CRISIS MANAGEMENT AND STRATEGIC FLEXIBILITY: THE MODERATING ROLE OF E-READINESS

THE CASE OF GOVERNMENT AUTHORITIES IN THE KINGDOM OF BAHRAIN

A Thesis Submitted for the Degree of Doctor of Philosophy

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ABSTRACT

This study aimed at identifying the impact of strategic flexibility and its dimensions (Flexibility of Capacities, The Flexibility of Resources, The Flexibility of Information, and The Flexibility of Coordination) on crisis management and its dimensions (Detection of Early Signals, Preparedness and Prevention, Damage Containment, Activity Recovery, Learning), and having E-Readiness as the moderating variable which was measured through the following dimensions (ICT Infrastructure, Human Resources, Management Requirements and Physical Capabilities) and testing the impact of strategic flexibility on Crisis management in the Kingdom of Bahrain through the interaction effect of the electronic readiness to find whether it improve that impact. The Methodology used as a structural survey. The study was done on a sample of (376) employees working in 14 government authorities located in the Kingdom of Bahrain. These government entities were established to deal with critical aspects of the life of the citizens of Bahrain. Entities were given a particular arrangement which is different from other traditional governments Ministries and departments. These special arrangements were expected to give them a kind of flexibility over other government entities. Government authorities in the Kingdom of Bahrain were the appropriate environment to test the impact of Strategic flexibility on crisis management.

The study found a strong positive impact of Strategic flexibility on Crisis Management, and each dimension individually also has a substantial impact on Crisis management. E-readiness intersection impact was not proved but the study found that two dimensions of E-readiness which are Human resources and physical capabilities enhance the relationship between Strategic Flexibility and crisis management.

Keywords: Crisis Management Strategic Flexibility E-Readiness, Government Authorities, Kingdom of Bahrain, Flexibility of Resources, Flexibility of Information, Flexibility of Coordination, Detection of Early Signals, Preparedness and Prevention, Damage Containment, Activity Recovery, Learning, ICT Infrastructure, Human Resources, Management Requirements and Physical Capabilities

DECLARATION

I hereby declare that the material of this thesis has never been submitted to obtain a degree or any other sort of qualifications at this university or any other academic institution. I further declare that this thesis is solely based on my own research work except where acknowledged.

Signature

Mohamed Hamad Mohamed Abdulla Al Khalifa

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First and above all, I thank and greatly appreciate God for giving me the power and patience to complete this work.

For my Grandfather and Grandmother (May God Rest Their Souls) and for my Father and Mother (May God Bless Their Souls), I dedicate this work to them as they stood by me and prayed for me. I lived all my life trying to make them proud parents. I hope they are all proud of me now.

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Mohamed Hamad Mohamed Abdulla Al Khalifa

Articles and Conferences:

No.	Title	Authors	Location	Date
1	The Moderating Role of E-Readiness in Crisis Management and Strategic Flexibility: A Review	Mohamed Hamad Mohamed Abdulla Al Khalifa, Bidit Dey and Adel Sarea	Springer Nature, Singapore	January 2021
2	Doctoral Symposium 2020	Mohamed Hamad Mohamed Abdulla Al Khalifa	Ahlia University- Brunel University London- Gulf Hotel- Manama, Bahrain	Feb 2020
3	Doctoral Symposium 2019	Mohamed Hamad Mohamed Abdulla Al Khalifa	Ahlia University- Brunel University London- Gulf Hotel- Manama, Bahrain	Feb 2019
4	Doctoral Symposium 2018	Mohamed Hamad Mohamed Abdulla Al Khalifa	Ahlia University- Brunel University London- Gulf Hotel- Manama, Bahrain	Feb 2018
5	Doctoral Symposium 2017	Mohamed Hamad Mohamed Abdulla Al Khalifa	Ahlia University- Brunel University London- Gulf Hotel- Manama, Bahrain	Feb 2017

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CHAPTER 1: INTRODUCTION

1.1 Research Overview and Background

Organisations are living in an environment characterised by rapid changes and developments. The change in the environment from the 1990s has become inevitable. One of the most significant transformations, changes and events in the world is the expansion of globalisation, the rapid development of information technology systems, the communications revolution, the new forms strategic alliances, successive crises, and other complex phenomena that have led these institutions to seek new ways to address these rapid changes. (Cascio and Ramiro, 2016)

In line with these events and developments in all fields, strategic management over the past 30 years has become a field of research and administrative practice. During the period of development of the strategic research process, various models and conceptual frameworks have emerged. They were competitive from one side and complemented to each other from the other side. Those Models helped in the success of organisations in a relatively stable environment, but their effectiveness has been limited in terms of setting up organisations to respond to changing environmental requirements. As a result, new strategic orientations and applications that focus on strategic flexibility have emerged to ensure that organisations meet in an easier and faster way the unexpected changes in the environment. Therefore, the modern views of the strategy consider strategic flexibility as a strategic asset in situations where expectations are challenging, and surprises are most likely. (Le et al., 2018)

The sudden changes in the internal environment or the external environment of institutions without opportunities and taking the necessary precautions to avoid them are considered a crisis. Therefore, the effective and proper handling of crisis management is the only way out of them or prevent a large part of the adverse effects on the institution. Otherwise, the potential situation is their

transition from bad to worse and more complicated, which may threaten their existence and continuity. (Gryszkiewicz & Chen, 2010)

Rapid changes in ICT have accompanied these changes in the environment surrounding enterprises. (Hilhorst et al., 2009) It is therefore essential for decision-makers in these institutions to keep abreast of this technological development by focusing on ICT, the principles of the knowledge society and e-readiness to meet crises and provide the best services to the recipients of the service with a focus on the optimal investment and upgrading the capabilities of human resources knowledgeable, educated and competent with the skills and creative experience possessed by the organisation in this area. (Arnold et al., 2011)

Thus, strategic flexibility and the use of crisis-based e-readiness management techniques are critical to achieving effective management success in institutions to avoid falling into these crises or mitigating their adverse effects and increase the chances of diversion in their favour. (Wojciechowicz et al., 2012)

The Economic Vision of the Kingdom of Bahrain 2030 emphases on shaping the vision of the government, society and the economy, based around three guiding principles; sustainability, fairness and competitiveness. Following the launch, the Economic Development Board (EDB) initiated an on-going programme of economic and institutional reform, as part of the Economic Vision 2030. The EDB led and coordinated with ministries to compile the first National Economic Strategy, which served as a roadmap to achieve the vision. The vision 2030 also addresses the Sustainable Development Goals 2030 (SDGs); these goals are considered as government's current priorities and are linked to the executive actions of the present Government Work Programme (2015-2018). The new orientation of government action to develop government performance has emerged with the establishment of government bodies such as the Quality

Assurance Authority for Education and Training, the Labour Market Regulatory Authority. In addition to the transformation of some ministries into government authorities such as the Electricity and Water Authority, National Oil and Gas Authority. These bodies are governmental but are not subject to the Civil Service Law and are not directly related to the authority of the Council of Ministers. Although they are under the authority of a minister or a government department, and thus gives it some independence in decision-making and freedom to enact laws, regulations and legislations commensurate with the work of this body.

Those authorities were chosen as the subject of this study because they are newly established, deal with a large number of citizens and with different types of crises, all of those authorities have interactive electronic platforms.

1.2   Problem Statement

Government Authorities in the Kingdom of Bahrain has been established to deal with sectors of great importance to the citizens of the Kingdom of Bahrain. Those authorities are the Telecommunications Regulatory Authority, Electricity and Water Authority, National Oil and Gas Authority, Bahrain Tourism and Exhibitions Authority, Labour Market Regulatory Authority, Information and eGovernment Authority, Bahrain Culture and Antiquities Authority, General Retirement and Social Security Authority, National Health Regulatory Authority, Education and Training Quality Authority (BQA), Real Estate Regulatory Authority, Urban Planning and Development Authority, Sustainable Energy Authority and lastly Horse Care Affairs Authority. These bodies have different advantages from the traditional government ministries. The most important of which is that they enjoy a particular budget and that they do not follow the regulations and laws of the civil service regarding promotions and financial degrees or even in the

organisational structure and pension system, which earns them high flexibility to be able to deal with the goals set up to achieve them.

These government authorities have faced many public crises in addition to their internal predicaments, such as low oil prices, local upheavals in 2011, the new and old traffic and transportation crises, cyber breach crises. These crises occur due to unforeseeable consequences of various events that have been regarded as potential risk factors and other unpredictable events. In either case, such disasters invariably demand effective decisions to minimise the level of damages it might cause to the organisation. Various crisis management policies have been researched to help in addressing some of the fundamental challenges that usually gets an organisation unware. Strategic flexibility is another tremendous asset to government authorities. Strategic flexibility is the ability for the government authorities to adequately react to changes in either offensive or defensive mechanism concerning the nature of the change and its effect on the organisation (Liou, 2015).

Despite the extensive research on the application of strategic flexibility and crisis management, there is still a massive gap in the government sector (Brinckmann et al., 2017). Most of these organisations seem to be hit by an inevitable crisis that calls for further research on how to moderate strategic flexibility and crisis management policies to prevent the frequent dilemmas that have been running government authorities and other organisations. E-readiness is the ability of the state or a country to prepare and anticipate participating in the electronic world. Since e-readiness engages a nation to embrace the use of modern technology, it significantly critical for these countries to navigate through the different crises that affect their institutions (Ilgaz and Gülbahar, 2015). This research paper is purposed to explain the fundamental role of e-readiness in moderating crisis management and strategic flexibility, assuming the case of the government

authorities in the Kingdom of Bahrain. Therefore, the research aims to understand the role of e-readiness in enabling crisis management and strategic flexibility, to eradicate the same old challenges, such as cyber breaches and low oil prices. This research paper focuses on the impact of strategic flexibility on crisis management in the Government Authorities in the Kingdom of Bahrain in the presence of e-readiness as a moderating variable.

