	5.229	1.037	-0.1032	-0.41467

The researcher utilized three items to assess the information quality while four items were utilized to evaluate system quality. The participants were asked to describe the extent to which they agree or disagree with the statements on a seven-point Likert scale, ranking 1 being "strongly disagree," and 7 being "strongly agree." The findings show that the measurement item's mean values were between 5.180 and 5.390. As Table (5.7) clarifies, the average mean identified for each variable is 5.229 and 5.388, and the SD is between 0.986 and 1.073. The coding of item 1 of information quality and item 3 of system quality were reversed because these items were worded in the questionnaire negatively. This shows that, overall, the respondents relatively agree with most of the items given for the information quality, as well as the system quality.

5.5.6 Measuring SME's Behavioral Intention to Adopt CC in Bahrain

The descriptive statistics for the SME's behavioural intention to implement CC in Bahrain construct has been measured. Four items were used to measure the SME's behavioural willingness to develop CC in Bahrain. Table (5.8) illustrates the SME's behavioural target

to adopt CC in Bahrain along with the presentation of four categorical columns that are mean, SD, kurtosis, and skewness of the variable.

Table 0.6): Measuring SME's Behavioral Intention to Adopt Cloud Computing in Bahrain

	Mean	Standard Deviation (SD)	Skewness	Kurtosis
SME's Behavioral Intention to Adopt Cloud Computing in Bahrain				
The organization expects that using cloud computing services will be advantageous.	5.793	1.068	-1.430	2.800
The organization prefers to use cloud computing services.	5.554	1.163	-1.048	1.336
The organization does not intend to adopt cloud computing services in the future.	5.635	1.011	-0.456	-0.182
The organization intends to adopt cloud computing services in the next two years.	5.457	1.210	-0.639	0.103
Average	5.610	1.113	-0.89325	1.01425

The participants were asked to describe the extent to which they agree or disagree with the statements on a seven-point Likert scale, ranking 1 being "strongly disagree," and 7 being "strongly agree." The findings show that the measurement item's mean values were between 5.457 and 5.793. As Table (5.8) clarifies, the average mean is 5.610, and the SD is between 1.011 and 1.210. The coding of item 3 of purpose to implement CC was reversed because this item was worded in the questionnaire negatively. This shows that, overall, the respondents relatively agree with the items given for the SME's behavioural intention to develop CC in Bahrain.

5.6 Analysis and Results

To assess the model, a measurement model was conducted for complete model testing. This paper presents a paradigm for assessing Uni-Dimensionality using CFA for organizational factors, technology factors, cultural factors, environmental factors, Bahraini SME's information system quality, and SMEs' behavioural intention to develop CC in Bahrain. The findings of the uni-dimensionality testing are discussed at the beginning, followed by the validity and reliability results.

To evaluate the measurement model fitness, Confirmatory Factor Analysis (CFA) was utilized to assess the construct's reliability and validity. Additionally, model testing starts with the evaluation of parameter estimates, such as R^2, then the inspection of model fit (Joreskog and Sorbom, 1996).

5.6.1 Confirmatory Factor Analysis (CFA)

In CFA, the hypothesized models have been estimated and stated, which suggests a number of latent factors in order to explain the covariances, including a number of observed variables (Koufteros, 1999). This section presents the CFA results, and they are utilized to check the item's adequacy, confirm the quantity of the model's measurements, and adapt the model to the data set. Figure (5.1) introduces the constructs factor loading and factor loading of the items. The actual model was tested, and the outcomes are discussed in the

following sub-section. hypotheses, the direct impact of each path was examined.

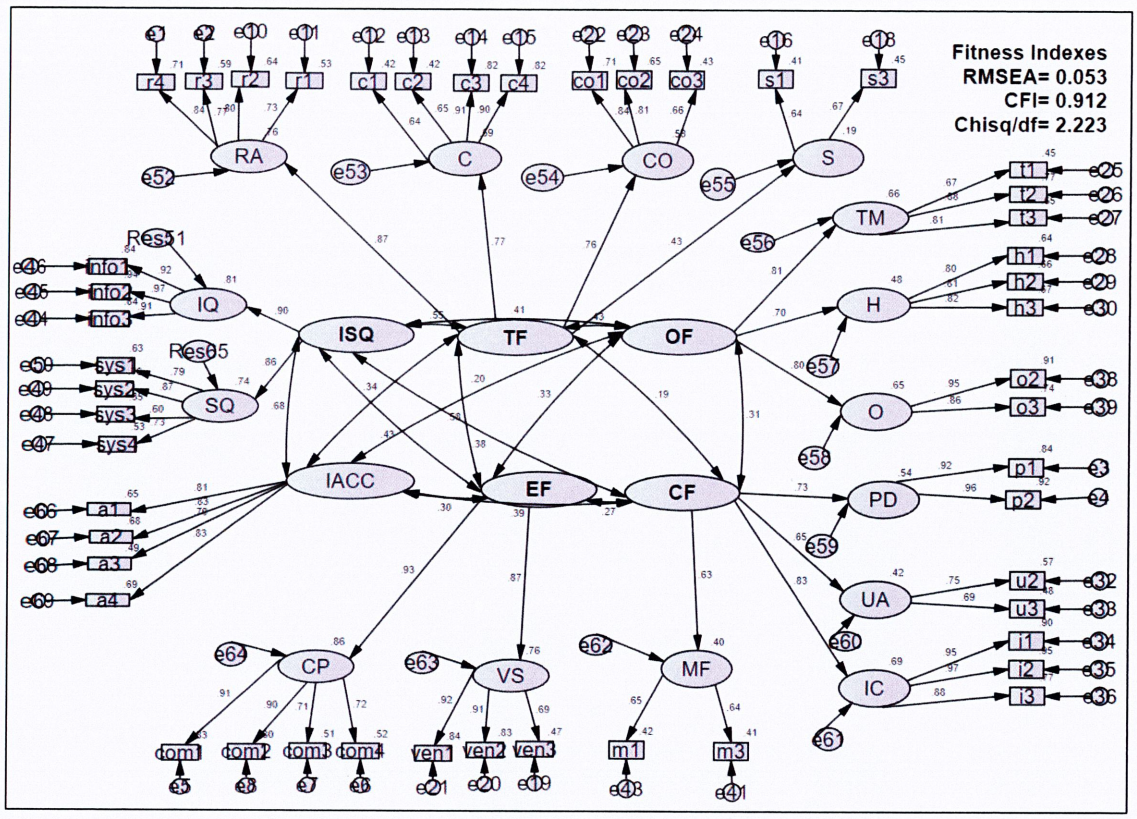


Figure (5.1): the Constructs and Items Factor Loading

Figure (5.1) determines the measurement model fitness indexes. The incremental fit, parsimonious fit, and absolute fit attained the necessary degree with Comparative Fit Index CFI> 0.90, Root Mean Square of Error Approximation RMSEA < 0.08, and a Chi-Square/ Degree of Freedom Chisq/DF < 3.00 (Awang, 2012). Figure (5.1) displays The fitness indexes with Chisq/DF=2.223, CFI= 0.912, and RMSEA = 0.053. Three fitness indexes of Chisq/DF, CFI, and RMSEA have met the necessitated fitness level.

5.6.2 Uni-Dimensionality for Technological Factors

Factor loading works as a data reduction strategy, and it is considered to expound the relationships between observed factors employing a smaller number of factors (Salkind, 2010).

Table (5.9) shows the factor loading value for each item of technological factor. This study uses four variables, namely: complexity, security, relative advantage, and compatibility to evaluate the impact of these variables on the Bahrainis SMEs' information system quality as well as SMEs' behavioural intention to implement CC in Bahrain.

Table (0.1): Factor Loading for Technological Factors

Construct	Items Label	Items Variable	Factor Loading
Relative Advantage (RA)	r1	Cloud computing will allow the organization to accomplish specific tasks more quickly.	0.73
	r2	Cloud computing will not increase the productivity of the organization's staff.	0.80
	r3	Using cloud computing will allow the organization to access information from any time and place.	0.77
	r4	Using cloud computing will allow the organization to access the shared resources placed on a cloud.	0.84
Compatibility (C)	c1	The cloud computing technology will be compatible with the organization's existing format, interface, and other structural data.	0.64
	c2	The changes introduced by cloud computing will be consistent with existing practices in the organization.	0.65
	c3	The cloud computing technology will be compatible with the current organization's IT infrastructure (hardware/software).	0.91
	c4	Cloud computing services will not be compatible with the current business strategy of the organization.	0.90
Complexity (CO)	co1	The organization's staff will not be flexible to interact with cloud computing.	0.84
	co2	It is easy to emigrate the existing work with the cloud-based services when using cloud computing.	0.81
	co3	It is easy to perform many tasks at one time when using the cloud computing.	0.66
Security (S)	s1	The employees will be able to detect unauthorized data on internal system when using the cloud computing.	0.64
	s3	The cloud computing will not be a security risk.	0.67

The factor loading for item 2 of security variables was below 0.6, so it was deleted from the measurement model. An item with low factor loading is considered useless to measure the construct, and the remaining futile item will influence the fitness index of the model. The other items considered had remained as they had a factor loading value that exceeds the standard acceptable value of 0.6. Examination of modification indices shows that none of the items in security, relative advantage, complexity, and compatibility are redundant.

Therefore, the modification of the indices for all items in this construct fulfilled the standard limit.

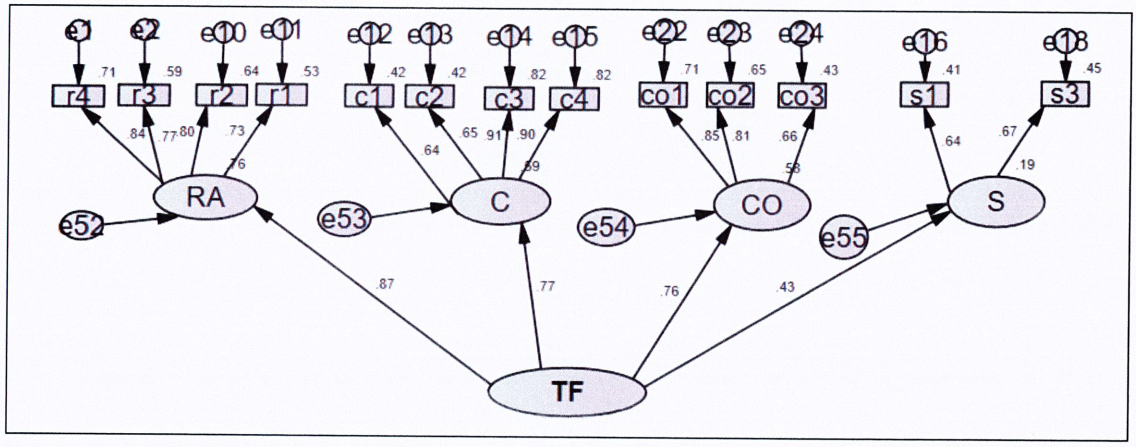


Figure (5.2) The Technological Factors Items Factor Loading

5.6.3 Uni-Dimensionality for Organizational Factors

Table (5.10) shows the factor loading value for each item considered an organizational factor. This study uses three variables, namely: organizational readiness, top management support, and human readiness to measure the impact of these variables on the Bahraini SMEs' information system quality as well as on SMEs' behavioural intention to implement CC in Bahrain.