The literature review section was found to come across a wide range of information relating to strategic flexibility and crisis management in the context of e-readiness of government authorities. Adequate information has been successfully gathered from a country-specific point of view. Specifically, the selected research topic is found to be studied in the context of the Gulf region. However, a wide gap is present, in case the area of focus is shifted to any specific country of the Gulf region. The Kingdom of Bahrain is one of the notable ones among other Gulf countries, where the study has not been conducted with full effort. Therefore, the existing literature sources were not able to provide much information about the country and the e-readiness aspect of the government organisations in case of crisis management and strategic flexibility. The current study focuses on trying to determine the effect of strategic flexibility (The independent variable) with its dimensions (flexibility of capabilities, resource flexibility, information flexibility, and coordination flexibility) on crisis management (The dependent variable) with its dimensions (detection of early warning signals, preparedness and prevention, containment of damages, and learning), With the availability of e-readiness (the modifier variable) with its dimensions (the infrastructure of information and communication technology, human resources, management requirements, material capabilities), which are goals that previous studies that the researcher was able to stand on have not attempted to achieve them. As a result, this particular information gap has been considered as the primary problem area for the study to accomplish each of its research

objectives, identified in the previous Introduction section. Another research gap that is likely to arise is that e-readiness is expected to act as a moderator between the management of crises and strategic flexibility for the government authorities.

Having known this from the literature the Conceptual framework of the study was built in order to test the impact of strategic flexibility on Crisis management and the intersection effect of -readiness on this relationship. So mainly the conceptual framework is coming from literature with the contribution of this thesis in dealing with E-readiness as a moderator.

1.3 Aim of the Research

The research aims to examine how strategic flexibility as a contextual factor is impacting crisis management in the Government Authorities in the Kingdom of Bahrain and to investigate how e-readiness moderate this impact. Achieving this aim is expected to answer the research questions mentioned above. To achieve this aim, the following objectives are set.

1.4 Study Objectives

1. Identify the relative importance of the study variables (strategic flexibility, crisis management, and e-readiness) from the perspective of employees of government authorities in the Kingdom of Bahrain.

2. Determine the impact of strategic flexibility in crisis management in government authorities in the Kingdom of Bahrain.

3. Determine the impact of e-readiness in crisis management in government authorities in the Kingdom of Bahrain.

4. Examine the impact of strategic flexibility in crisis management in Government Authorities in the Kingdom of Bahrain through the role that e-readiness can play in improving that impact.

5. Investigate the e-readiness of Government Authorities in the Kingdom of Bahrain in their attempt to acquire and maintain technology-driven services to its clients.

1.5   Study Questions

1. What is the level of strategic flexibility in government authorities in the Kingdom of Bahrain?

2. What is the level of crisis management in Government Authorities in the Kingdom of Bahrain?

3. What is the level of e-readiness in Government Authorities in the Kingdom of Bahrain?

4. Is there any impact for strategic flexibility on crisis management among Government Authorities in the Kingdom of Bahrain?

5. Is there an impact of the dimensions of strategic flexibility (resource flexibility, capacity flexibility, information flexibility, coordination flexibility) on crisis management in Government Authorities in the Kingdom of Bahrain?

6. Is there an impact of the dimensions of strategic flexibility combined on the Government Authorities in the Kingdom of Bahrain crisis management in the presence of e-readiness as a moderating variable? In other words, does e-readiness of authorities in the Kingdom of Bahrain strengthen the effect of strategic flexibility on crises management or it will weaken this effect?

It is an attempt to test what is called the intersection effect (Moderating effect) of e-readiness on the direct relationship between strategic flexibility and Crisis management.

1.6 Significance of the Study

The study introduces significant benefits because it identifies factors affecting the Kingdom of Bahrain's organisation adoption of modern technology in their operations. Globalisation and communication revolution presented by the rapid integration of the internet and other telecommunication products renders all organisations vulnerable to international externalities (Cingöz and Akdoğan, 2013). Therefore, the study emphases on evaluating the strategic flexibility and crisis management of Government Authorities in the Kingdom of Bahrain regarding technological adoption. It is called e-readiness. It is the measure of the government's ability and commitment to facilitate citizens and organisations in the utilisation of ICT applications.

An analysis of the Kingdom of Bahrain capacity for strategic flexibility and crisis management informs about the ability of the economy to adapt to the adverse changes in the future. The government plays a leading role in enhancing the competitiveness of local industries (Farndale et al., 2019). For that reason, the study acts as an audit to the current consistent plans to facilitate continued learning and adoption of the latest applications. Strategic flexibility enables organisations to make long-term plans and structure for adopting the technology (Mosa, Naz'ri bin Mahrin and Ibrahim, 2016). Government Authorities in the Kingdom of Bahrain operate with more levels of autonomy and independence than traditional ministries. Therefore, the analysis of the Kingdom of Bahrain preparedness reveals the limitations towards e-readiness.

The study is expected to lay a foundation for enhancing the management of authorities by using e-readiness to augment strategic flexibility and crisis management by the organisation managers. The research purports to demonstrate that e-readiness, which is a moderator variable of the relationship between strategic flexibility and crisis management. Strategic flexibility aims at structuring organisation to control externalities. It is used in prom adopting crisis management

because the rapid invention and adoption of technology introduced changes in management (Roca-Puig et al., 2005). The government creates a conducive working environment by improving its e-readiness preparedness. For that reason, the study demonstrates how the government and authorities collaborate in enhancing adoption and interaction of technological application in the organisation management and operations.

In practice, government directors usually accept the need for resources for better handling of a crisis. In this study, we are trying to prove that it is not the availability of resources that matters. Resources should also be flexible. The rigid organisations are likely to fail when dealing with a crisis. The Authorities need to adapt quickly and adjust to the changes taking place in the external environment of the economy as well as being able to meet the demands of citizens served by them especially during a crisis.

Theoretically, there is no single model with the best knowledge of the researcher that is built between SF and CM using the ER as a moderator. Research on SF on CM or the impact of ER on CM is available in the literature review, but none of the suggested models uses the ER as a moderator. The authorities also have a unique situation in which they are more flexible than regular ministries and government entities in Bahrain so that this research will try to test whether this type of flexibility has been successful in dealing with CM.

The researcher used a Multivariate analysis which uses structural equations to analyze structural relationships. Factor analysis and multiple regression analysis are used to analyze structural relationships between measured variables and latent constructs. Analysis method suggests that multiple and interrelated dependencies may be examined in a single analysis. Two types of variables are used: endogenous variables and exogenous variables. In economics, endogenous variables are equal to the independent variable.

Thesis Structure

The thesis has been organised as follows:

Chapter 2 has delved into the literature and critically reviewed the different concepts that have a bearing on crisis management, strategic flexibility, and e-readiness. The dimensions of both crisis management and strategic flexibility will be identified and discussed. The chapter elicited the gap in the literature. Theoretical limitations to the concepts have been addressed, and a section on the synthesis of various theories that apply to this research has been provided.

Chapter 3 provides the theoretical framework developed for this research that was used to answer the research questions. Hypotheses have been formulated to understand the meaningfulness of the relationship to this research. The chapter deals with the various relationships that need to be brought in between strategic flexibility and crisis management, to develop a conceptual model needed to answer the research questions and achievement of aims and objectives set for this research.

Chapter 4 provided the details regarding the methodology used in this research that provided the procedure to test the conceptual model and hence answer the research questions.

Chapter 5 dwelt on the data analysis using rigorous statistical methods that yielded the findings of this research, including the verification of the hypotheses. The chapter also include discussion of findings which enabled the researcher to answer the research questions.

Chapter 6 concluded the research and discussed the achievement of the aim and objectives set for this research, contributions to knowledge, theory, methodology and practice, limitations of research and recommendations for future research.

1.7   Summary

This chapter has provided the introduction to the subject and what distinguish government authorities from ordinary departments, and why it was selected as the subject of the study. Problems statement have been brought out. Research questions have been framed. Aim and objectives have been set. Significance of the study has been explained, and the thesis structure has been outlined. Thus, this chapter takes the researcher to the next step of reviewing crisis management, strategic flexibility, and e-readiness literature.

CHAPTER 2: LITERATURE REVIEW

2.1   Introduction

The following section has made effective use of a large number of secondary data sources, mostly journals for the purpose of conducting an extensive literature review. Specifically, the literature review section of the research study has emphasised on highlighting substantive findings in the context of understanding the e-readiness of government authorities in case of strategic flexibility and crisis management. A detailed insight into each of the concepts associated with strategic flexibility, crisis management and e-readiness have been discussed in great detail from the perspective of government authorities. Furthermore, the interrelationship existing among each of the identified variables have been established by taking into consideration multiple points of view. The literature review was also found to highlight the multiple facets of strategic flexibility as well as its overall role in managing crisis situations in government authorities in the light of e-readiness. One of the most notable aspects of the critical literature review conducted for the present study is to identify the gap, which is likely to be considered as the primary area of focus.

The steps of doing literature review for this study were as follows:

I began by narrowing the subject and accordingly selecting articles. The second step was to find literature on defining selection criteria (i.e. articles published between a specific date range, focusing on a specific geographic region, or using a specific methodology). Also, I Checked the library using keywords and reviewed reference lists of recent publications and reviews. Included a few studies that are different from my opinion. In this stage the researcher usually will skim the articles to get an idea of the general purpose and content of the article (focus will be on reading

the abstract, introduction and first few paragraphs, the conclusion of each article. Thirdly I read the papers in-depth and then evaluated them. During reading the focus will be on assumptions some or most researchers seem to make, methodologies, testing procedures, subjects, material tested researchers use, experts in the field: names/labs that are frequently referenced conflicting theories, results, methodologies, popularity of theories and how this has/has not changed over time. Fourth, I classified the papers by searching for trends and subtopics. Then produced a one or two-sentence thesis where I summarised the conclusions that I came to about the major trends and developments in the research conducted on my subject.

I began to write the article and did as I had expected, including the headings and subheadings I constructed. I have included the parts in the order that I have organised them.

I Reviewed the work by looking at the topic sentences of each paragraph and by Outlining each section of the paper and decide whether I need to add information, to delete irrelevant information, or to re-structure sections.

2.2   Strategic Flexibility

The capability of an organisation to efficiently identify notable changes taking place in its external environment, followed by its rapid adaptation is known as strategic flexibility (Zhou & Wu, 2010). The process tends to emphasise on the readiness of an organisation to identify as well as allocate resources to the new set of the action plan, that came into existence with the changed processes. The effectiveness of strategic organisational flexibility is also governed by its relative ability to recognise the changes taking place in the environment, identify the most suitable ones in accordance with the business scope and finally react. According to Kortmann, Gelhard, Zimmermann & Piller, (2014), strategic flexibility also tends to consider the prompt action time

exhibited by an organisation about realising the particular point of time when the change

adaption needs to be stooped, or there is an urgency to restrict the commitment of the existing

resources. Cingöz and Akdoğan (2013) stated that the ability of the process to help to identify the

changes makes it an integral aspect of any organisation. It tends to act both as an offensive as

well as a defensive mechanism to comprehensive change management. However, the positive or

negative operational scope of the process is found to be mostly dependent on the type of change

and its degree of influence on organisational business goals. The overall operational scope of

organisational strategic flexibility initiatives can be defined as reactive change adaptability and

proactive change acceptance.