Table (5.2): Factor Loading for Organizational Factors

Construct	Items Label	Items Variable	Factor Loading
Top Management Support (TM)	t1	The organization's top management in favors involves itself in the cloud computing process when it comes to IS/IT projects.	0.67
	t2	The organization's top management in favors supports the adoption of cloud computing.	0.88
	t3	The organization's top management is willing to take risks (financial and organizational) involved in the adoption of cloud computing.	0.81
	h1	In the organization, the organization staff does not have the appropriate knowledge that facilitates cloud computing adoption.	0.80
	h2	In the organization, the organization staff has the appropriate skills that facilitate cloud computing adoption.	0.81

Human Readiness (H)	h3	In the organization, the organization staff has the appropriate adaptability that facilitates the cloud computing adoption.	0.82
Organizational Readiness (O)	o2	The organization's IT infrastructure can support the adoption of the cloud computing.	0.95
	o3	The organization makes the best use of IT resources to adopt the cloud computing.	0.86

The factor loading of item 1 and item 4 of organizational readiness variables was below 0.6, so these items were deleted from the measurement model because items with low factor loading are considered useless to measure the construct, and the remaining futile items will influence the fitness index of the model. Other items remained as they had a factor loading value that exceeds the standard acceptable value of 0.6. Examination of modification indices shows that none of the items in human readiness, top management support, and organizational readiness are redundant. Therefore, the modification of the indices for all items in this construct fulfilled the standard limit.

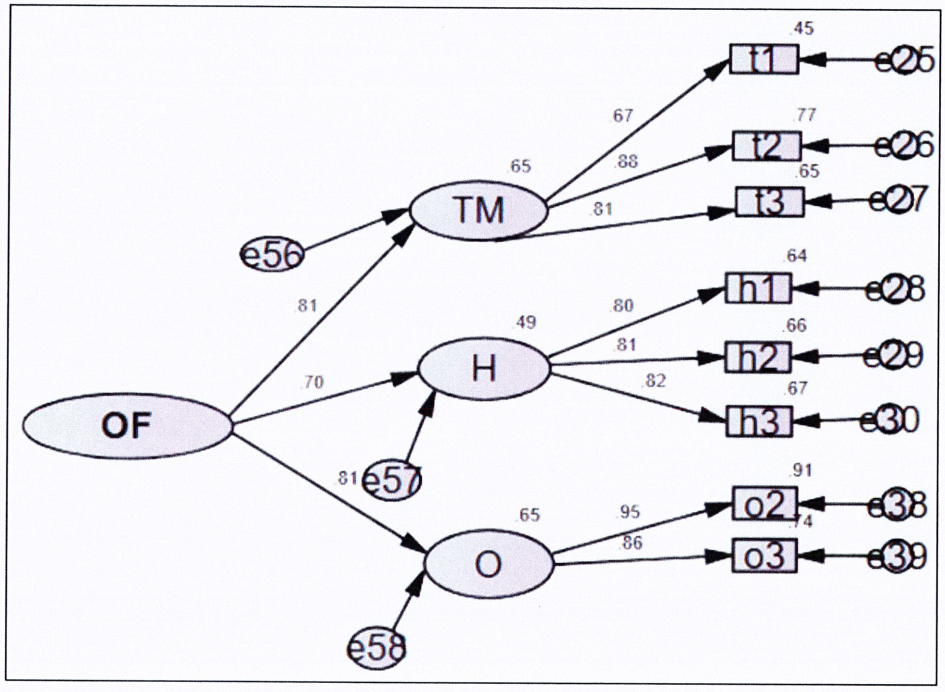


Figure (5.3) The Organizational Factors Items Factor Loading

5.6.4 Uni-Dimensionality for Cultural Factors

Table (5.11) shows the factor loading value for each item considered a cultural factor. This study uses four variables, namely: individualism-collectivism, masculinity-femininity,

power distance, and uncertainty avoidance to measure the impact of these variables on the SMEs' behavioural intention to develop CC in Bahrain.

Table (5.3): Factor Loading for Cultural Factors

Construct	Items Label	Items Variable	Factor Loading
Power Distance (PD)	p1	Decision-making power stays with the top management in the organization.	0.92
	P2	Managers make most decisions without consulting subordinates.	0.96
Uncertainty Avoidance (UA)	u2	It is important to have a job requirement and instruction spelled out in detail so that staffs always know what they are expected to do.	0.75
	u3	In the organization, providing opportunities to be innovative is more important than requiring standardized work procedures.	0.69
Individualism-Collectivism (IC)	i1	In the organization, being accepted as a member of a group is more important than being independent.	0.95
	i2	In the organization, group success is more important than individual success.	0.97
	i3	In the organization, being loyal to a group is more important than individual gain.	0.88
Masculinity-Femininity (MF)	m1	In the organization, it is not preferable to have a man in high-level positions rather than a woman.	0.65
	m3	In the organization, the women do value recognition and promotion in their work as much as men do.	0.64

The factor loading of item 3 of power distance and item 1 of uncertainty avoidance variables was below 0.6, so these items were deleted from the measurement model because items with low factor loading are considered useless to measure the construct, and the remaining futile items will influence the fitness index of the model. Other items remained as they had a factor loading value that exceeds the standard acceptable value that of 0.6. Examination of modification indices shows that none of the items in individualism-collectivism, uncertainty avoidance, and power distance are redundant. Therefore, the modification of the indices for these items in this construct fulfilled the standard limit, but modification indices of item 2 of masculinity-femininity were redundant. Thus, this item in this construct did not fulfill the standard limit and was deleted.

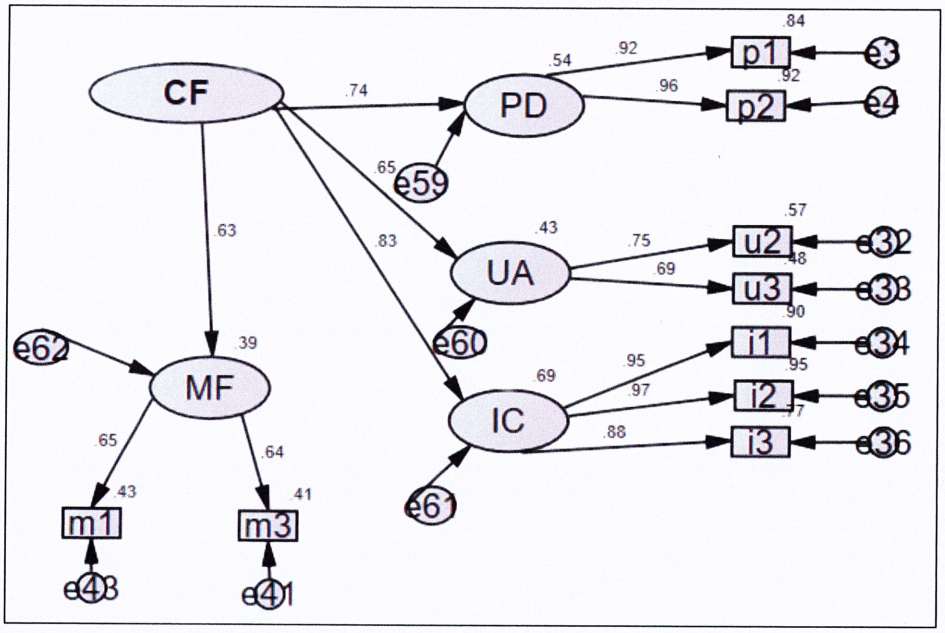


Figure (5.4): The Cultural Factors Items Factor Loading

5.6.5 Uni-Dimensionality for Environmental Factors

Table (5.12) shows the factor loading value for each item considered an environmental factor. This study uses two variables, namely: vendor support, and competitive pressure to measure the influence of these variables on the Bahraini SMEs' ISQ that impacts SMEs' behavioural aim to implement CC in Bahrain.

Table 0.4): Factor Loading for Environmental Factors

Construct	Items Label	Items Variable	Factor Loading
Competitive Pressure (CP)	com1	The employees are aware of cloud computing implementation in their competitor organizations.	0.91
	com2	The employees are aware that the cloud computing implementation will help the organization to exceed its competitors.	0.90
	com3	In the organization, staff in the industry does not understand the competitive advantages offered by cloud computing.	0.71
	com4	The level of pressure from competitors will be reduced by adopting cloud computing.	0.72
	ven1	The vendor will provide adequate technical support when the organization adopts cloud computing.	0.92

Vendor Support (VS)	ven2	The vendor will provide high availability architecture and tested platforms and applications for the readiness of cloud computing services.	0.91
	ven3	When adopting cloud computing, I believe that a good relationship with other vendors will not be crucial.	0.69

Items in this construct remained as they had a factor loading value that exceeds the standard acceptable value that of 0.6. Examination of modification indices shows that none of the items in competitive pressure and vendor support are redundant. Therefore, the modification of the indices for all items in this construct fulfilled the standard limit.

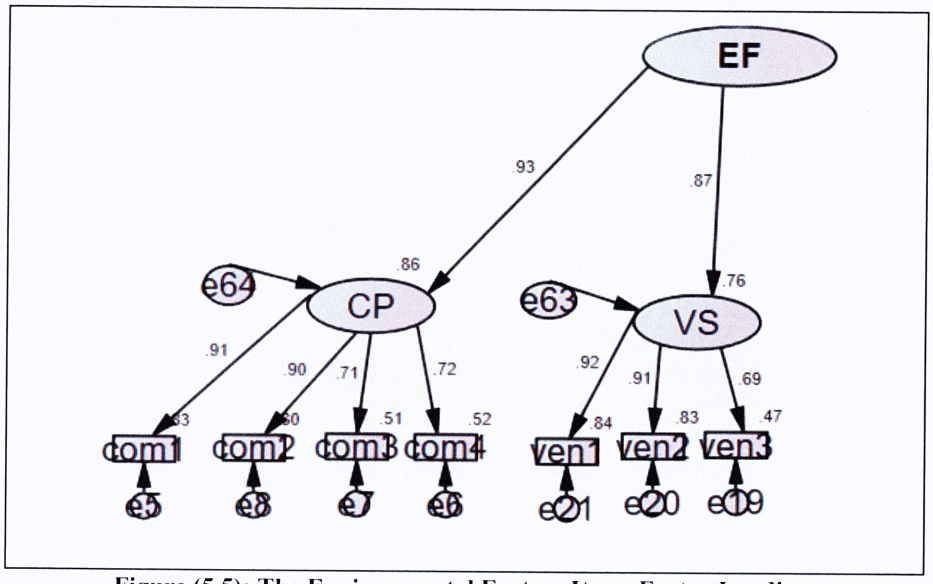


Figure (5.5): The Environmental Factors Items Factor Loading

5.6.6 Uni-Dimensionality for Bahrainis SME's Information system quality

Table (5.13) shows the factor loading value for each item of Bahraini SMEs' Information system quality. This study uses the following factors, namely: system quality, and information quality to assess the effect of variables on the SMEs' behavioural intention to develop CC in Bahrain.

Table 0.5): Factor Loading for Bahrainis SME's Information System Quality

Construct	Items Label	Items Variable	Factor Loading
	info1	The use of cloud computing will not provide me with accurate information.	0.92

Information Quality (IQ)	info2	The use of cloud computing will provide me with up-to-date information.	0.97
	info3	The use of cloud computing will provide me, all the information I will need.	0.91
System Quality (SQ)	sys1	When using cloud computing services, it will work correctly.	0.79
	sys2	Cloud computing services will be available at all times.	0.87
	sys3	The procedure of using cloud computing will not save the organization time.	0.60
	sys4	The procedure of using cloud computing will save the organization expenses.	0.73

The items in this construct remained as they had a factor loading value that exceeds the standard acceptable value that of 0.6. Examination modification indices have shown that none of the items in IQ and system quality are redundant. Hence, the modification of the indices for all items in this construct fulfilled the standard limit.

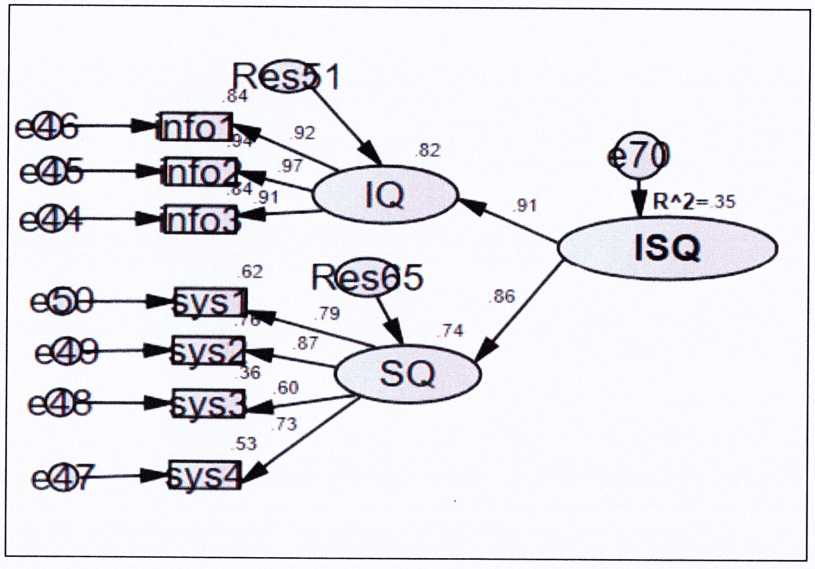


Figure (5.6): The Bahraini SME's Information System Quality Items Factor Loading

5.6.7 Uni-Dimensionality for SME's Behavioral Intention to Adopt CC in Bahrain

Table (5.14) shows the factor loading value for each item of purpose to implement CC. Items in this construct remained as they had a factor loading value that exceeds the standard acceptable value that of 0.6. Examination of modification indices shows that none of the items in the intention to adopt are redundant.

Table 0.6): Intention to Adopt Cloud Computing Factor Loading

Construct	Items Label	Items Variable	Factor Loading
Intention to Adopt Cloud Computing (IACC)	a1	The organization expects that using cloud computing services will be advantageous.	0.81
	a2	The organization prefers to use cloud computing services.	0.83
	a3	The organization does not intend to adopt cloud computing services in the future.	0.70
	a4	The organization intends to adopt cloud computing services in the next two years.	0.83

Therefore, the modification of the indices for all items in this construct fulfilled the standard limit. Accordingly, Uni-dimensionality was achieved becauseitems in the construct remained as they had a factor loading value that exceeds the standard acceptable value that of 0.6 (Awang, 2012). The scores of the measurement model CFA are summarized in Table (5.15).

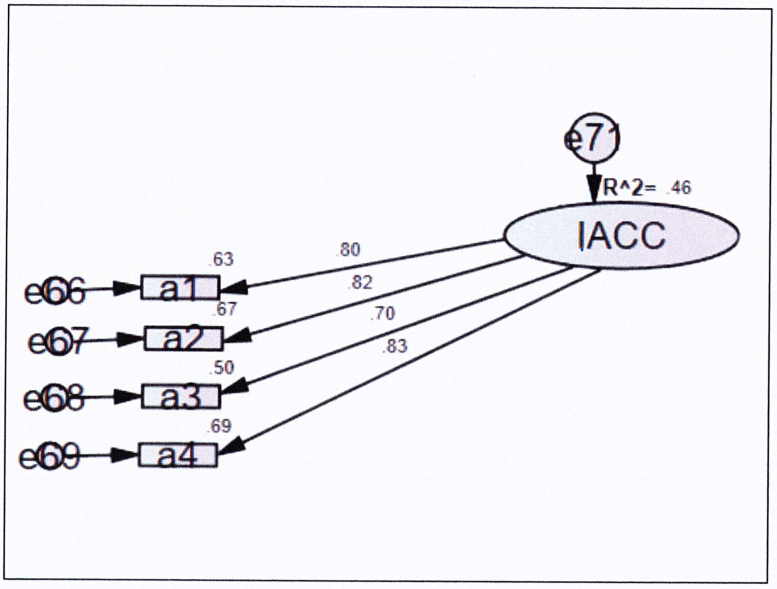


Figure (5.7): The SME's Behavioral Intention to Adopt Cloud Computing in Bahrain Items Factor Loading

Table 0.7): Measurement Model Fitness Indexes

	Index name	Range of values for a good fit	Threshold	Comments
Absolute fit	RMSEA	0.053	<0.08	Achieved the fitness level
Incremental fit	CFI	0.912	>0.90	Achieved the fitness level
Parsimonious fit	Chisq/DF	2.223	< 3.00	Achieved the fitness level

Note: Chisq/df: Chi-Square/ Degree of Freedom, **CFI:** Comparative Fit Index, **RMESEA:** Root Mean of Error Approximation

5.7 Constructs Validity

According to Noble and Smith (2015), the level at which the findings accurately capture the data is known as validity. Discriminant validity and convergent validity are performed in this study in order to test the validity of each measurement model.

5.7.1 Convergent Validity

If all of the measurement model items are highly accurate, it is said to have convergent validity. Assessing the construct's average variance extracted (AVE) can also be affirmed.

To achieve convergent validity, the AVE must equal 0.5 or higher. Table (5.17) shows that convergent validity for all the constructs is acceptable.

5.7.2 Construct Validity

When the measurement model's fitness indexes fall under yhrthree categories of fit models (parsimonious fit, incremental fit, absolute fit), construct validity is determined (Awang, 2014).

5.7.3 Discriminant Validity

This type of validity examines the free redundant items in the measurement model (Zait and Bertea, 2011). When the AVE is greater than the Maximum Shared Variance (MSV), discriminant validity is achieved. All the latent variables' MSV are under the AVE in this scenario.

5.8 Reliability and Validity of the Constructs

Cronbach's alpha range is introduced in Table (5.16), from 0.868 to 0.920, Which satisfies the reliability minimum level needed. The accuracy and reliability of the measurements are displayed by the scores. The greatest reliable data in the research belongs to the Environmental Factors Cronbach's alpha (0.920). This Means that this construct has a collection of items that can be used to assess the environmental factors, which are signified by competitive pressure and vendor support. While the intention to implement the CC construct expresses the lowest value of Cronbach's alpha with 0.868. The requirement of reliability was accomplished based on the overall results for Cronbach's alpha. To summarize, the scores of Cronbach's alpha for the research scale revealed that each of the six constructs is reliable.

Table 0.1): Measurement Model Cronbach's alpha range

Constructs	Name	Number of items	Cronbach's alpha > 0.7
TF	Technology Factors	13	0.892
OF	Organizational Factors	8	0.875
CF	Cultural Factors	9	0.870
EF	Environmental Factors	7	0.920

ISQ	Information system quality	7	0.916
IACC	Intention to adopt cloud computing	4	0.868
Total		48	0.911

Furthermore, for the assessment of the CFA reliability and validity, this research utilized the stats tool package as a guide (Wood et al., 2014). Table (5.17) represents the variables' AVE and Composite Reliability (CR) scores that indicate the confirmation of the scale reliability. Latent factors likecomposite reliability are more noteworthy than the satisfactory constraint of 0.60 (Awang, 2014), which encourages the constructs Convergent Validity. Additionally, the AVE is more prominent than the satisfactory constraint of 0.5 for constructs used in this study. AVE square root values are the numbers in bold, and the correlations estimate that the value between the constructs should be below the AVE square root value. To summarize, the constructs in this research met the validity and reliability requirements, implying that the measurement model had no validity issues.

Table 0.2): Reliability and Validity of the Constructs

	CR	AVE	MSV	CF	EF	TF	ISQ	OF
CF	0.865	0.512	0.156	**0.716**				
EF	0.872	0.809	0.337	0.269	**0.899**			
TF	0.892	0.532	0.3	0.192	0.581	**0.73**		
ISQ	0.845	0.775	0.461	0.38	0.429	0.548	**0.881**	
OF	0.852	0.598	0.038	0.306	0.329	0.425	0.413	**0.773**
IACC	0.877	0.629	0.319	0.395	0.298	0.34	0.679	0.196

Note: TF: Technology Factors, OF: Organizational Factors, CF: Cultural Factors, EF: Environmental Factors, ISQ: Information system quality, IACC: Intention to adopt cloud computing, Figures in Bold mean the square root of AVE

5.9 Hypotheses Testing

As mentioned in Chapter Three, this study tested five hypotheses based on the conceptual model between five different constructs. The model path analysis utilizing SEM was

utilized to discuss the study objectives and was selected as the method for analysis for the assessment of the research hypotheses.

5.9.1 The Model Path Analysis and Results (SEM)

Path analysis was created by Sewall Wright, a geneticist, in 1918, and it became a frame fordifferent regression statistical analyses that is utilized to survey causal models by analyzing the connections among two or more independent variables and a dependent variable. The researcher is required to utilize path examination in arranging tobetter understand the causal connections between distinctive variables. Moreover, it elucidates correlation and specifies the strength of a causal hypothesis (Lleras, 2005).

The latent constructs have been modelled on the structural model after their unidimensionality, reliability, and validity are developed. The SEM is a statistical instrument that can be utilized to simultaneously test multiple regression models and to analyze regression with the multicollinearity problem. Additionally, to model the inter-relationships between the variables. Furthermore, SEM is utilized to study the path analysis with numerous dependents and to assess the relationship and covariance within the model. To convert a double-headed arrow to a single-headed arrow, Figure (5.8) is used. The causal relationship or path is represented by a single-headed arrow. With single-headed arrows, path values connecting constructs OF, TF, EF, CF, ISQ, and IACC demonstrate standardized beta regression weights. The residual terms are applied to the endogenous constructs, and due to random fault, that hasn't been specifically modelled, each parameter (Res) denoting residual errors in the structural model. On the other hand, The error terms (e) address unusual errors caused by measurement constructs. The expected variance is represented by the values at the box's edge. The finalized diagram to be used in assessing SEM with AMOS is shown in Figure (5.8).

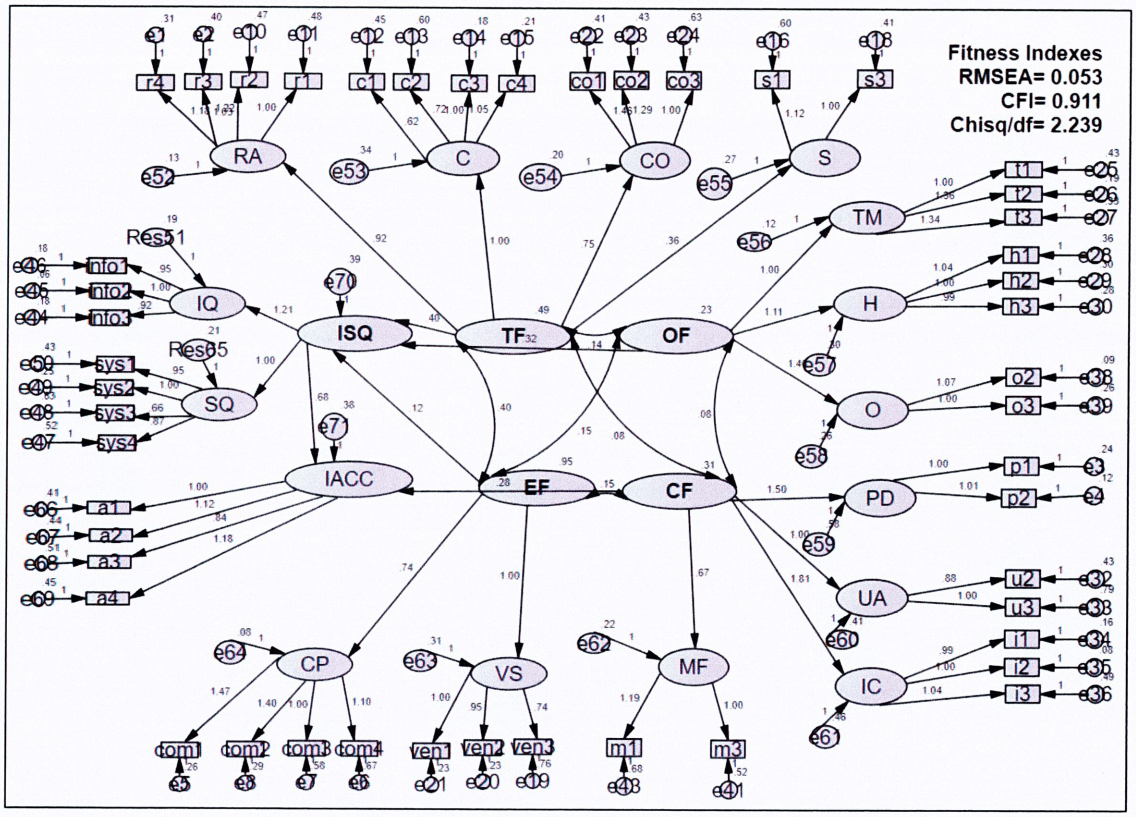


Figure (5.8): Path Analysis of the Structural Model

Figure (5.8) shows the basic model. The aim of this section is to evaluate the hypotheses' paths, structural model. Also, it identifies the unstandardized path coefficients for each hypothesized path. The regression path coefficient weight was utilized to assess the

research hypotheses.