The government authorities are found to play a crucial role in managing the wide range of

operational uncertainties that an organisation tends to face in the light of change management

(Asif, Fischer, de Bruijn, & Pagell, 2010). It is of immense significance to note that the length

and depth of the strategic flexibility initiative are so deep that the government authorities are

found to be of no exception. The functional and tactical operational level of the government

authorities is found to be largely impacted by the change process taking place in relation to

strategic organisational flexibility. Parent and MacDonald (2011) stated that strategic flexibility

is found to possess adequate capability in developing value for the government authorities

through the process of effective and better utilisation of the strategic business operations.

According to Xu and Meyer (2013), strategic flexibility initiatives largely helps in government

future decision-making relating to future operating activities of its associated entities. The

outcome of such an operational environment is the government entities following the footstep of

immense environmental sustainability. The impact successfully developed in this regard is found

to exhibit a long-term and prospective influence on every individual, directly or indirectly

associated with the process. However, the effectiveness of the process in the present operational context of Middle Eastern countries seems to be highly significant in terms of the degree of technological adaptation adaptability.

Xu and Meyer (2013) have indicated that it is very critical for the companies to take a shift from the rigid business environment to a flexible environment. The rigid organisations are likely to fail, and thus, there is an essential need for the companies to change as per the requirements of the significant changes that will be taking place in the economy as well as other aspects of the external environment. It demands an increased role for the managers who are concerned with promoting flexibility in the organisations and thus, need to take an additional responsibility when it comes to encouraging the employees to adapt to new ways to undertake the operations effectively. As opined by Parent and MacDonald (2011), an organisation which tends to show strategic flexibility tends to be efficient in evolving as per the changes and thus, increase the competitiveness in the industry. The organisations that are flexible in nature do not fight change but accepts them as an aspect that is inevitable in nature. This further leads to maximise the opportunity to be adaptive to changes that are likely to arise while operating.

Xu and Meyer (2013) have also indicated that strategic flexibility is not concerned with removing the flaws of a process or operation. Instead, it is concerned with improving the operations to have a favourable impact on the operations of the business. Another added advantage of strategic flexibility is that it makes the scheduling of the operations more flexible for an organisation and thus the employees are offered a diverse range of options, which subsequently helps the workers to meet their organisational commitments by maintaining a balance between their professional life as well as personal life. Further, strategic flexibility leads

to build better teams as well as continue during times of uncertainty. It also leads to having a decreased environmental impact, costs of hiring and turnover costs.

Parent and MacDonald (2011) have further argued that strategic flexibilities have certain limitations. Firstly, the organisations find it very time consuming and difficult to implement. The managers who are designated with the roles of implementing strategic flexibility must be very skilful to plan the activities and thus, tends to be very risky in nature. The planning process often leads to several missteps and risks because the primary objective of planning is to predict the future. Thus, the managers need to possess skillsets which is very unlikely at times due to the continuous changes in the global scenario.

2.3 Crisis Management

Crisis management encompasses a series of events that an organisation takes into consideration for the purpose of dealing with the disruptive and uncertain occurrences taking place within its business operational scope (Veil, 2011). The process ensures safeguarding the organisation, as well as any form of harm caused to its stakeholders, as a measure to maintain immense operational stability. It requires organisations to develop a proper plan relating to the methods to be used for the purpose of handling a crisis situation as and when it tends to take place. According to Jin, Liu and Austin (2014), crisis management is one of the notable activities of an organisation since the process tends to highlight the operational risks from taking place at any time. As a result, the process requires proper planning and development of suitable strategies to deal with the negative implications arising out of an uncertain situation.

The government authorities of the Middle Eastern countries seem to develop suitable methodologies to implement suitable strategies relating to combating the negative impact of an

uncertain situation (Farazmand, 2017). The effectiveness of the government authorities in terms

of managing crisis situations is identified in accordance with their individual capacity to deal

with the risks much before it hurts organisational stability. The crisis management process,

undertaken by government authorities, comprises of identifying the critical and vital

organisational process followed by designing of suitable operational plans to deal with the issues

identified (Mellahi, Demirbag, & Riddle, 2011). Furthermore, this process requires the

identification and formation of a suitable crisis management team about avoiding any severe

impact on the country's population.

The study conducted by Baubion (n.d.) stated that the government of the Middle Eastern

region confronted with a series of an increasing crisis situation daily. Each of them is found to

result in the emergence of a series of threats causing major economic knock-out. In this regard,

government organisations are found to undertake a strategic approach in relation to developing

an effective crisis management approach. In this regard, the government authorities are found to

undertake direct actions to mitigate or overcome risks in a wide range of operational sectors. The

primary emphasis of strategic crisis management is found to be a witness in operational sectors

that tends to severely impact the well-being and uninterrupted functioning of the society

(Baubion, n.d.). An open and transparent approach undertaken by the government authorities,

followed by continuous monitoring based on the wide range of information disseminated from

both traditional and digital media is a notable factor to be considered in this regard. Social media

is found to play an integral role in helping the government to comply with its strategic

management operational scope with a high degree of effectiveness (Alexander, 2014).

Furthermore, Collier and Lakoff (2015) stated that the role played by the government in dealing

with emergency and crisis situation seems to be of immense significance in developing a better

society for the people to reside. The presence of immense complexity and a high degree of inter-connectedness among the different aspects of society seems to be the primary factor in influencing the government of a country to exhibit a high degree of adaptability to the changing processes. The final outcome of such a process is that the government is playing an integral role in complying with the needs and demands of its population largely (Baubion, n.d.).

The role of crisis management is very important for organisations as they have to take specific steps before a crisis is likely to invade the operations and functions. The crises usually lead to having a negative impact on the various stakeholders of the company such as customers, suppliers, employees and most importantly, the general public and the values of the company. Since crises tend to occur at any time, the organisations are more likely to shift to advance planning as a part of the crisis management process of the company (Parent & MacDonald, 2011). The companies intend to manage the crisis in some general stages that may apply to the organisations irrespective of the size of their size and the nature of operations (Alghamadi, Goodwin, & Rampersad, 2014). The process starts with having a plan that has clear objectives and the specific actions that will be undertaken to manage the crisis that is likely to arise. The second step is to identify a spokesperson who should be aware of the internal conditions of the company and thus is very well prepared to answer the questions of the external stakeholders and take an active part in the interviews.

Thirdly, the company should ensure that it is transparent to the external stakeholders, and the regular communication channels should indicate such that the organisation is likely to undertake. The next step would be to keep the employees informed as well as to communicate the relevant beforehand concerns pertaining to the crisis and thus, the plans should include them as an integral part. The company should keep the communication, rather over communication as

their first priority so that there are no rumours regarding such crises and all the stakeholders should be made an active part of the management plan (Parent & MacDonald, 2011).

2.4   E-Readiness of Government Authorities

E-readiness is identified as the capability of an economy of the country to prepare themselves for taking an active part in the process of operational digitalisation. It is of immense significance in highlighting the value of a community in terms of its ability to evaluate the opportunities as well as challenges relating to technological change adaptability (Al-Nuaim, 2011). It is of immense significance for the developing countries of the world in terms of establishing suitable benchmarks relating to comparing various regions in terms of market verticals. The final outcome of such operational effectiveness, in turn, is found to help the country in its national planning process to effectively manage a crisis situation (Basamh, Qudaih, & Suhaimi, 2014). El-sofany, Al-Tourki, Al-Howimel and Al-Sadoon (2012) stated that the e-usage activities of government organisations play a crucial role in terms of reducing the overall operational costs, improvement in service scope, operational effectiveness as well as the time required for accomplishing the strategic goals. The government of the Middle Eastern countries is found to go ahead with the use of e-government for the purpose of exhibiting increased performance standards in the most cost-effective manner (Alshehri & Drew, 2010). The biggest country of the Middle Eastern region, Saudi Arabia, seems to be the forerunner in terms of transitioning to an e-government process.

The pre-dominance of information technology tools is found to be of prime significance in the case of private sectors of the United Arab Emirates (UAE) (Alghamadi, Goodwin, & Rampersad, 2014). The public sector of the country is found to somewhat lag in terms of proceeding towards the adoption of e-facilities. It is to be noted that e-readiness tends to perform

an effective examination of multiple organisational, operational dimensions. In the public sector, the e-readiness operational activities tend to cover the degree to which the concerned organisation is innovative, positive, secure as well as suitable in terms of delivering the required set of services. However, the effectiveness of e-readiness operational aspect of government authorities tends to vary significantly in comparison to the type of model being used for the purpose. A wide range of strategic implications is found to be associated with the e-readiness models that seem to be used by the concerned organisational authorities (Al-Solbi & Al-Harbi, 2008). Such operational ineffectiveness is found to take place due to the absence of a clear strategy relating to the use of the technological processes as well as a suitable set of objectives underlying its usage. As a result, due to the lack of proper direction, the overall progress made by government authorities in terms of e-readiness seems to falter (Alsheri & Drew, 2010).

The government of Saudi Arabia was found to exhibit a high degree of commitment in terms of their acceptance as well as the usage of technologies in the national scope of operations. However, a wide range of issues is found to be persistent in terms of adoption as well as diffusion of the e-government operational scope (Alateyah, Crowder, & Wills, 2013). The difficulties are primarily identified in the context of the degree of flexibility that the government authorities tend to offer in terms of their strategic operations and planning. The study conducted by Alsheri and Drew (2010) was found to enlighten on the primary factors that are integral to determining the e-readiness of government authorities in the Middle Eastern countries. The lack of a proper strategic plan, the effective alignment of aligning goals and objectives of government organisations with that of the e-government programs is a significant aspect to be looked upon.

Furthermore, the process requires guidance and support of top management in providing the requisite financial budget and resources required for the purpose in a timely manner. On the other

hand, Al-Sobhi and Weerakkody (2010) stated that e-readiness of government authorities in the Kingdom of Saudi Arabia faced the shortage of adequate information technology professionals as well as the necessary training and development programs required for it. Furthermore, the government of the country also experienced the lack of standard policies as well as regulations required for the purpose of e-usage.