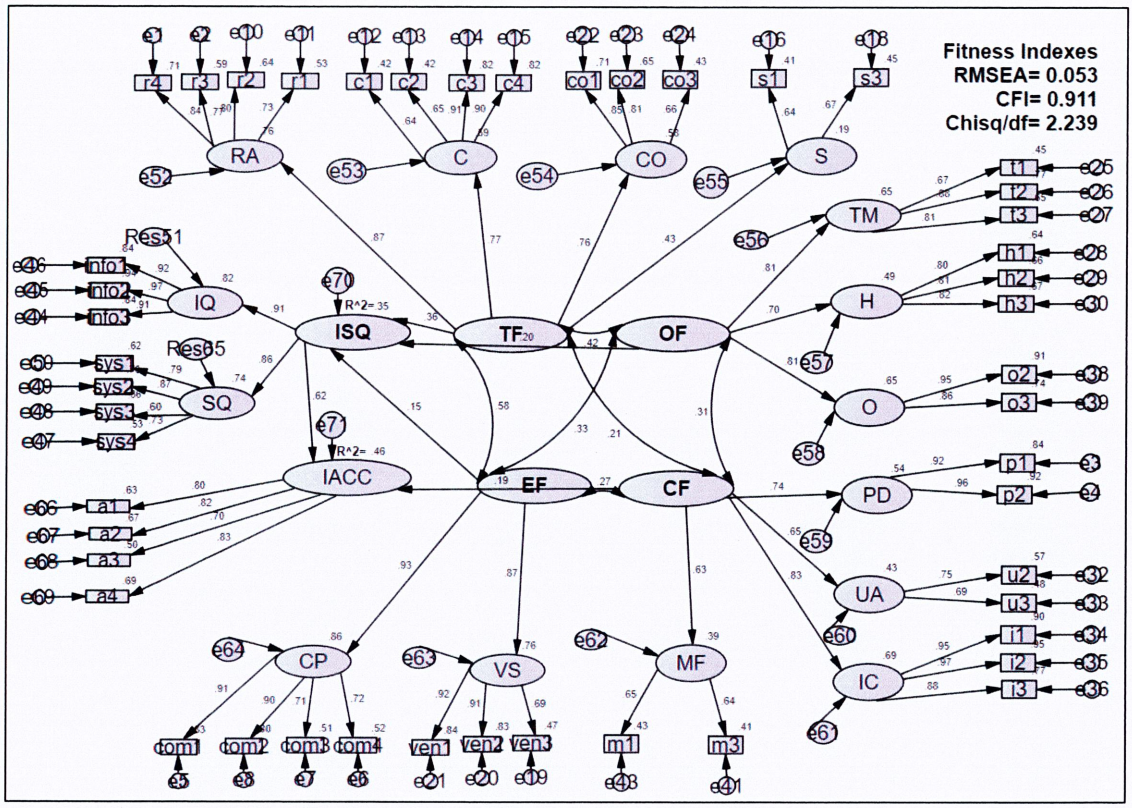


Figure (5.9): The Model Standardized Path Coefficients between Constructs

Figure (5.9) shows the standardized path coefficients for each hypothesized path as well as the determination coefficients (R^2) scores for the ISQ dependent variables and the intention to implement CC.

5.9.1.1 Hypothesis One (H1)

The study's first objective is illustrated in this part, which is to investigate technological, environmental, and organizational factors that impact Bahraini SMEs' information system quality. Technology factors consist of compatibility, relative advantage, security, and complexity. The organizational variables consist of organizational readiness, human readiness, and top management support. The environmental variables consist of vendor support and competitive pressure. Therefore, to address the following research hypotheses, the following analysis was conducted:

H1: *Technology factors have a positive impact on Bahraini SME's information system quality (ISQ).*

To anticipate the estimated the impact of technology factors on information system quality (ISQ) in Bahraini SMEs, the first hypothesis was established. The result illustrates that technology factors positively affect the ISQ. The first construct regression path coefficient has an anticipated value of 0.400, a standard error of 0.081, the critical ratio of 4.932, and a p-value < 0.001. The technology factors are labeled as TF. The information system quality is labeled as ISQ. As TF increases by one, ISQ increases by 0.400 units, according to the interpretation. The regression weight estimate estimated error (0.400) is 0.081. The critical Ratio (C.R.) is determined by dividing the regression weight estimate by the estimate of its standard error and it is 4.932. The regression weight estimate is 4.932 with a standard error value above zero. The possibility of obtaining a critical ratio (4.932) in absolute value is below 0.001. Particularly, the technological factors' regression weight to estimate the information system quality is essentially distinctive from zero at the level of 0.001. Thus, based on the results acquired hypothesis one is supported, and technology factors positively impact the information system quality, which supports hypothesis H1.

5.9.1.2 Hypothesis Two (H2)

Once the hypothesis testing of technology factors was conducted successfully, the researcher performs the second research hypothesis test. The second hypothesis was developed to estimate the effect of organizational factors on information system quality (ISQ) in Bahraini SMEs.

H2: *Organizational factors have a positive impact on Bahraini SMEs' information system quality (ISQ).*

The findings show that organizational factors positively affect the ISQ. The anticipated value of the construct regression path coefficient is 0.323, a standard error of 0.097, the critical ratio of 3.331, and p-value < 0.001. The organizational variables are denoted by OF. The information system quality is denoted by ISQ. As OF increases by one, ISQ increases by 0.323 units, based on the analysis. The regression weight estimated error (0.323) is 0.97. The critical Ratio (C.R.) is 3.331. The regression weight estimate is 3.331

with a standard error value above zero. The likelihood of obtaining a critical ratio (3.331) in absolute value, is below 0.001. Particularly, the organizational factors regression weight to estimate the information system quality is essentially distinctive from zero at the level of 0.001. Thus, based on the results acquired hypothesis two is supported, and organizational factors positively impact the information system quality, which supports hypothesis H2.

5.9.1.3 Hypothesis Three (H3)

After accomplishing the hypothesis assessment of technology factors and organizational effectiveness, the researcher moved to test the third research hypothesis. The third hypothesis was established to anticipate the influence of environmental variables on information system quality (ISQ) in Bahraini SMEs. Therefore, to address the following research hypotheses, the following analysis was conducted:

H3: *Environmental factors have a positive impact on Bahraini SMEs' information system quality (ISQ).*

The result illustrates that environmental factors positively affect the ISQ. The anticipated value of the construct regression path coefficient is 0.122, a standard error of 0.051, the critical ratio of 2.397, and p-value = 0.017. The environmental factors are labeled as EF. The information system quality is labeled as ISQ. As OF increases by one, ISQ increases by 0.122 units, based on the illumination. The regression weight estimated standard error (0.122) is around 0.051. The critical ratio of 2.397 is achieved (z=0.122/0.051=2.397). This indicates that the regression weight estimate is 2.397 with a standard error of more than zero. So, the possibility of obtaining a critical ratio (2.397) in absolute value is, below 0.001. Particularly, the environmental factors regression weight in the estimate of ISQ is essentially distinctive from zero at the level of 0.001. Hence, hypothesis H3 is supported.

Figure (5.9) also displays the standardized path coefficient calculated by the structural equation modelling procedure. The coefficient of determination (R^2) for information system quality (ISQ) is 0.35, which implies that 35% of the information system quality (ISQ) can be explained by the exogenous constructs, namely: Environmental Factors (EF),

Organizational Factors (OF), and Technology Factors (TF), with the last of which consisting of Complexity (CO), Compatibility (C), Security (S), Relative Advantage (RA), Human Readiness (H), Organizational Readiness (O), Top Management Support (TM), Vendor Support (VS), and Competitive Pressure (CP), respectively. It is estimated that the predictor for the information system quality (ISQ) explained 35% of its total variance. This means that 35% of the variation in information system quality (ISQ) is estimated by using environmental factors, organizational factors, and technology factors.

5.9.1.4 Hypothesis Four (H4)

After testing the hypothesis for organizational factors, technology factors, and environmental factors constructs, the researcher moved to test the fourth research hypothesis, which is the impact of the cultural factors on SME's behavioural purpose to implement CC in Bahrain. Cultural factors comprise of masculinity-femininity, individualism-collectivism, power distance, and uncertainty avoidance. The following analysis was executed to respond to the hypotheses of the study, and accomplish the second objective of this study. To assess the influence of cultural factors on the target to implement CC in Bahraini SMEs, the fourth hypothesis was established.

H4: *Cultural factors have a positive effect on SME's behavioural intention to adopt cloud computing in Bahrain.*

The result illustrates that cultural factors positively impact the aim to implement CC. The anticipated value of the construct regression path coefficient is 0.282. It has a standard error of 0.078, acritical ratio of 3.618, and p-value < 0.001. The cultural factors are labeled as CF. The intention to adopt CC is labeled as IACC. As CF increases by one, ISQ increases by 0.282 units, based on the explanation. The regression weight estimated error (0.282) is 0.078. The Critical Ratio (C.R.) is 3.618. This indicates that the regression weight estimate is 3.618 with a score of standard error above zero. The likelihood of obtaining a critical ratio (3.618) in absolute value, is below 0.001. Particularly, the cultural factors regression weight to forecast the purpose to adopt CC is essentially distinctive from zero at the level of 0.001. Thus, based on the results acquired hypothesis four is supported, and cultural variables positively impact the aim to implement CC, which supports hypothesis H4.

5.9.1.5 Hypothesis Five (H5)

After testing hypothesis four effectively, the researcher moved to test the fifth research hypothesis, which is the impact of Bahraini SMEs' information system quality on SMEs' behavioural intention to adopt CC in Bahrain. The ISQ consists of system quality and information quality. The following analysis was established, to attain the research's third objective and assess the stated hypothesis:

H5: *Bahraini SME's information system quality has a positive effect on SME's behavioural intention to adopt cloud computing in Bahrain.*

To assess the influence of information system quality on the purpose to implement CC in Bahrainis SME's, the fifth hypothesis was established. The result illustrates that ISQ positively affects the target to develop CC. The anticipated value of the construct regression path coefficient is 0.677. It has astandard error of 0.062, a critical ratio of 10.858, and a p-value < 0. 001. This indicates that when ISQ increases by 1, IACC goes up by 0.677 Units. The critical ratio is 10.858 (z=0.677/0.062=10.858). The regression weight estimate is 10.858 with standard error value beyond zero. The likelihood of obtaining a critical ratio (10.858) in the absolute score is under 0.001. Particularly, the ISQ regression weight in the expectation of IACC is essentially distinctive from zero at the level of 0.001. Thus, hypothesis H4 is sustained, and therefore, hypothesis H5 is supported. The results obtained show that information system quality positively affects the intention to implement CC, which supports hypothesis H5.

The standardized path coefficient assessed by the SEM is presented in Figure (5.9). The model estimates that the coefficient of determination (R^2) for the purpose to implement CC is to be about 0.46. This indicates that 46% of the variation in the aim to implement CC is clarified by the information system quality (ISQ) construct. Figure (5.9) shows that the predictor for the target to develop CC explained 0.46 of its total variances, thereby implying that 46% of the variation in intention to adopt CC is demonstrated by the information system quality (ISQ) construct.