The primary factor underlying the determination of e-readiness of government authorities is found to be crucial since it is looked forward to possessing an immense capability in transforming the overall public-sector operations (Alshehri and Drew, 2010). As a result, the e-usage operational scope of government is not limited to the information technology domain only. Instead, the process is looked forward to as one of the significant aspects of the government organisational concern. In this regard, the STOPE framework (Strategy, Technology, Organisation, People and Environment) is used as a suitable tool to determine the e-readiness of government countries. The STOPE framework went ahead with highlighting the collective focus of government authorities towards information technology organisational factors, business processes, strategic vision, skills, business goals, resources and skills as a part of their e-readiness (Alateyah, Crowder, & Wills, 2013).

Each of the six countries of the Gulf Cooperation Council (GCC), Kingdom of Saudi Arabia, Sultanate of Oman, State of Qatar, United Arab Emirates, State of Kuwait and the Kingdom of Bahrain are found to exhibit an adequate degree of citizen readiness in terms of technological acceptance. However, the Kingdom of Bahrain is found to signify the tangible and continuous increase in the use of e-services (Meftah, Gharleghi, & Samadi 2015). The country is found to pioneer its ability to adapt to a series of e-government initiatives. The strategic business objective of the government authorities in the State of Kuwait, in this regard, is to enhance the

overall degree of operational flexibility as well as benefits relating to reduced costs. Girish, Yates and Tawileh (2010) stated that the public organisations of the country had gone ahead with exhibiting enormous efforts in terms of accepting as well as promoting e-government service operations in helping the economy proceed forward. However, the degree of effort seems to lack adequate effectiveness as a large amount of unstructured infrastructure development scope for e-readiness is found to exist. The same situation has been observed in case of other GCC countries too, thereby making it essential for the concerned authorities to undertake serious actions to improve the e-government operational scope.

2.5   Strategic Flexibility and Crisis Management Among Government Authorities

The strategic crisis management approach is identified as one of the most prominent aspects of the modern-day context undertaken by the government of a large number of countries worldwide. It tends to help the concerned authorities to handle the crisis with ease without being exposed to severe implications of the uncertain situation (Scolobig, Prior, Schröter, Jörin & Patt, 2015). It is mainly because a strategic approach ensures proper planning relating to the series of steps that concerned authorities need to undertake in the wake of a crisis. The Middle Eastern countries are found to undertake a strategic approach concerning dealing with a crisis with a high degree of novelty. The government authorities are found to perform effective risk management that comprises of effective scanning of the surrounding environment, identification of risk-prone factors, followed by detecting their overall impact (Baubion, n.d.). A capability-based planning approach is used widely with developing an effective significance between the strategic flexibility of the government and its crisis management aspects.

Furthermore, the government authorities have also taken into consideration, the strategic crisis management training to keep themselves well updated with effective policies to be used in a

period of high uncertainty. The training programs identified in this regard specifically emphasised on gaining knowledge on agile operational activities along with procedures to enhance the degree of change adaptability (Scolobig et al., 2015). The government authorities in this regard were found to develop networks and partnership with third-party organisations to handle crisis right at the source of its inception. Each of these phases of crisis management is recognised as helping the government in preparing themselves to exhibit a high degree of e-readiness.

The government authorities have been effectively managing the crises through strategic flexibility. Crisis management is a four-phase procedure, and every phase requires significant strategic flexibility. The first stage of crisis management is preparedness that is considered to be one of the essential steps to manage the crises. In this stage, the government authorities formulate a plan to mitigate the damage risks associated with the crises that are likely to have a drastic effect (Alateyah, Crowder, & Wills, 2013). However, since the magnitude of the crises is not certain, it is essential to have a flexible planning stage and thus, the need for strategic flexibility arises. The preparedness stage of crises management is the stage which requires the highest strategic flexibility. The preparation level of the governments needs to be flexible so that the flaws and loopholes can be addressed as an when required.

In the third stage, recognised as the response phase, the concerned authorities are found to go ahead with identification as monitoring the areas that are risk-prone and vulnerable to an inevitable crisis in the near future. This is the stage where the actual crises take place and thus, this needs to have significant strategic flexibility as the magnitude of the risks is not always ascertained. The last stage is the recovery stage which is the longest phase of the crises management process and is unlikely to demand strategic flexibility. However, there are chances

that the government authorities need to undertake a significant rebuilding process, and thus, there might arise a need for certain funds (Alateyah, Crowder, & Wills, 2013). This tends to give rise to strategic flexibility where the government needs to be flexible in allocation of the funds as per the priority of the activities.

Kapucu, Arslan and Demiroz (2010) stated that the process requires the deployment of effective leadership skills and abilities to ensure that high degree of flexibility is found to be observed in making the necessary changes to traditional work process relating to dealing with a crisis. The capability to adapt to new operational procedures in accordance to the changes taking place in the surrounding environment is identified as one of the most critical aspects of modern-day crisis management aspects (Baubion, n.d). The government of Middle Eastern countries is found to develop a suitable crisis management process based on its institutional structure, vulnerability to risk situations and emergency handling mechanisms.

The role of strategic flexibility has become inevitable to manage the crises and thus, government, as well as the public-sector enterprises, throughout the world, have incrementally adapted to the methodology to increase their operational effectiveness and sustain in the long run.

2.6 Impact of Strategic Flexibility on Crisis Management in Government Authorities

Since crisis management refers to the process that is used by the organisations to deal with a sudden event or situation that is likely to have a drastic effect on how the organisation is operating as well as on the outcomes of the organisations, it has to be implemented effectively. Moreover, a government entity being an organisation is exposed to several risks, crisis management has a pivotal role to play to ensure that the crises do not have a drastic impact on the various systems of the government (Bundy, Pfarrer, Short, & Coombs, 2017). On the other hand,

strategic flexibility, which refers to the capability of an organisation to identify the significant changes that take place in the external environment of a company and to react proactively to it has a crucial role to play for the government authorities to manage the crises that they face. The organisations quickly commit themselves as well as their resources towards new actions to combat the changes in an effective way. Helfat and Martin (2015) opined that strategic flexibility is a critical success factor because the organisations can use as a defensive as well as an offensive mechanism, solely depending on the nature of changes and the potential impact that it is likely to create on an organisation.

There has been an increase in the demand of the strategic flexibilities as the organisations can respond to the dynamics of the external environment in a better way. This is considered to be one of the sources of competitive advantage, and thus, there is an immense dependency of the performance of the organisation (Cui & Wu, 2016). Chan, Ngai and Moon (2017) have indicated that the strategic flexibility plans not only to have a favourable impact on a single area or aspect but the whole hierarchy and almost all the areas of the government are covered. To be precise, the organisations, instead the government entities undergo a significant change and are impacted at the tactical level and the functional level of the public-sector enterprises and the government hierarchies. It facilitates as well as enhances the utilisation of the operational strategies of the government authorities that subsequently lead to creating value for the entities. Moreover, Bhal and Singh (2015) have proposed the usefulness of the strategic flexibilities in the transitions that often take place between the strategies at the decision-making levels of the government and the future of the entities towards creating an environment that is not only sustainable but has a long-term prospect.

From the standpoint of the research that is concerned with ascertaining the role of strategic flexibility and crisis management in case of e-readiness of the government of the Kingdom of Bahrain, the strategic flexibilities will be expected to have a crucial role to play. Wolf and Floyd (2017) have indicated the role of strategic flexibility to prepare the government entities for the changes that will be taking place to implement the new system of e-readiness. Thus, the management of the risks, challenges and crises that are likely to be associated with the e-readiness (Brozovic, 2018). Since the strategic flexibilities have several concepts and aspects that are integrated and have aimed to anticipate several scenarios, they are used to manage the crises of the organisation effectively. Moreover, the flexibilities in the strategies are focused on appraising and analysing several options and multiple scenarios, and thus, there is a need to formulate appropriate implementation strategy in almost all the aspects (Chan, Ngai, & Moon, 2017). This will subsequently lead to having an idea regarding the best strategy that is to be implemented by the government authority and thus, the crises can be managed effectively. The management of crises involves several aspects, which are expected to give rise to several challenges and uncertain changes and thus, the government organisation should always be open to the acceptability of the flexibilities in almost all the strategic aspects (Brozovic, 2018).

The management of the various crises and challenges require a number of management skills that are important, a brief understanding of the various inconsistencies that are likely to arise in the changing environments, broadening of the views that pertain to various analytical parts and lastly a deep focus on the actions and activities that are likely to act as a stimulus to the changes. As opined by Singh (2015), strategic flexibility tends to help the government enterprises to manage the crises of change using three interrelated elements, namely action, assessment and attention. Thus, the role, as well as the impacts of the strategic flexibilities, are inevitable and

undeniable for managing the changes and the various issues that are faced by the governments and other private entities (Chan, Ngai, & Moon, 2017). The flexibilities in the strategies of the companies are very useful for the government entities to gain an insight into the various discrepancies that are likely to arise and lead to several disarrays (Brozovic, 2018). The application of the strategic flexibilities has been found to be so effective in the companies that are prosperous and dynamic that a number of researchers have termed it to be one of the best measures of not only for the management of the crises that are likely to be faced but also for the overall successfulness of the government entities and authorities (Chen, Wang, Nevo, Benitez, & Kou, 2017). Moreover, there is a significant lethargy in the organisations and the government enterprises, through the usage of strategic flexibilities break down the various procedures as well as underlines the usage of the resources to help the organisations to manage the crises effectively (Brozovic, 2018).

Strategic flexibility depends on the consolidation of resource flexibility and coordination flexibility. The former has been determined by the properties of the resources that are inherent while the latter refers to the capability of a particular organisation to apply the relevant and appropriate resources in some areas, where they are required the most (Yawson & Greiman, 2017). Though they function differently, they have a crucial role to play to help the government entities to manage the crises and the challenges they face, which subsequently leads to a desirable outcome. Information flexibility, on the other hand, refers to the flexible nature of the information system of a company and the ability of a company to obtain desired information from the analytical and transactional systems. The two parts of information flexibility, namely reporting flexibility and analytical flexibility, also tend to have a positive impact on the crisis management system of a government entity (Yawson & Greiman, 2017). The former helps the

entities by extracting the relevant data from the transactional systems while the latter helps the company by retrieving the archived historical data that is analysed by the companies and help them to make appropriate decisions (Chan, Ngai, & Moon, 2017).

However, there are certain aspects that are to be considered as a back-end exercise before the formulation of strategic feasibility. Firstly, the companies need to be aware of the time that is available to the company to respond as well as to implement a major change. Secondly, it is also crucial for the authorities and organisations to have a proper assessment of the various solutions that are available to the organisation. Thirdly, one of the major aspects that are bound to be considered before the implementation of a change is the perceptions and perspectives of the authorities and delegates to the implementation of the change and to adapt to it. Lastly, there should also be a consideration of the flexibility area that was created. Though the impacts of the strategic flexibility seem to be immense, the concerned delegates and the authorities have a to face a number of challenges before the implementation majorly due to the fact that the process is not easy and is exposed to a number of uncertainties that could lead to hinder the successfulness of the project (Chan, Ngai, & Moon, 2017). These uncertainties tend to arise from the external environment of the company as well as from the internal factors. The government authorities and the delegates who are concerned with the implementation of such strategic flexibilities have to react proactively in order to identify the areas where the changes are required and to take relevant actions within a stipulated time frame. Chan, Ngai and Moon (2017) have also indicated that apart from the above considerations, the decision-makers have to face certain organisational and psychological biases that tend to compound the potential issues exponentially and thus, the implementation will be more critical. The key to implementing the strategic flexibility successful is to identify the areas where the changes are required and to take appropriate actions after

considering the above aspects. It is essential to have a team of management that is competent to make the right decisions and thus, the resources have to be allocated effectively. This leads to an increase in the value of the government entities and makes them very adaptable to the changing environments and to manage the risks effectively.

2.7 Role of E-Readiness in Helping Government Authorities for Crisis Management Using Strategic Flexibility

The increase in the interactions between the countries suggests a need for e-readiness. The traditional government has been dependent on much paperwork which often leads to hinder many government functions as well as their authorities. E-readiness plays a crucial role in helping the government and the entities to participate in the global arena, such as electronic governing, electronic marketing, etc. As suggested by Alghamdi, Goodwin and Rampersad (2016) the major role of the e-readiness is to make use of the information that is available through various sources, and thus the countries can sustain a significant growth and welfare. The readiness of a country towards the intimation, communication and technology (ICT) has led to having a number of advantages such as fostering the welfare of a government entity and the economy as a whole and helps them to take a participative as well as a collaborative approach towards social and economic value chains that are present throughout the globe (Aparicio, Bacao & Oliveira, 2016).

It is also useful for the countries to be aware of the Network Readiness Index that is useful for estimating the progress level that has been reached by the company as well as to develop the extent and quality of the infrastructure of ICT, electronic skills and regulations that are relevant to an organisation (Alghamdi, Goodwin & Rampersad, 2016). E-readiness often elucidates the extent to which a particular government enterprise or the government as a whole is prepared for adapting to electronic governance and other allied aspects. It ascertains the existence of the ICT

infrastructure that prevails in the country and the extent to which the ICT framework or infrastructure is accessible to the citizens of the country and to the business organisations that operate in the country and the extent to which such framework is likely to affect the regulatory as well as the legal frameworks. It also indicates the capacity as well as the ability of a government body to serve the local people and the communities by using tools of ICT.

With the advent of digitalisation, there has been an increase in the role of ICT in almost all the aspects of a government entity and to the country as a whole. The leaders of the developing countries can use the e-readiness as an assessment tool to plan as well as to measure the potential effectiveness of the integrated framework of the ICT (Alghamdi, Goodwin & Rampersad, 2016). Moreover, they can focus on internal efforts and find out the areas where there is an urgent requirement of the aide or external support.

The major limitation is that the governments often find it difficult to analyse the effectiveness of the ICT that can help them to not only achieve social as well as economic benefits but set certain realistic and achievable goals in accordance to the available resources. However, if the organisations take some effective steps towards sustainably using the ICT that it will help them to realise the objectives that they expect from the strategic changes. Acheampong et al. (2017) focused on the development of the measurable criteria to rank the implementations and to test the effectiveness of the e-readiness as a tool to foster the overall development of a country.

Ilgaz and Gülbahar (2015) elucidated several positive impacts of the e-readiness that will be faced by the organisations who will be adapting this particular tool. Firstly, it leads to establishing two-way communication between the government and the citizens of the country and thus, a sense of trust, as well as a collaborative relation, is established. The governments also interact to the governments and the organisations of other countries, and thus, there is an increase

in the international relations, which subsequently increases the economic as well as financial efficiencies of an economy (Alghamdi, Goodwin & Rampersad, 2016). Several researchers have termed e-readiness as an aspect that plays a pivotal role in the development of an economy, rather a country. It elucidates how society is transformed, including its movement from the traditional methodologies and relations to a modern way or multiple ways of thinking. Alaaraj and Ibrahim (2014) opined that one of the drivers of the transformation is dependent on several scientific ways of critical thinking that helps the various stakeholders to identify the facts that they are aware of and to know the facts that they are not aware of. Since the emergence of the ICT is expected to give rise to high costs and capital investments, the governments have been significantly concerned, and thus, e-readiness has led to an overall improvement that pertains to the national economy, performances of governances and human capital. Since these resources are critical and pivotal for the government organisations to make use of the strategic flexibilities to manage sustainable change, they have optimised the expenses of the government entities (Alghamdi, Goodwin & Rampersad, 2016). Aparicio, Bacao and Oliveira (2016) indicated e-readiness as a critical success factor for the government and also termed it as a source of competitive advantage that will help the concerned users to maintain overall stability in the economy and the foreign relations of the governments will also improve.

If the government of any country ensures as well as encourages the citizens of the country effectively use the digital technologies, it will lead to having a positive impact on the ability of the citizens of the country (Alaaraj & Ibrahim, 2014). Further, the users tend to utilise the technological aspects very skilfully, and thus, it leads to making the business, economy and the legal system of the government an efficient and transparent one. E-readiness also has a crucial role to play in providing substantial information regarding the financial aspects to the decision-

makers and thus, they make the investments decision based on such information. If the financial aspects of a country are readily available through various sources, the potential investors look for opportunities to invest in the economy and thus, the financial stability of the country is enhanced. The policymakers, on the other hand, are provided with a scorecard that depicts the competitiveness of their economy with the rivals, and thus, there arises a need for strategic flexibility. Further, it can also contribute effectively to the economic growth of a country by enhancing productivity from almost all the aspects.

The major realisation of e-readiness can be considered only when the concerned users in a country use ICT as a tool in an extensive way to boost its social and economic development. More precisely, the use of ICT has helped the governments to be proactive in decision making and thus, to increase the total factor productivity as well as the capital stock of the real ICT per worker (Alaaraj & Ibrahim, 2014). It also enhances how a particular country perceives ICT by not only increase the competitiveness of the national economy but also to create value for the new as well as the existing lines of services that prevail in the country. This further leads to improving the empowerment as well as the employment of a country. It has a crucial role to play in identifying the key trends and new opportunities which will subsequently lead to an increase in the competitiveness position of the company. Apart from the macro-level impacts of e-readiness, Alaaraj and Ibrahim (2014) have also indicated several benefits that have been achieved by the governments at the micro-levels. The improvements in the business transactions, enhancement of operations as well as management, optimum time and quantity of the services and the delivery and lastly to improve the quality of the services. The flexible decisions that are taken by the entities to manage the crises lead to impact the cost-effectiveness, reduce the dependency of the organisations on manpower, enhance the selection of a product, reduce the costs of procurement,

allow the transformation and sharing of information and most importantly, it tends to enhance the skills and attributes of the employees and ensure that they have relevant access to the trade information (Alaaraj & Ibrahim, 2014).

Apart from the impacts mentioned above, in general terms, the integration of e-readiness with the strategic readiness of the government in order to manage the crises has helped them to interact with the major stakeholders in a better way. This has also improved almost all the internal aspects of an organisation, helping it to compete in the global scenario effectively.

2.8   Summary

The literature review section was found to provide a wide range of information relating to both theoretical as wel as the methodological aspect of the present study area through a critical analysis of the varied journal articles used for the purpose. It has signified in great detail that crisis management has been identified to be one of the striking aspects of governmental operations in the Middle Eastern region of the world. The changing business dynamics and the operational environment has resulted in the government authorities to successfully go ahead with the establishment of a strong linkage between strategic planning and crisis management. The degree of flexibility exhibited by the countries of the Middle Eastern region, however, varies significantly. It is mainly due to the differential approach adopted by the government authorities of the respective countries. Moreover, the concept of e-readiness of government in terms of a managing crisis situation is highly significant in the wake of rapid advancements taking place in the surrounding environment of GCC countries. However, there exists adequate scope for improvement for the countries in terms of making effective use of technological advancements. The table below shows a summary of the literature review done in this chapter.

Table 2-1 A summary table for the literature review with key findings

#	Study Authors, Time of publishing	Study title	Study objectives	Key findings
1	Radomska, Joanna. (2015)	"Strategic Flexibility of Enterprises"	This study aimed to reveal the strategic flexibility in companies and their relationship in decision-making in relation to the strategies used in managing companies and ways to face critical situations that these companies are exposed to.	The results of the study showed that there is a positive relationship between strategic flexibility and decision-making in relation to corporate management and ways to face critical situations that they are exposed to, as strategic flexibility enhance the competitive advantage and increase the ability to make decisions.
2	Preedaananthasuk, Chatree. (2014)	"Integrated Crisis Management, What did We Learn from Flood Management in Thailand".	This study focused on how to manage the 2011 municipal flood crisis in Thailand, which resulted in widespread damage and losses in many areas.	The results of the study showed that the experience of flood management in 2011 reflected the weakness in the municipality of Sawan Nakhon and the municipality of Bakert, which was represented in the inability to use the available resources efficiently and the lack of readiness in their management of this situation. Therefore, work must be done to develop and improve flood prevention mechanisms to avoid disasters consequences in the future.
3	Taymouri, et al. (2014)	"An Investigation on the Relationship between Strategic Management and Crisis Management in Hospitals of ShahidBeheshti University, Tehran".	The study aimed to identify the relationship between strategic management with its sub-variables: (analysis, flexibility, planning, and control) and crisis management with its following sub-variables: (identifying crisis symptoms, preventing the occurrence of crises, correcting damages, improving, and learning)	The results of the study showed a significant relationship between the dimensions of strategic management and crisis management.
4	Fonkam, Mathias	"Application of Information and	This study aimed to use modern technological	The results of the study showed that the application of