5.10 Summary of Hypotheses Testing

The exogenous construct regression path coefficient weight (environmental, technology, cultural, and organizational variables) and endogenous constructs (ISQ and intention to adopt CC) to assess the model are exhibited in Table (5.18). While the p-value for the hypotheses, H1, H2, H4, and H5 are below 0.001, and hypothesis H3 has a p-value of 0.017, which meets the standard limit of 0.05, it indicates the hypotheses, H1, H2, H3, H4, and H5 in the measurement model are sustained. Thus, all the research hypotheses are supported.

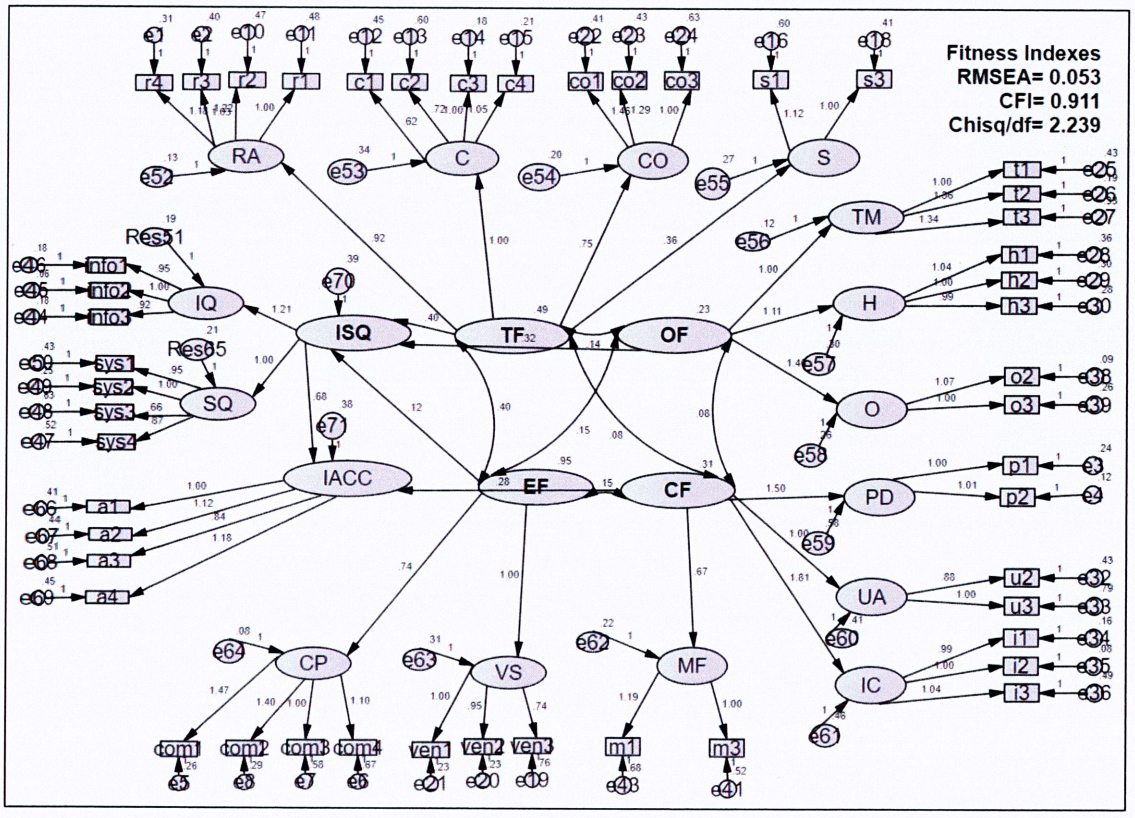


Figure (5.10): The Model Regression Path Coefficient

Table (0.1): The Model Regression Path Coefficient Weight

Hypothesis Path	Hypothesis Statement	Estimate	P-value	Hypothesis Result
TF → ISQ	Technology factors positively affect Bahraini SMEs' information system quality.	0.400	000	Supported

OF → ISQ	Organizational factors positively affect Bahraini SMEs' information system quality.	0.323	000	Supported
EF → ISQ	Environmental factors positively affect Bahraini SMEs' information system quality.	0.122	0.017	Supported
CF →IACC	Cultural factors positively affect SMEs' behavioural intention to adopt cloud computing in Bahrain.	0.282	000	Supported
ISQ→IACC	Bahraini SME's information system quality positively affects SME's behavioural intention to adopt cloud computing in Bahrain.	0.677	000	Supported

Note: p< 0.05, N=444, TF: Technology Factors, OF: Organizational Factors, CF: Cultural Factors, EF: Environmental Factors, ISQ: Information system quality, IACC: Intention to adopt cloud computing.

444 samples were utilized in this research to anticipate the path coefficient using AMOS. Figure (5.2) displays the hypothesized path, path coefficient, and the corresponding B values path coefficient, which designates the importance of the coefficient (p-value <0.05). The squared multiple correlation (R^2) values for the dependent variables, which are ISQ, and purpose to implement CC, are illustrated in Figure (5.9). All of the hypothesized paths are important, as can be seen from the results. The overall outcomes of the complete measurement model indicate that the effect of organizational factors on information system quality (B=0.323, p < 0.001), the impact of technology factors on ISQ (B=0.400, p < 0.001), the influence of environmental factors on ISQ (B=0.122, p = 0.017), the effect of cultural factors on IACC (B=0.282, P < 0.001), the effect of ISQ on IACC (B = 0677, p < 0.001), are all considerably positive. Thus, all the five propositioned hypotheses are supported. The effects on information system quality are 0.400 for technology variables, 0.323 for organizational variables, and 0.122 for environmental variables. The total influence on the purpose to implement CC is 0.282 for cultural factors and 0.677 for information system quality. Furthermore, a total of 46% of the variance of the target to develop CC is described by cultural variables and information system quality. Furthermore, 35% of the variance of information system quality is elucidated by organizational factors, technology factors, and environmental factors.

All the dimensions were substantial, based on the results of the Bahraini SMEs and the outcomes obtained from the structural model and measurement. Five hypotheses were examined in this study. The empirical outcomes indicate support for all the proposed hypotheses. The outline of the hypotheses testing results is shown in Table (5.19).

Table (0.2): Summary of the Results of Testing the Hypothesis

search Objectives	**Research Questions**	**Research Hypotheses**	**Estimate**	**Results**
explore important factors chnology, organizational, l environmental factors) t impact Bahraini SMEs' ormation systems quality.	What are the important factors that impact Bahraini SMEs' information system quality?	Technology factors positively affect Bahraini SMEs' information system quality.	0.400	Technology factors positively impact ISQ
		Organizational factors positively affect Bahraini SMEs' information system quality.	0.323	Organizational factors positively impact ISQ
		Environmental factors positively affect Bahraini SMEs' information system quality.	0.122	Environmental factors positively impact ISQ
examine the effect of tural factors on the IE's behavioural intention adopt cloud computing in hrain.	How do cultural factors impact the SME's behavioural intention to adopt cloud computing in Bahrain?	Cultural factors positively affect SMEs' behavioural intention to adopt cloud computing in Bahrain.	0.282	Cultural factors positively impact IACC
evaluate the effect of ormation systems quality the SME's behavioural ention to adopt cloud nputing in Bahrain.	How does information system quality impact the SME's behavioural intention to adopt cloud computing in Bahrain?	Bahraini SME's information system quality positively affects SME's behavioural intention to adopt cloud computing in Bahrain.	0.677	ISQ positively impacts IACC

5.11 Conclusion

The data analysis and results were discussed in chapter five. there was a total of 444 questionnaires utilized in this research. For outliers, missing data, and normality, data screening was conducted. The research performed a measurement to assess the model, as

well as an evaluation of a model path analysis and the whole model. Then, the hypotheses were evaluated utilizing AMOS software and SEM. As discussed earlier in chapter one, the purpose of this research is to explore the effect of national culture and information system quality on SME's behavioural intention to implement CC in Bahrain. Overall, the findings show that cultural factors and information system quality positively impact SMEs' behavioural aim to implement CC in Bahrain. In addition to that, the research results offer a clear picture of the relationship among technology factors, organizational factors, environmental factors, cultural factors, information system quality, and the intention to adopt CC.

To sum up, this research has explored the important factors that impact Bahraini SMEs' information system quality, and it examined the influence of cultural variables on the SME's behavioural intention to develop CC in Bahrain. It has also assessed the impact of information system quality on the SME's behavioural intention to develop CC in Bahrain. By developing a structural model that introduces the National culture and ISQ Framework, this research has answered all the study questions. The model supported all the research hypotheses which prove that the technology, organizational, and environmental factors have a positive effect on Bahraini SME's information system quality. Additionally, it emphasized that cultural factors and information system quality positively affect SMEs' behavioural intention to adopt CC in Bahrain.

Finally, this research has offered a valuable contribution to contemporary literature on this topic and it has offered insights for for practitioners, managers and organizations to advance further in the future. This empirical research assessed the suggested model and utilized it to evaluate the influence of national culture and information system quality on SME's behavioural intention to adopt CC in Bahrain.

Chapter Six: Discussion

6.1 Introduction

Chapter six offers a summary of the study. It is structured into four sections. The discussion of the result is explored at length in section three. After that, in the final segment, a summary of the overall outcome of the study is discussed.

6.2 Research Overview

The major target of this study was to explore the effect of national culture and information system quality on CC implementation in Bahraini SMEs. To address this general objective, quantitative research was utilizedd to evaluate and discover the relationship of the theoretical constructs in the model. As deliberated in chapter five, structural equation modeling has encountered the fit-for-purpose indexes, and the regression analysis results back up the suggested hypotheses. These findings motivated the researcher to provide a strong description and discussion of the findings. Most of the results were supported by the tables and figures in chapter five. The following section discusses the study's findings and presents the similarities and differences between the results of this study and previous studies.

6.3 Discussion of the Findings

According to the empirical data explored in chapter five, the intention to implement CC was measured via the items with a factor loading of 0.80, 0.82, 0.70, and 0.83. Many of the respondents agreed with the statements given to the items in this study (see Figure 5.1). Moreover, the information system quality and cultural factors were among the variables influencing the intention to adopt CC. Generally, most of the respondents were partially going to adopt cloud computing (89.9%), and only (10.1%) were fully going to adopt cloud computing in their enterprise (see Table 21). The following sub-sections deliberate this research's findings, according to the objective of the study.

6.3.1 Technology Factors

Technology factors were proposed in this study as one of the constructs impacting Bahraini SMEs' information system quality. This research addressed the second study objective, by

assessing the correlation between technology factors and Bahraini SME's information system quality.

One of the research hypotheses was proposed to test the impact of technology factors on Bahraini SMEs' information system quality. According to the results obtained in the previous chapter, the estimated value was positive and significantly impacted information system quality with a p-value < 0.001. The study's outcomes aid the hypothesized influence of technology factors on Bahraini SMEs' information system quality. Furthermore, the result of this study determined that technology factors: complexity, relative advantage, compatibility, and security, have an essential positive impact on ISQ (B = 0.400, P < 0.001). This outcome shows that if more attention is given to technological factors, more SMEs in Bahrain will have anintention to implement CC.

6.3.2 Organizational Factors

The organizational factors: organizational readiness, top management support, and human readiness, were classified as among the other constructs impacting Bahraini SMEs' information system quality. This research addressed the second research objective, by evaluating the connection between organizational factors and Bahraini SMEs' information system quality. Another research hypothesis was developed to assess the effect of organizational factors on Bahraini SMEs' information system quality. According to the results obtained in chapter five, the results show that the estimated value was positive and significantly impacted information system quality with a p-value < 0.001. The study's results match the hypothesized impact of organizational factors on Bahraini SMEs' information system quality. Moreover, the research's outcome specified that organizational factors: human readiness, organizational readiness, and top management support positively affect information system quality. These findings propose that more attention must be given to the organizational factors, which increases the Bahraini SMEs' intention to implement CC.