		& Emmanuel, Ukpe. (2013)	Communication Technology (ICT) in Human Induced Crisis Management: The case of Nigeria".	strategies as a strategic means to solve and prevent crises	information and communication technology has a positive impact in managing crises within organizations
5	Yu, Feifei (2012)	"Strategic flexibility, entrepreneurial orientation and firm performance: evidence from small and medium-sized business (SMB) in china".	The study aimed to test the effect of the entrepreneurial trend on the performance of medium and small-sized companies in China, in addition to the effect of the entrepreneurial trend statement on the performance of medium and small-sized companies in the presence of strategic flexibility in its dimensions (resilience of resources, flexibility of coordination), and competitive sensitivity	The study found many results, the most important of which is that strategic flexibility and competitive sensitivity play a role in the impact of the entrepreneurial trend on the performance of medium and small-sized companies in China.
6	Jaques, T. (2012)	"Crisis leadership: a view from the executive suite"	The study aimed to conduct in-depth tests with senior executives in chemical industry companies in Australia regarding the leadership role in preparing for crises. The main challenge here is the scarcity of empirical research in leading the crisis.	The study found that there is a consensus that the ideal model for crisis management is crisis prevention.
7	Gryszkiewicz, Anna & Chen, Fang. (2012)	"Temporal Aspects in Crisis Management and its Implications on Interface Design for Situation Awareness".	This study, which was conducted in Swedish local authorities (county council and municipalities), aimed to examine the temporal aspect and its impact on designing parameter systems and their impact on supporting crisis management.	The study reached a design that expresses principles for the temporal aspects of crisis management systems to support the cautious situation, and the most important of these principles is to make information about past crises and past and current crisis management activities available to users and easy to access.

8	Eweni, Samuel O. (2012)	"Study of e-readiness assessment: the case of three universities in Nigeria".	This study aimed to reveal the electronic readiness of three universities in developing countries the case of Nigeria. .	The study recommended the necessity of having clear-cut policies and strategies, adopting electronic readiness for the development of the educational process
9	Wojciechowicz, et al. (2012)	"Information and communication technology and crisis management"	This study aimed to uncover the impact of information and telecommunications technology in the field of crisis management	The results of the study showed that there is a positive effect of using information and communication technology in managing crises and disasters that organizations are exposed to
10	Arnold et al. (2011)	"Enhancing Strategic Flexibility and Performance through Enterprise Risk Management: The Enabling Role of Information Technology"	This study aimed at knowing the level of enhancing strategic flexibility and performance in enterprise risk management considering the modified role of information technologies.	The results of the study clarified the existence of a relationship between risk management and strategic flexibility and information technology, and that the application of enterprise risk management as a strategic management approach enhances the reality of strategic flexibility and performance in organizations. The study recommended the necessity of providing evidence on information and communication technology that shows how to enhance the relationship between risk management, strategic flexibility and chain performance.

CHAPTER 3: THEORETICAL FRAMEWORK

In this chapter, the researcher deals with the theoretical framework, which is considered the central pillar in knowing the concept, the importance and the dimensions of study variables. In this chapter, the researcher discusses the most important opinions and ideas related to the study variables (strategic flexibility, crisis management, and e-readiness).

3.1 Strategic Flexibility

3.1.1 The Concept of Strategy

Porter (1996) argues that strategy is the process of creating strategic alignment between an organisation's environment and external factors in order to sustain a competitive advantage and remain competitive so that its competitors are unable to match its competitive advantage and mimic its activities.

Grant (2005, 21) defines it as a form of resource allocation in a way that helps the company to enhance and improve its performance. Olsen, (2007, 10) sees strategy as "the choice that determines the organisation's orientation and its relationship to compelling evidence, making the organisation more responsive to environmental variables".

Hunger and Weelen, (2010, 16) see the strategy as "defining the organisation's long-term core objectives and allocating the necessary resources to achieve the goals".

The researcher believes that the strategy means building the capacity and resources by the organisation, in order to invest in reaching the desired goals, and achieve competitive advantages to ensure its survival, growth and continuity.

3.1.2 The Concept of Strategic Management

Strategic management is the general framework that contains the strategy and works to achieve it for the benefit of the organisation. Higgins (1986, 3) believes that strategic management is a "sequential process, managing the mission of the organisation and determining the relationship of the organisation with its environment". "The process of realising the mission of the organisation, which is the real reason for which it was found" (Boseman, 1989,7). Sharplin, (1985,5) describes it as "the process of formulating and implementing plans and actions related to the core and cross-cutting issues that are important to the continuity of the organisation as an entity".

Accelerated dynamic environmental variables have led to the development of the concept of strategic management in order to help the organisation to operate successfully in a highly complex and rapidly changing environment so that it can adapt to environmental change and work with others to continue to develop and improve working methods, procedures and assessment tools. Therefore, managers must continue to analyse the variables to secure or modify the strategic plans within a specified period as the fixed strategic advantage no longer exists (Hunger and Weelen, 2010).

3.1.3 The Concept of Flexibility

The term flexibility was introduced in 1930 by (Stigher) in the context of the company's orientation towards accommodating the significant changes in the demand for the product, the emergence of information technology in 1980 had a definite impact in promoting the study and research on the subject of flexibility, and between 1980-1990 appeared the conceptual framework of industrial flexibility Then, the focus was on operational flexibility and later on strategic flexibility (Manders, Caniels & Ghijsen, 2014, 5).

Radomska (2015) argues that flexibility means the organisation's ability to quickly take positions and adapt to fundamental and fundamental environmental variables because of its significant impact on the functioning of the organisation for its survival and sustainability.

Flexibility requires the right and balanced approach by managers to allocate the necessary resources to select alternatives and implement decisions by avoiding significant investment in limited-profit projects (Shimizu & Hitt, 2004).

Flexibility can be defined in general as the extent to which the control system of the organisation to monitor and adapt to environmental variables remotely, it is a property that helps the organisation to adjust and adapt successfully to the circumstances, emergencies and stressful situations, by linking the factors of the administrative environment and external environment factors (De Toni & Tonchia, 2005).

Flexibility improves the efficiency, ingenuity, responsiveness and robustness of the institutional system, increasing customer and service satisfaction, as well as enhancing the ability to identify problems and find appropriate solutions to them by addressing them rationally, and giving managers the ability to deal with unexpected events (Wuttigrai, 2008, 145).

The researcher agrees with the concept of (De Toni & Tonchia, 2005) about flexibility in that it helps the organisation to adapt, adjust, and harmonise successfully with circumstances and events.

3.1.4   Types of Flexibility

Flexibility consists of the following types, as shown in Table 3.1 (Shirzad & Bell, 2013):

- Technological flexibility: the ability of the organisation to use the equipment, hardware and software in a flexible way to adapt to the rapid technological changes.

- Organisational flexibility: the ease of change in the structure and operations of the organisation, and the possibility of implementing a range of different activities and procedures to improve control in the environment of the organisation.

- Environmental resilience: the ability of the organisation to manage environmental impacts that will make it less vulnerable to emerging environmental incentives.

- Strategic flexibility: the ability of the organisation to suit the management of changing and turbulent situation, and means all the administrative capabilities related to the objectives of the organisation or environment variables.

Table 3.1 Types of Flexibility

Environmental Flexibility	Technological Flexibility	Strategic Flexibility	Organisational Flexibility
Flexible Needs of Buyers/Suppliers	New Product flexibility	Resources Flexibility	Operational Flexibility
The Flexibility of Industrial Relationships	New Technologies Flexibility	Market Flexibility	Work Rules Flexibility
	The Flexibility of Changing Business Models	New Design Flexibility	Logistic Services Flexibility
		Coordination Flexibility	

Source: Shirzad, Sara Robaty & Bell, David (2013). A systematic literature review of flexible E-procurement marketplace. Journal of Theoretical and Applied Electronic Commerce Research, 8(2),49-70.

3.1.5 The Concept of Strategic Flexibility

Researchers have many ideas about the definition of strategic flexibility, and although they differ, they meet in many ideas and contents. Table 3.2 shows the most important definitions and intellectual contributions made by some writers and researchers on the concept of strategic flexibility.

Table 3.2 Definitions Provided by Some Writers and Researchers on Strategic Flexibility

Researchers	Definition of Strategic Flexibility
(Radomska, 2015)	An important feature that allows modern organisations to be prepared to face changes in the environment of the organisation that are not predictable or predictable.
(Gosling et al., 2010)	A proactive capacity that aims at an organisation's ability to cope with environmental changes, as it enables it to take a proactive rather than reactive approach that leads to shortcomings in time, effort, cost and performance.
(Mackinnon, et al., 2008)	The organisation's ability to observe and assess, mitigate threats and exploit opportunities in a dynamic competitive environment.
(Evans, 1991)	The ability to switch from one strategy to another under the ever-changing environmental conditions which in case of environmental uncertainty.
(Olalekan, 2006, 52)	Adapt to accelerating environment variables, which means the organisation's ability to allocate and reallocate its resources to enhance performance.
(Shimizu & Hitt, 2004)	The ability of the organisation to allocate the necessary resources to take appropriate action at the right time and speed.
(Kastsuhiko & Hitt, 2004)	The ability of the organisation to recognise and respond to significant variables in the external environment by shifting the use of resources in good working ways.
(Combe & Greenly, 2004)	The ability of organisations to successfully adapt to and respond to accelerated environmental variables.
Abbott & Banerji, 2003)	The company's ability to respond and appropriately adapt to the surrounding environment, producing the right products and selling them at the right time, at the right price, and the right place.
(Grewal & Tansuhaj, 2001)	The ability of the organisation to manage risks by reacting proactively or reacting to opportunities and threats.
(Lau, 1996)	The ability of the company or organisation to adjust its strategies according to the changes in the environment
(Sanchez, 1995)	The ability to respond quickly to opportunities and environmental changes.
(Hayes & Pisano,1994)	The ability to change the strategy of the organisation within the available resources and capabilities, so that the organisation can adjust its market share, adapt quickly to market trends and make dynamic adjustment in line with its strategy.

By reviewing Table 3.2, the researcher finds consensus in most of the ideas, concepts and criteria put forward by these researchers and authors regarding the concept of strategic flexibility, and can be summarised as follows:

- Rapid response, adaptation and adaptation to environment variables.

- Adjust the strategy in line with environmental uncertainty.

- Ability to exploit opportunities in a competitive and dynamic environment.