6.3.3 Environmental Factors

Environmental factors, such as competitive pressure, and vendor support, were recognized among the other constructs impacting Bahraini SMEs' information system quality. This research addressed the second research objective, by evaluating the correlation between environmental factors and Bahraini SMEs' information system quality. Another research

hypothesis was established to investigate the influence of environmental factors on Bahraini SMEs' information system quality. According to the results obtained in chapter five, the results show that the estimated value was positive and significantly impacted information system quality with a p-value = 0.017, which meets the standard limit of 0.05. The outcomes from this research confirm the hypothesized influence of environmental factors on Bahraini SMEs' information system quality. Moreover, the result of this study indicated that environmental factors: competitive pressure, and vendor support positively affect information system quality and suggests that more attention must be given to environmental factors, as they canincrease Bahraini SMEs' willingness to develop CC.

6.3.4 Cultural Factors

For the third objective, this research examined cultural factors as one of the constructs impacting SMEs' behavioural intention to adopt CC in Bahrain.

The third objective of this research was addressed by assessing the connections between cultural factors and SMEs' behavioural intention to adopt CC in Bahrain. One of the research hypotheses was proposed to test the impact of cultural factors on Bahraini SMEs' behavioural intention to adopt cloud computing. According to the outcomes obtained in chapter five, the anticipated score was positive and significantly affected the purpose to develop CC with a p-value < 0.001. The outcomes from this research confirm the hypothesized effect of cultural factors on Bahraini SMEs' behavioural intention to adopt cloud computing. Furthermore, the results implied that cultural factors: individualism-collectivism, power distance, uncertainty avoidance, and masculinity-femininity have an essential positive impact on the aim to implement CC with ($B = 0.282$, $P < 0.001$). This indicates that the fourth hypothesis confirmed that cultural factors positively affect the SMEs' behavioural purpose to implement CC in Bahrain. Given the supported hypothesis, cultural factors estimated a significant total variance in the intention to adopt cloud computing. However, none of the previous studies in this field considered the cultural factors' influence on the aim to implement CC. To face this gap, the result of this study revealed that cultural factors have a practical effect on the intention to implement CC in the comprehensive measurement model testing. This finding suggests that special attention should be given to this construct as it assists the Bahraini SMEs in increasing their behavioural intention to adopt CC.

6.3.5 Bahraini SME's Information System Quality

As mentioned above, Bahraini SMEs' information system quality was used as an endogenous construct measured by system quality and information quality. The fourth objective was to define the connection between Bahrainis SME's ISQ and SMEs' behavioural intention to adopt CC in Bahrain. Another hypothesis was proposed to assess the influence of Bahrainis SME's ISQ on SMEs' behavioural intention to adopt CC in Bahrain.

The research hypotheses, questions, objectives, and results summary are presented in Table (5.19). Based on the outcomes, the estimated score was positive and significantly affected the intention to implement CC with ($B = 0.677$, p-value < 0.001. This indicates that the fifth hypothesis confirmed that Bahraini SMEs' information system quality positively affects SMEs' behavioural aim to develop CC in Bahrain. Based on the supported hypothesis, ISQ estimated a significant amount of variance in the intention to adopt CC. However, none of the previous studies in this field considered the impact of the information system quality on the intention to implement CC. To address this gap, the research's results revealed that ISQ has a substantial influence on the purpose to implement CC in the overall measurement model testing. This finding suggests that adequate information system quality in SMEs results in greater intention to adopt cloud computing.

6.3.6 Bahraini SME's Behavioral Intention to Adopt Cloud Computing

Four exogenous constructs, namely: organizational factors, technology factors, environmental factors, and cultural factors, and two endogenous constructs, namely: Bahraini SMEs' information system quality and SMEs' behavioural intention to adopt CC in Bahrain were utilized. Environmental factors, organizational factors, and technology factors were utilized to assess the information system quality. The information system quality construct was used to measure the purpose to implement CC. Information system quality and cultural factors positively affect the intention to adopt cloud computing as the outcome pointed. The overall findings support the hypothesized role of cultural factors in influencing SMEs' behavioural aim to develop CC in Bahrain and the impact of information stem quality on SME's behavioural purpose to implement CC in Bahrain.

The research gaps have been addressed, as there was a shortage of experiential studies to investigate the influence of national culture and ISQ on CC implementation in Bahraini

SMEs. The outcomes revealed that organizational factors, environmental factors, and technology factors positively impact the ISQ and support the correlation between ISQ and SME's behavioural aim to develop CC in Bahrain. Hence, the fourth research objective has been addressed by developing a structural model (National Culture and Information System Quality (ISQ) Framework). Conducting SEM procedures to analyze the data and using a sample size of 444 from SMEs in Bahrain. From the above discussion, it could be concluded that both constructs, information system quality, and cultural factors play a very vital part in developing and improving the SMEs' behavioral intention to adopt CC.

Table (0.20): Summary of the Findings

Research Objectives	Summary of the findings
To explore important factors that impact Bahraini SMEs' information system quality.	The factors are: Technology, Organizational, and Environmental factors.
Technology factors	Technology factors positively impact Bahraini SMEs' information system quality.
Organizational factors	Organizational factors positively impact Bahraini SMEs' information system quality.
Environmental factors	Environmental factors positively impact Bahraini SMEs' information system quality.
To examine the impact of cultural factors on the SME's behavioural intention to adopt cloud computing in Bahrain.	Cultural factors positively impact SMEs' behavioural intention to adopt cloud computing in Bahrain.
To assess the effects of information system quality on the SME's behavioural intention to adopt cloud computing in Bahrain.	Information system quality positively impacts SME's behavioural intention to adopt cloud computing in Bahrain.
To develop a structural model that introduces the National culture and ISQ Framework.	The model has been developed, Chapter three discussed the National Culture and ISQ Framework.

6.4 Conclusion

As discussed earlier, the study's target is to assess the influence of national culture and information system quality on CC adoption in Bahraini SMEs. Overall, the findings demonstrate that most of the SMEs from the sample have the intention to partially implement CC in Bahrain. The outcomes contribute to evaluating the purpose to develop CC in SMEs in Bahrain. Hence, the outcomes suggest that SMEs in Bahrain should focus more on two important factors, namely: cultural factors and information system quality, which have a strong influence on the behavioural intention to implement CC. To sum up, this research has concentrated on the entire study objectives and responded to all the study questions, followed by the research hypothesis. It makes an essential contribution to the study of SMEs' behavioural intention to implement CC and it offers valuable insights which can assist enterprises to go one step further in the future. This experimental study assessed the developed model and used it to assess the effect of national culture and ISQ on CC adoption in Bahraini SMEs.

Chapter Seven: Conclusion and Implications

7.1 Introduction

This chapter is separated into five main areas. The following part presents the implications of the research's outcomes from practical and theoretical viewpoints. Section three covers the limitations of the study. The next section offers recommendations for future work. Finally, the overall findings of the study will be presented.

7.2 Research Implications

The practical and theoretical implications will be deliberated in the following sub-sections.

7.2.1 Theoretical Implications

First, this study concentrates on the examination of the intention to implement CC in SMEs in Bahrain and the impact of cultural factors and Bahraini SMEs' information system quality on the behavioral aim to implement CC. A comprehensive framework according to an extensive evaluation of the literature has been developed. Thus, the research's empirical outcomes would be a great basis of information to explain the construction of theory for the study of SMEs' behavioral purpose to implement CC.

Secondly, the study's strength is that there are currently no official research papers that assess the impact of cultural factors and ISQ on the SMEs' behavioral aim to develop CC in Bahrain. The study of the intention to adopt cloud computing is a global concern that this research has hoped to address using three strong global models.

Third, this study has aimed to develop a novel research model that explains the correlation between the constructs and adds new variables to the model. This could help future researchers better understand the concept of SMEs' behavioural intention to adopt CC, which is impacted by information system quality and national culture.

7.2.2 Practical Implications

The research outcomes offer a comprehensive framework that might be helpful to SMEs in realizing and recognizing the significant variables that impact their goal to develop CC. Cultural factors and information system quality in this research were examined to measure their influence on SMEs' behavioural purpose to implement CC. The outcomes gained

could have implications for an enterprise's strategic planning to fulfill the requirements needed to adopt cloud computing.

7.3 The Limitations of the Study

The research outcomes are limited to a sample of SMEs in Bahrain. First, the results should be accurately perceived because they come from a Bahraini SMEs sample that may not mirror SMEs behavioural intention to implement CC in other countries. This is because the SMEs in other nations may have different cultures and environments. Accordingly, the outcomes may not be generalized beyond Bahrain. It is advised that comprehensive research from different countries be directed to expand the generalizability of this study.

Secondly, the data collected in this research is only reliable for answering a particular question: What is the influence of national culture and ISQ on SME's behavioural intention to develop CC in Bahrain? Hence, the limitation on the sample size of the SMEs indicates a generalizable limitation of the study.

Third, many factors may contribute to the effect on behavioural purpose to develop CC in SMEs. The most main vital variables that impact the intention to adopt CC based on a literature review have been selected, as shown in the research framework.

Finally, there is a lack in the measurement of intention to use cloud computing, as developing cloud computing cloud mean different aspects of partial CC implementation to full adoption of CC. The limitation in this research is that the researcher has not measured levels of adoption and it is considered a significant limitation because an organization that simply stores a document on google drive could be regarded as using cloud computing partially. Additionally, future researchers could investigate the impact of national culture variables on the organizational level and whether it could affect the cloud computing adoption within the organization.

7.4 Future Works

The following recommendations and guidelines are provided for future researchers interested in studying the role of various factors in the intention to implement CC.

This study was focused on SMEs that have the intention to develop CC in Bahrain. A duplication of the study in other sectors could help to build the generalizability of the outcomes. This study recommends a comparative study with a more comprehensive sample from different countries.

Although this study examined the cultural factors and information system quality influence on the purpose to develop CC, future researchers could investigate other factors that could impact and affect the intention to adopt CC.

7.5 Published from this Research

The researcher has submitted a conference paper to the IEEE (Hafezi & Zolait., 2019) and this denotes the output of the research.

7.6 Conclusion

This research examined in depth the role of variables, such as culture and information system quality, organizational, environmental, technology among SMEs which have an intention to develop CC. The study's objective is concerned with exploring the impact of information system quality and cultural factors in the SME's behavioural intention to adopt cloud computing in Bahrain. This research also tests the research hypothesis by using structural equation modeling. Structural equation modeling showed that information system quality and cultural factors estimate a high degree of variation in SME's behavioural purpose to develop CC in Bahrain. The study's model was built to review a wide range of literature on information system quality, national culture, SMEs, and CC implementation to respond to the general question of this study: What is the impact of national culture and information system quality on SME's behavioural purpose to implement CC in Bahrain?. This study answered this question and added to the literature with respect to specific factors impacting the SME's behavioural aim to develop CC in Bahrain. The results confirmed that cultural factors and information system quality positively affect the SME's behavioural purpose to implement CC in Bahrain in a significant manner. This implies that cultural factors and information system quality

appeared as contributing factors and they have a fundamental role in the SME's behavioural aim to implement CC in Bahrain. The outcomes of this empirical research addressed the research objectives, answered the questions of the research, as well as supported the research hypotheses, and closed the study gaps.

Moreover, this study also discussed the research limitations and provided recommendations and guidelines for future research. To conclude, this study hopes that the recommendations provided can help the relevant parties and executives concerned about the intention to adopt CC.

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الملخص

تقيّم هذه الدراسة تأثير الثقافة الوطنية وجودة نظام المعلومات على تنفيذ الحوسبة السحابية للشركات الصغيرة والمتوسطة في مملكة البحرين. ولتحقيق ذلك ، استخدم الباحث نمذجة المعادلات الهيكلية لاختبار فرضيات مختلفة واعتمد على النهج الكمي طوال عملية البحث.

تم جمع البيانات من الشركات البحرينية الصغيرة والمتوسطة التي كانت مهتمة بتطبيق الحوسبة السحابية في أعمالها.