The researcher believes that strategic flexibility is the ability of the organisation to harmony, adapt to environmental variables proactively through the preparedness and the readiness to modify or change its strategy, and exploit the opportunities available to face the difficult circumstances and changing variables promptly and in an appropriate manner.

3.1.6 The Importance of Strategic Flexibility

The current environment is characterized by rapid and continuous changes in a state of uncertainty, and this requires organisations (whether service or commercial) to adapt to this environment, and hence the importance of strategic flexibility as a primary goal of each organisation seeks to succeed and grow and continue in the long term, as it focuses on change and flexibility in designing and applying the organisation strategies. Strategic flexibility is linked to the ability of leaders to define the strategic plans of their organisations and how to implement them to ensure prosperity, growth, and excellence. Strategic management plays a significant role in getting organisations the strategic flexibility needed to adapt to changes and developments (Jansch, 2009). This requires organisations to look continually for the best flexible strategies and keep up with the internal and external factors that may be the effect on the nature of work.

The importance of strategic flexibility for organisations (service and business) lies in the following (Yonggui & Hing-Po; 2004, Katsuhiko & Hitt; 2004, Volberda; 1996):

- Increasing the capacity of the organisation to adapt to the accelerating environmental variables efficiently and effectively, and enable it to manage its activities in case of environmental uncertainty.

- Enhance the interaction between companies and customers through the ability to respond to the changing needs and desires of customers.

- Contribute to increase the ability of companies to find real value to customers by increasing the supply of products in many markets.

- The ability to change as quickly as possible in critical areas of the organisation's business strategy

- A strategic necessity for the organisations because it ensures the acquisition and possession of advanced capabilities.

- Provide organisations with the possibility to modify existing practices, builders of unstable environmental variables.

- To develop existing competencies in the organisation to improve its capacity to adapt and respond to its surroundings.

- It is also an aspect organisation probably find too difficult to imitate

Strategic flexibility has a positive impact on organisations (service and business) operating in business environments characterised by accelerating variables in a state of uncertainty, and this requires making the necessary adjustments in their current operations quickly to respond to the volatility of demand and technological innovations. Traditional methods in strategic planning as indicated by (Bhandari, Bliennel and Hassanein, 2004) by looking for strengths and weaknesses in

the internal environment, opportunities and threats in the external environment only, raise some question marks, due to the lack of flexibility of organisations in dealing with variables in the external environment and its rapid response.

Strategic flexibility is also necessary for service institutions that strive to achieve success and excellence. Many challenges are facing these institutions, including the successive crises resulting from environmental changes and rapid technological developments in addition to the challenges of economic, political and administrative. In light of all this arises the need for strategic flexibility in the service sector in general and Government Authorities in the Kingdom of Bahrain in particular. Under the current circumstances, organisations should not only respond to crises trying to stay and continue to exist through the policy of reaction for what is happening around it, but it must take affirmative action and proactive policy through continuous development, the adoption of strategic flexibility as a strategic option in the framework of an intellectual and strategic vision.

3.1.7   Strategic Flexibility Objectives

The real strength of the company's continued success in its rapid growth lies in its ability to adapt to changing environment variables, and in its sharpness of achieving strategic flexibility, it will be able to find new strategic options through different management levels, where the key to success in organisations lies in the ability to recognize the need for change, as well as an understanding of how it affects their strategies (Pauwels & Matthyssens, 2004)

The main objective of strategic flexibility is to enable the organisation to respond quickly to changes in the surrounding environment, and to seek interaction and adaptation through the provision of ready-made alternatives to face any new situation and move from one situation to

another quickly and with fewer losses and thus the most critical objectives of strategic flexibility (Radomska, 2005)

- Create multiple scenarios.

- Formulate a strategy for each scenario.

- Access to resources and skills to implement the strategy.

- Seek to implement the most likely strategy.

- The speed of readiness to build a strategic alternative if necessary.

3.1.8 Factors Affecting Organisations' Need for Strategic Flexibility

Globalization and the accompanying revolution in information and communication technology require organisations (service or commercial) to respond to the requirements of customers and service recipients, to provide what they need as quickly as possible, but not at the expense of neglect of the quality element, and there are several factors affect the sharpness of organisations for strategic flexibility including the following:

- Stability or Turbulence in the External Environment

Strategic flexibility is necessary only in dynamic environments. Its impact can be harmful in relatively stable environments because it leads to costs that are higher than expected if it continues to maintain strategic flexibility.

- Characteristics of Customers and Service Recipients

The rapid change in tastes, needs and desires of customers and service providers has contributed significantly to the organisations' need to adopt strategic flexibility to deal with customers with changing tastes and needs.

- Technological Change

It is one of the factors that affect environmental turmoil and can benefit from the strategic flexibility to manage the state of continuous dust in the business environment, where organisations that conduct activities that rely on technology that is rapidly evolving and serving customers with changing needs and desires to the flexibility to adapt to these developments.

- Size and Core Activities of the Organisation

The size of the organisation and its manufacturing, marketing and service activities are an important and influential factor in its strategic flexibility. This requires the provision of various types of internal flexibility. Also, the change in staff behaviour, work within the regulatory framework and information systems can help support strategic flexibility.

- The Role and Characteristics of Managers

There is an essential role for managers in achieving strategic flexibility, due to strategic decision-making in conditions of high environmental uncertainty, and insufficient information.

In addition to the above, the researcher believes that there is a no less important factor than the above factors, which is the role of the employees in the organisation, where the culture, the level of education and training, the level of job satisfaction, the standard of living and relations between employees at all levels, have an impact on the organisation's work both in natural and crises. These effects can provide essential opportunities for new services of high quality, or they can pose challenges that are difficult to meet.

3.1.9   Dimensions of Strategic Flexibility

Given the importance of strategic flexibility for the success of private and public organisations, both service and commercial, many researchers have conducted studies showing the

dimensions and indicators of measurement, and the researcher reviews the most important of these

dimensions as shown in Table 3.3.

Table 3.3 Dimensions Presented by Some Writers and Researchers on Strategic Flexibility

The Researcher	Dimensions of Strategic Flexibility
(Wei, Yi & Guo, 2014)	Resource flexibility and flexibility of coordination
(Schneider & Spieth, 2014	Flexible resources, flexible coordination, flexible administrative procedures.
(Singhi, Oberoi, Singh & Ahuja, 2013)	Operational flexibility, human capital flexibility, information flexibility, supply chain flexibility and financial flexibility.
Yu, 2012)	Resource flexibility and flexibility of coordination
(Kazozcu, 2011)	Resource flexibility and flexibility of coordination
Li, Su, Liu & Li, 2011	Resource flexibility and flexibility of coordination
(Iravani, Kolfal & Oyen, 2011)	Resource flexibility and flexibility of coordination
(Zhou & Wu, 2010)	Resource flexibility and flexibility of coordination
Mackinnon et al., 2008	Human capital flexibility, information flexibility, supply chain flexibility, and financial flexibility.
(Li, et al., 2008)	Resource resilience and resilience
(Bhandari et al., 2004)	Flexibility in technology, flexibility in product delivery, and flexibility in dealing with other organisations
(Combe & Greenly, 2004)	Resource flexibility and flexibility of coordination
(Sanchez, 1995)	Resource flexibility and flexibility of coordination

After reviewing the dimensions used by some writers and researchers shown in Table 3.3,

the researcher adopted the following dimensions: capacity flexibility, resource flexibility,

information flexibility and flexibility of coordination, based explicitly on (2008, Sanchez, 1995), (Li). el al), (Mackinnon et al., 2008) as these dimensions apply to government authorities in the Kingdom of Bahrain (as a service institution), and these dimensions will be addressed in some detail as follows:

- The Flexibility of Resources

The resilience of resources indicates that the organisation can deal with all its financial, human, knowledge and skills resources, which gives it the ability to activate its strategic options through different administrative systems (Bani Hamad, 2015, 30).

Resource flexibility refers to the ability to transfer flexible resources to multiple-use, it is expanding the selection of scarce resources (Wei et al., 2014).

- The Flexibility of Capabilities

Capacity flexibility reflects the ability of the organisation to take full advantage of new resources effectively to meet the needs of customers and service recipients (Bani Hamad, 2015, 30), which is the relative ability to achieve short waiting times through redistribution of production or services to respond to the change in demand fluctuations, product mix and others (Iravani et al., 2011).

Combe & Greenly (2004) defined them as dynamic capabilities as they relate to new resources appropriate to inter-variables, and include intangible resources and assets such as skills, learning and knowledge.

- The Flexibility of Information

In light of the rapid development of institutions, the importance of information systems has increased, and they play an essential role in all stages of strategic management, especially when

setting goals and formulating the strategy. Information is defined as data processed by information systems to become more useful for decision-makers so that they are valued in current use or when making strategic decisions in the future (SE, 2005, 131).

The flexibility of information is also known as the ability of the organisation to obtain the necessary information from information systems. It is divided into two types: reporting flexibility, which means the ability for the organisation to explore the necessary relevant information; decision-making and support (Mackinnon et al., 2008).

(Najjar and Houri, 2008) Described flexibility as being the ability of the information to adapt to more than one application and more than one user, and therefore the data must be available in a flexible manner so that it can be used effectively in the decision-making process by the various administrative levels.

- The Flexibility of Coordination

It means an institution's ability to shape, identify and deploy resources, and appears in a portfolio of strategic options, allowing alternative forms of resource coordination to create new products, and expanding and redistributing resources at low and short-term costs (Ahmad and Sabti, 2015).

The flexibility of coordination is defined as merging or linking different parts of the organisation together, allowing for integration, compatibility and coherence between different levels of management to achieve common goals efficiently and effectively. Through the coordination mechanism within the organisation, managers can communicate from the top to the bottom of the administrative level and exchange of different views and essential information In the context of dynamic and competitive evidence, the flexibility of coordination implies collaboration,

harmony and unifying efforts to effectively reshape and allocate resources between organisations to achieve their objectives. (Yu, 2012).

3.2 Crisis Management

In this section, we will learn about the concept of crisis, the concept of crisis management, stages of crisis management, as well as other topics directly related to crises.

3.2.1 The Concept of Crisis

There are several definitions of the crisis from the writers and researchers. Definitions have participated and agreed on many of the characteristics of the crisis; the researcher reviews the most important of these definitions in Table 3.4.