في المجموع ، تم الحصول على 444 إجابة من استبيان عبر الإنترنت تم توزيعه على عينة عشوائية من المشاركين من البحرين. تم تطوير نموذج هيكلي (الثقافة الوطنية وإطارجودة نظام المعلومات) باستخدام عوامل من ثلاثة نماذج قوية ودولية.

تساهم هذه الدراسة في تكوين مجموعة المعارف عن الحوسبة السحابية من خلال عرض خصوصيات تنفيذها في السياق البحريني. يشير هذا البحث إلى أن جودة أنظمة المعلومات تؤثر بشكل كبير على الهدف السلوكي للشركات الصغيرة والمتوسطة لتطبيق الحوسبة السحابية في البحرين. ثانيًا ، تؤثر العوامل الثقافية بشكل كبير على الهدف السلوكي للشركات الصغيرة والمتوسطة لتبني الحوسبة السحابية في البحرين. ثالثًا ، تؤثر العوامل التكنولوجية بشكل إيجابي على جودة أنظمة المعلومات في الشركات البحرينية الصغيرة والمتوسطة. رابعًا ، العوامل التنظيمية تؤثر بشكل إيجابي على جودة أنظمة المعلومات في الشركات البحرينية الصغيرة والمتوسطة. خامسًا ، العوامل البيئية تؤثر إيجابًا على جودة أنظمة المعلومات في الشركات البحرينية الصغيرة والمتوسطة.

نظرًا لأن عينة البحث هذه لا تشمل سوى مؤسسات القطاع الخاص ، فقد تنظر الدراسات المستقبلية في المنظمات الأخرى وقد تفكر أيضًا في استخدام حجم عينة أوسع يشمل العديد من البلدان لفهم المتغيرات الجغرافية والثقافية المتعلقة بتطوير الحوسبة السحابية بشكل أفضل.

(استمارة إيداع البحث)

اسم الباحث: نسرين علي حافظي حقاني

عنوان البحث: **تأثير الثقافة الوطنية وجودة نظام المعلومات على اعتماد الحوسبة السحابية من قبل الشركات الصغيرة والمتوسطة في مملكة البحرين**

سنة النشر: ٢٠٢١

الكلية: كلية تقنية المعلومات

البريد الإلكتروني: n.hafezi9@hotmail.com

رقم الاتصال: ٦٦٩٩٤٩٤٩ القسم: ---

إقرار الباحث بالموافقة على الشروط التالية:

يحق لجامعة البحرين إتاحة وتوفير الرسالة أو الأطروحة المذكورة أعلاه في مكتبة الجامعة أو من خلال موقع الحاوية العلمية للجامعة أو على نطاق أوسع في الخارج؛ كما ويمكن إعادة طباعة الرسالة إذا اقتضت الحاجة لذلك أو رقمنتها مع إتاحتها على شبكة الأنترنت وذلك حسب تقدير إدارة الجامعة.

تنطبق هذه الشروط على جميع النسخ بما في ذلك النسخ الإلكترونية

تعتبر هذه الرسالة أو الأطروحة من المواد المحمية والتي تخضع إلى حقوق النشر والتأليف، ولا يجوز نشر أي اقتباس من الرسالة بدون توثيق المصدر.

توقيع الباحث:

التاريخ: ٠١-١١-٢٠٢١

جامعة البحرين

كلية تقنية المعلومات



تأثير الثقافة الوطنية وجودة نظام المعلومات على اعتماد الحوسبة السحابية من قبل الشركات الصغيرة والمتوسطة في مملكة البحرين

مخطط بحث لاستكمال متطلبات الحصول على درجة الماجستير في تقنية المعلومات

إعداد

نسرين علي حافظي حقاني

الرقم الجامعي: 20112791

إشراف

د. علي زليط

(أستاذ المساعد)

جامعة البحرين

مملكة البحرين

يونيو، 2021

Appendices

Appendix (A)

Table for determining the sample size from a given population:

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	246
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	351
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	181	1200	291	6000	361
45	40	180	118	400	196	1300	297	7000	364
50	44	190	123	420	201	1400	302	8000	367
55	48	200	127	440	205	1500	306	9000	368
60	52	210	132	460	210	1600	310	10000	373
65	56	220	136	480	214	1700	313	15000	375
70	59	230	140	500	217	1800	317	20000	377
75	63	240	144	550	225	1900	320	30000	379
80	66	250	148	600	234	2000	322	40000	380
85	70	260	152	650	242	2200	327	50000	381
90	73	270	155	700	248	2400	331	75000	382
95	76	270	159	750	256	2600	335	100000	384

Note: N= Population Size, **S**= Sample Size

Appendix (B)

Final updated Questionnaire submitted to the respondents:



UNIVERSITY OF BAHRAIN

College of Information Technology

Impact of National Culture and Information System Quality (ISQ) on Cloud Computing Adoption by SMEs in the Kingdom of Bahrain

This Research Project is supervised by:

Dr. Ali Zolait

Student's name: Nassrin Ali Hafezi Haghani

ID number: 20112791

Dear respondents,

This is Nasreen Hafezi, a postgraduate student at UOB completing a research project as fulfillment for my master's degree in IT. The aim of this study is to assess the impact of ISQ and national culture on SME's behavioral intention to implement CC in the Kingdom of Bahrain. The target group of this study is executives, managers, and operational staff. Your contribution in completing this survey is essential to the study's progress. It will take you about 10 minutes to complete the survey. Your response will be kept confidential.

Brief about the study:

CC is the advancement of the internet ("cloud") and its major objective is user-defined experience and customization as well as the utilization of computer technology ("computing"). It is computed as a utility; it can transform a large segment of the IT industry and changed the approach IT hardware is constructed and acquired as well as making software more appealing and interesting as a service. It has been proposed as a paradigm shift in IT services and resource delivery. Also, it has altered the essential building blocks of computing and the way it is being used in businesses, organizations, and individual operations.

PART 1: Respondents' Profile

Please tick only one circle that matches the correct option

Does your organization currently use cloud computing?

- o Yes
- o No

Does your organization intend to adopt cloud computing in the near future?

- o Yes, partially going to adopt cloud computing
- o Yes, fully going to adopt cloud computing

What is your role in the organization?

- o Executive
- o Managerial
- o Operational

Gender:

- Female
- Male

Age:

- 23-30
- 31-40
- 41 and above

Organization Sector:

- Banking and finance
- Retailing
- Manufacturing
- Entertainment (Travel, Hotel, etc.)
- Construction
- Catering
- Services
- Other

How long have you been in your position?

- Less than 2 years
- 2-5 years
- 6-9 years
- Above 9

What is your level of education?

- Doctorate degree
- Master's degree
- Bachelor's degree
- Diploma or below

PART 2: Questions

Part A: Intention to Adopt Cloud Computing

Please specify the level you approve or conflict with the construct's items, where 1=Strongly Disagree, 2=Disagree, 3=Slightly Disagree, 4=Neutral, 5=Slightly Agree, 6=Agree, 7=Strongly Agree.

Intention to Adopt Cloud Computing: Refers to the organizations' intention to accept or implement CC.

No	Statements	Rating						
1	The organization expects that using cloud computing services will be advantageous.	1	2	3	4	5	6	7
2	The organization prefers to use cloud computing services.	1	2	3	4	5	6	7
3	The organization does not intend to adopt cloud computing services in the future.	1	2	3	4	5	6	7
4	The organization intends to adopt cloud computing services in the next two years.	1	2	3	4	5	6	7

Part B: Technological Factors

Please specify the level you approve or conflict with the construct's items, where 1=Strongly Disagree, 2=Disagree, 3=Slightly Disagree, 4=Neutral, 5=Slightly Agree, 6=Agree, 7=Strongly Agree.

Relative Advantage: Indicates how much cloud computing is seen as benefiting the enterprise.

No	Statements	Rating						
1	Cloud computing will allow the organization to accomplish specific tasks more quickly.	1	2	3	4	5	6	7
2	Cloud computing will not increase the productivity of the organization's staff.	1	2	3	4	5	6	7
3	Using cloud computing will allow the organization to access information from any time and place.	1	2	3	4	5	6	7
4	Using cloud computing will allow the organization to access the shared resources placed on a cloud.	1	2	3	4	5	6	7

Compatibility: The level to which cloud computing is considered to be consistent with the organization's current standards, prior experience, and requirements.

No	Statements	Rating						
1	Cloud computing technology will be compatible with the organization's existing format, interface, and other structural data.	1	2	3	4	5	6	7
2	The changes introduced by cloud computing will be consistent with existing practices in the organization.	1	2	3	4	5	6	7
3	Cloud computing technology will be compatible with the current organization's IT infrastructure (hardware/software).	1	2	3	4	5	6	7
4	Cloud computing services will not be compatible with the current business strategy of the organization.	1	2	3	4	5	6	7

Complexity: The level to which cloud computing is viewed as being complicated to understand or use by employees within a company.

No	Statements	Rating						
1	The organization's staff will not be flexible to interact with cloud computing.	1	2	3	4	5	6	7
2	It is easy to emigrate the existing work with the cloud-based services when using cloud computing.	1	2	3	4	5	6	7
3	It is easy to perform many tasks at one time when using cloud computing.	1	2	3	4	5	6	7

Security: Refers to managing the privacy and risk management issues that arise during the development of cloud computing.

No	Statements	Rating						
1	The employees will be able to detect unauthorized data on the internal system when using cloud computing.	1	2	3	4	5	6	7
2	It will be secure for the organization to import existing data when using cloud computing.	1	2	3	4	5	6	7
3	Cloud computing will not be a security risk.	1	2	3	4	5	6	7

Part C: Organizational Factors

Please specify the level you approve or conflict with the construct's items, where 1=Strongly Disagree, 2=Disagree, 3=Slightly Disagree, 4=Neutral, 5=Slightly Agree, 6=Agree, 7=Strongly Agree.

Top Management Support: Refers to the actions and encouragement of top officials on the usefulness of cloud computing.

No	Statements	Rating						
1	The organization's top management in favor involves itself in the cloud computing process when it comes to IS/IT projects.	1	2	3	4	5	6	7
2	The organization's top management in favor supports the adoption of cloud computing.	1	2	3	4	5	6	7
3	The organization's top management is willing to take risks (financial and organizational) involved in the adoption of cloud computing.	1	2	3	4	5	6	7

Human Readiness: Refers to the issues encountered by staff when an organization engages in the implementation of CC.

No	Statements	Rating						
1	In the organization, the organization staff does not have the appropriate knowledge that facilitates cloud computing adoption.	1	2	3	4	5	6	7
2	In the organization, the organization staff has the appropriate skills that facilitate cloud computing adoption.	1	2	3	4	5	6	7
3	In the organization, the organization staff has the appropriate adaptability that facilitates cloud computing adoption.	1	2	3	4	5	6	7

Organizational Readiness: Refers to an executive's understanding and assessment of whether or not their company has the necessary awareness, capital, dedication, and governance to develop cloud computing.

No	Statements	Rating						
1	The organization has the ability to provide cloud computing access to all its members.	1	2	3	4	5	6	7
2	The organization's IT infrastructure can support the adoption of cloud computing.	1	2	3	4	5	6	7
3	The organization makes the best use of IT resources to adopt cloud computing.	1	2	3	4	5	6	7
4	The organization does not have enough budgets in order to implement cloud computing technology.	1	2	3	4	5	6	7

Part D: Cultural Factors

Please specify the level you approve or conflict with the construct's items, where 1=Strongly Disagree, 2=Disagree, 3=Slightly Disagree, 4=Neutral, 5=Slightly Agree, 6=Agree, 7=Strongly Agree.

Power distance: Implies to the variances of power dissemination, including individuals in the organization.

No	Statements	Rating						
1	Decision-making power stays with the top management in the organization.	1	2	3	4	5	6	7
2	Managers make most decisions without consulting subordinates.	1	2	3	4	5	6	7
3	Staff in the organization does not question their manager's decisions.	1	2	3	4	5	6	7

Uncertainty avoidance: Refers to an expression of a general sense of being challenged by ambiguity and a desire to stop it at all costs.

No	Statements	Rating						
1	Rules and regulations of the organization do not inform workers what the organization expects from them.	1	2	3	4	5	6	7
2	It is important to have a job requirement and instruction spelt out in detail so that staffs always know what they are expected to do.	1	2	3	4	5	6	7
3	In the organization, providing opportunities to be innovative is more important than requiring standardized work procedures.	1	2	3	4	5	6	7

Individualism-collectivism: It concentrates on the inquiries regarding whether individuals favor a network of close people or prefer being left alone to defend themselves.

No	Statements	Rating						
1	In the organization, being accepted as a member of a group is more important than being independent.	1	2	3	4	5	6	7
2	In the organization, group success is more important than individual success.	1	2	3	4	5	6	7
3	In the organization, being loyal to a group is more important than individual gain.	1	2	3	4	5	6	7

Masculinity-femininity: the masculine cultures represent a favorite in association for attainment, fearlessness and sensible reward for achievement. Femininity stands for a favorite for collaboration, humility, thought for the feeble and the value of living.

No	Statements	Rating						
1	In the organization, it is not preferable to have a man in high-level positions rather than a woman.	1	2	3	4	5	6	7
2	In the organization, solving organizational problems requires the active forcible approach, which is typical of men.	1	2	3	4	5	6	7
3	In the organization, the women do value recognition and promotion in their work as much as men do.	1	2	3	4	5	6	7

Part E: Quality Factors

Please specify the level you approve or conflict with the construct's items, where 1=Strongly Disagree, 2=Disagree, 3=Slightly Disagree, 4=Neutral, 5=Slightly Agree, 6=Agree, 7=Strongly Agree.

Information quality: Refers to the excellence of outputs that the IS produces.

No	Statements	Rating						
1	The use of cloud computing will not provide me with accurate information.	1	2	3	4	5	6	7
2	The use of cloud computing will provide me with up-to-date information.	1	2	3	4	5	6	7
3	The use of cloud computing will provide me, all the information I will need.	1	2	3	4	5	6	7

System quality: Implies to the overall efficiency of an IS processing, which involves both data and software components.

No	Statements	Rating						
1	When using cloud computing services, it will work correctly.	1	2	3	4	5	6	7
2	Cloud computing services will be available at all times.	1	2	3	4	5	6	7
3	The procedure of using cloud computing will not save the organization time.	1	2	3	4	5	6	7
4	The procedure of using cloud computing will save the organization expenses.	1	2	3	4	5	6	7

Part F: Environmental Factors

Please specify the level you approve or conflict with the construct's items, where 1=Strongly Disagree, 2=Disagree, 3=Slightly Disagree, 4=Neutral, 5=Slightly Agree, 6=Agree, 7=Strongly Agree.

Competitive pressure: Refers to both constraints and opportunities for cloud computing.

No	Statements	Rating						
1	The employees are aware of cloud computing implementation in their competitor organizations.	1	2	3	4	5	6	7
2	The employees are aware that the cloud computing implementation will help the organization to exceed its competitors.	1	2	3	4	5	6	7
3	In the organization, staff in the industry does not understand the competitive advantages offered by cloud computing.	1	2	3	4	5	6	7
4	The level of pressure from competitors will be reduced by adopting cloud computing.	1	2	3	4	5	6	7

Vendor support: Refers to the support of vendor to the organization by providing services such as consulting, education, training, maintenance and management of information system.

No	Statements	Rating						
1	The vendor will provide adequate technical support when the organization adopts cloud computing.	1	2	3	4	5	6	7
2	The vendor will provide high availability architecture, and tested platforms and applications for the readiness of cloud computing services.	1	2	3	4	5	6	7
3	When adopting cloud computing, I believe that a good relationship with other vendors will not be crucial.	1	2	3	4	5	6	7

Appendix (C)

Assessment of normality:

Variable	min	max	skew	c.r.	kurtosis	c.r.
m2	1.000	8.000	.814	7.005	.059	.254
u1	1.000	7.000	-1.669	-14.357	4.059	17.458
p3	3.000	7.000	.129	1.109	-.892	-3.838
o4	2.000	7.000	-.009	-.080	-.490	-2.108
o1	1.000	7.000	-1.246	-10.720	2.216	9.531
s2	3.000	7.000	-.162	-1.392	-.556	-2.391
sys3	3.000	7.000	.085	.733	-.925	-3.979
p2	1.000	7.000	-.405	-3.484	.089	.382
p1	1.000	7.000	-.409	-3.518	-.161	-.692
a3	2.000	7.000	-.456	-3.925	-.182	-.783
sys4	2.000	7.000	-.216	-1.861	-.213	-.915
info1	2.000	7.000	-.410	-3.527	.237	1.018
ven3	2.000	7.000	-.137	-1.183	-.718	-3.088
t3	2.000	7.000	-.232	-1.996	-.287	-1.232
co1	1.000	7.000	-.986	-8.481	1.305	5.613
c4	1.000	7.000	-.949	-8.162	1.527	6.569
r2	1.000	7.000	-1.083	-9.319	1.548	6.660
a2	1.000	7.000	-1.048	-9.014	1.336	5.746
com4	1.000	7.000	-.182	-1.567	-.018	-.075
r4	3.000	7.000	-.388	-3.339	-.503	-2.164
c3	2.000	7.000	-.685	-5.890	.641	2.758
c1	3.000	7.000	-.605	-5.205	.233	1.003
com1	1.000	7.000	-.740	-6.365	.434	1.867
com2	1.000	7.000	-.832	-7.160	.797	3.430
s3	2.000	8.000	-.253	-2.173	1.070	4.600
r1	2.000	7.000	-1.306	-11.230	2.306	9.918
sys1	2.000	7.000	-.286	-2.459	-.297	-1.278
info3	2.000	7.000	-.561	-4.827	.611	2.627
i3	1.000	7.000	-.931	-8.007	.528	2.272
ven1	1.000	7.000	-.364	-3.128	-.195	-.839
a1	1.000	7.000	-1.430	-12.304	2.800	12.045
c2	2.000	7.000	-.565	-4.860	-.074	-.319
a4	1.000	7.000	-.639	-5.497	.103	.441
sys2	2.000	7.000	-.366	-3.146	-.022	-.093
info2	2.000	7.000	-.457	-3.933	.250	1.077
m1	1.000	7.000	-1.133	-9.746	2.148	9.238
m3	1.000	7.000	-.757	-6.511	1.302	5.601

Variable	min	max	skew	c.r.	kurtosis	c.r.
o3	1.000	7.000	-.339	-2.917	.107	.462
o2	3.000	7.000	-.085	-.734	-.576	-2.478
i2	2.000	7.000	-.673	-5.788	.055	.235
i1	2.000	7.000	-.730	-6.280	.174	.749
u3	1.000	7.000	-.918	-7.893	.642	2.759
u2	1.000	7.000	-1.198	-10.309	2.291	9.856
h3	2.000	7.000	-.123	-1.057	-.199	-.856
h2	3.000	7.000	-.164	-1.408	-.599	-2.575
h1	3.000	7.000	-.155	-1.335	-.682	-2.935
t2	3.000	7.000	-.294	-2.532	-.257	-1.107
t1	3.000	8.000	-.291	-2.506	-.282	-1.211
co3	2.000	7.000	-.613	-5.270	.477	2.052
co2	1.000	7.000	-1.175	-10.108	2.088	8.982
ven2	1.000	7.000	-.455	-3.911	.197	.849
s1	2.000	7.000	-.772	-6.642	.254	1.094
r3	2.000	7.000	-.596	-5.125	.306	1.318
com3	2.000	7.000	-.308	-2.651	-.422	-1.813
Multivariate					261.930	35.485

Outlier's cases evaluation:
Further explanations beyond the Mahalanobis distance

Observation number	Mahalanobis d-squared	p1	p2
3	112.533	.000	.002
27	111.292	.000	.000
301	105.629	.000	.000
2	105.429	.000	.000
442	103.885	.000	.000
29	103.745	.000	.000
37	102.146	.000	.000
125	101.970	.000	.000
248	100.941	.000	.000
26	100.830	.000	.000
420	100.480	.000	.000
359	99.176	.000	.000
66	98.926	.000	.000
169	97.674	.000	.000
73	95.458	.000	.000
82	95.278	.000	.000
196	94.380	.001	.000
81	93.003	.001	.000

Observation number	Mahalanobis d-squared	p1	p2
376	92.135	.001	.000
52	91.968	.001	.000
443	91.318	.001	.000
30	90.883	.001	.000
212	89.732	.002	.000
322	89.578	.002	.000
226	89.339	.002	.000
181	89.210	.002	.000
379	88.677	.002	.000
135	88.349	.002	.000
223	88.346	.002	.000
126	87.943	.002	.000
424	87.689	.003	.000
189	87.463	.003	.000
328	87.278	.003	.000
200	85.980	.004	.000
211	85.668	.004	.000
141	85.564	.004	.000
340	85.436	.004	.000
174	85.205	.004	.000
32	84.546	.005	.000
306	84.385	.005	.000
168	84.149	.005	.000
334	83.161	.007	.000
262	83.149	.007	.000
261	82.950	.007	.000
28	82.640	.007	.000
326	82.250	.008	.000
382	81.781	.009	.000
44	81.658	.009	.000
1	81.336	.009	.000
127	80.599	.011	.000
357	79.407	.014	.000
197	79.176	.014	.000
406	78.900	.015	.000
71	78.823	.015	.000
184	78.722	.016	.000
341	76.837	.022	.000
215	76.789	.022	.000
222	76.783	.022	.000
177	76.362	.024	.000

Observation number	Mahalanobis d-squared	p1	p2
436	76.340	.024	.000
132	75.737	.027	.000
172	75.618	.028	.000
140	75.538	.028	.000
247	75.533	.028	.000
78	75.284	.029	.000
124	75.021	.031	.000
418	75.021	.031	.000
234	73.894	.037	.000
423	73.627	.039	.000
131	73.406	.041	.000
275	73.283	.041	.000
444	72.229	.049	.000
33	71.982	.051	.000
314	71.457	.056	.000
426	71.401	.056	.000
84	71.164	.059	.000
133	70.971	.061	.000
36	70.897	.061	.000
45	70.861	.062	.000
404	70.673	.063	.000
358	70.205	.068	.000
90	70.094	.069	.000
350	70.027	.070	.000
128	69.828	.072	.000
65	69.436	.077	.000
41	69.305	.078	.000
136	69.101	.081	.000
216	68.485	.089	.000
325	68.131	.094	.000
385	68.120	.094	.000
320	67.968	.096	.000
108	67.296	.106	.000
343	67.242	.106	.000
39	67.185	.107	.000
48	67.002	.110	.000
4	66.503	.118	.000
361	66.229	.123	.000
312	66.171	.124	.000
438	66.135	.124	.000
427	66.132	.124	.000

The level of acceptance for every index and index category, the following indexes are recommended to meet the fitness indexes:

Name of Category	Name of Index	Level of Acceptance	Comments
Absolute Fit	RMSEA	RMSEA < 0.08	Range 0.05 to 0.1 is acceptable
Incremental Fit	CFI	CFI> 0.90	CFI=0.95 is a good fit
Parsimonious Fit	Chisq/df	Chisq/df < 5.0	The value should be less than 5.0

جامعة البحرين

كلية تقنية المعلومات



تأثير الثقافة الوطنية وجودة نظام المعلومات على اعتماد الحوسبة السحابية من قبل الشركات الصغيرة والمتوسطة في مملكة البحرين

مخطط بحث لاستكمال متطلبات الحصول على درجة الماجستير في تقنية المعلومات

إعداد

نسرين علي حافظي حقاني

الرقم الجامعي: 20112791

إشراف

د. علي زليط

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جامعة البحرين

مملكة البحرين

يونيو، 2021