Table 3.4 Definitions Provided by Some Writers and Researchers on The Concept of Crisis

The Researchers	The Concept of Crises
(Sawalha, 2013)	An abnormal situation that leads to high risks in business organisations, we may develop into a disaster in case of neglect or mismanagement.
(Sarayrah, 2010)	Planned performance deviation from actual performance, or is the case of non-performance. Weigh between what has been done and what must be done.
(Coombs, 2007)	A sudden and unexpected event that threatens the operations of the organisation and negatively affects the organisation's reputation and financial situation.
(Gladwin & Kumar, 1987)	A situation that is likely to cause a significant loss in the institution and the possibility of repeating this loss.
(Fink, 1986)	It is a state of instability in which a decisive change occurs in the functioning of the institution, which may lead to positive or negative results, in the sense that it is a turning point in the life of the institution for the better or worse.
(Phelps, 1986)	A sudden event or emergency that leads to an imbalance in the current routine in the institution, which reflects negatively on its competitive position and requires immediate attention and rapid action. Accordingly, the

	event can be classified as a crisis of builders on the degree and level of imbalance it causes in the regular work of the organisation.
(Milburn, Schuler & Watmen, 1983)	A situation that represents a bilateral situation as an opportunity for the organisation to achieve its objectives and a threat is affecting the organisation so that it prevents it from being able to reach its goals or weakening its ability to achieve these goals.
(Ford, 1981)	A situation consisting of two main dimensions, the first is the threat of the inability of participants in the crisis to achieve the desired goals, and the second is the pressure of time associated with the perception of the participants in the crisis that the time is not enough to take the necessary measures to prevent the occurrence and worsening of losses.

The crisis is a turning point characterized by imbalance and imbalance in the working system followed due to the absence of adequate planning and readiness to deal with it, and may face all institutions, including the government authorities in the Kingdom of Bahrain, which must adopt and adopt modern strategic plans to help diagnose problems and the risks and crises of the past, and trying to predict the expected ones, to face them and the speed of response in dealing with them and defined by the researcher as: Abnormal situation out of control and lead to the disruption of the administrative or the productive entity or both (partially or wholly) for a lengthy or short term and for any reason which will threaten the achievement of the goals required by Government Authorities in the Kingdom of Bahrain on time for it.

3.2.2   Basic Characters of Crisis

Herman, 1963 discussed three characters of crises: Surprise, where the crisis suddenly arises in time and space. The threat, the crisis poses a threat to the present and future goals and interests of the organisation. Time constraints, as the decision-making time is limited. Herman, (1963) also added Scarcity of information, a significant lack of information and data necessary. James & James

(2008) mentioned Uncertainty, Interaction, and Complexity as the main characters of crises. According to Odemene (2013), what distinguishes a crisis are strength and violence surprise when the crisis occurs. Overlap, entanglement, complexity, and multiplicity of factors, elements, causes, and forces of opposing and supporting interests. The lack of information, which causes blurring and a blurred vision of the decision-maker. Fear and horror of the unknowns within the framework of the crisis. The lack of time, as the crisis is a surprise, and this does not allow enough time to face it and the speed of response. Threat: where the crisis threatens the strategic objectives of the organisation.

3.2.3 Types of Crises

Natural. Although many natural disasters are predictable because they evolve slowly, they often occur with little or no warning (Wettenhall, 2009). In such cases, governments and relief agencies are reactive rather than proactive in response. Because natural disasters are not preventable, preparation and planning can provide flexibility and speed in dealing with the crisis and its aftermath (Romero-Meza & Blanco-Vidal, 2011).

Technological. Whereas people cannot avert some crises, they can plan for them and avert potential damage, as in the case of the millennium date change, also known by the numeronym Y2K. Systems analysts expected computers to experience problems associated with abbreviating the four-digit year with two digits, as computers might have understood the year was 1900 instead of 2000. Dreadful predictions of financial systems crashes, elevators stuck between floors, and aeroplanes suddenly falling from the air were ex-ante justification for task forces, systems upgrade, insurance policies and other hedges against system failures, and other preparations for a post-1999 computer-driven world (Kratofil & Burbank, 1999).

Resentment. Rivalries often arise when workers compete for promotions, bonuses, and recognition or when leaders take advantage of their positions to intimidate employees in exchange for favours or rewards. The resentment created by ill will and hatred can quickly develop into a crisis and cause leadership teams and employees to fail to achieve shared goals and objectives. Perceptions and lack of clarity can influence organisational dysfunction, and lack of group sentiment can erode teamwork and divert resources and energy away from the primary functions of the organisation (Sharma, Roychowdhury, & Verma, 2009).

Resentment might disrupt systems that protect public safety and affect the financial and reputational standing of the organisation (Hargis & Watt, 2010). In the 1984 Bhopal disaster, junior managers failed to respond appropriately to the leak because they disliked their immediate supervisors, although they probably were unaware of the danger of the leak. The working environment in the Bhopal plant was angry, with clear animus between the mostly expatriate management and local employees and among the various departments running the plant. Such animosity was directly responsible for the conditions leading to the disaster, costing thousands of lives and millions of dollars to the company (Fury, 2010).

Skewed Management Values. Managers with skewed values often attempt to conceal their actions, which makes responses more complicated and more time consuming and increasing the adverse effects on employees, the organisation's financial security, and the brand's reputation. To achieve financial goals, the leadership might ignore business conduct and ethics rules, compromise product safety, or circumvent procedures to meet a deadline (Boyd & Webb, 2008). Leaders might attempt to deflect blame, employ crisis communication specialists to package the message in a more favourable light or flee the situation (Sandin, 2009).

Confrontation. Increased diversity can turn simple transactions into confrontations because of societal, cultural, or language differences and barriers (Kearney & Gebert, 2009; Kearney, Gebert, & Voelpel, 2009). Crises might exacerbate such differences when participants cannot communicate effectively, even in a common language, due to compressed communication opportunities (Choi et al., 2010). Without crisis response checklists and table top exercises where crisis managers can agree upon brevity codes and definitions in advance, communication might fail, and cooperation disintegrates into open confrontation and hostility as stress levels increase in such situations (Holloway, 2007).

There are four categories of crisis types presented by (1987, Shrivastrava and Mitrov):

- Internal technical/economic crises. Computer hardware failures, major industrial accidents and others.

- Foreign technical/economic crises. They are devastating environmental accidents, natural disasters and others.

- Internal humanitarian /social /organisational crises. It has occupational diseases, ineffective communication channels and others.

- External humanitarian /social /organisational crises. Such as terrorism, acts of violence, acts of sabotage, and so on.

Gundel (2005) presented a model expressed by Crisis Matrix, as shown in Figure 3-1, where crises were classified into four types as follows:

− Conventional Crises: They are located in the first square shown in Figure (3-1), where the vulnerability and predictability are known, and specific and often this type of crisis occurs due to the use of critical technological systems, such as crises resulting from chemical plants and nuclear power plants.

- Unexpected Crises: located in the second box shown in Figure (3.1), which are rare and sensitive to impact, but challenging to predict, unlike traditional crises.

- Intractable Crises: These crises are located in the third box of Figure (1-3) and are crises that can be expected, but it is difficult to influence or intervene to prevent or treat them because they are critical and inflexible crises, where they are difficult to control, and require unconventional measures to deal with.

- Fundamental Crises: These crises are located in the last square shown in Figure (3.1), and represent the most severe types of crises, as they are rare and difficult to predict and have tremendous destructive effects.

Figure (3-1) Crisis Matrix
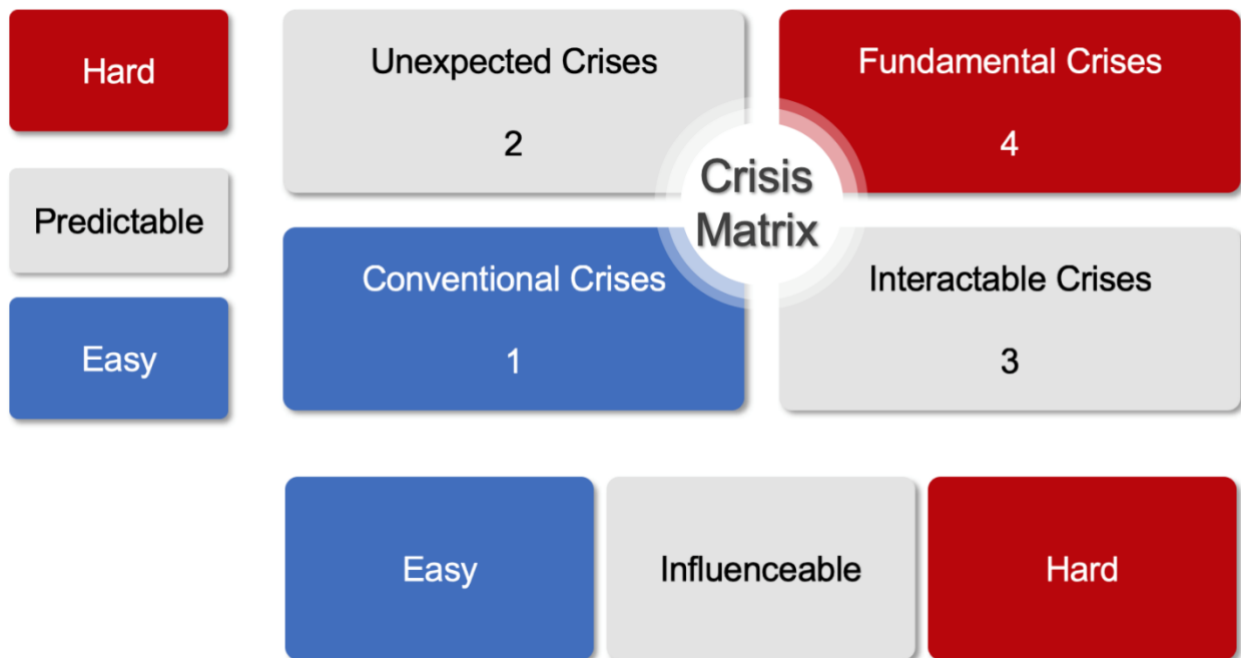
Source: Gundel, Stephan (2005). Towards A New Typology of Crises. Journal of Contingencies and Crisis Management, 13 (3), 106-115.

3.2.4   Effects of Crisis

Crises need to be planned in advance to deal with them. Otherwise, they will cause severe losses and hazards. Dealing with crises efficiently and quickly in the presence of advance preparedness leads to many positive effects and allows development and improvement, and therefore there are positive and negative effects of any crisis. Zhu, (2011, 12-14) summarise these effects as follows:

Positive Effects

– Pushing the administration to develop new policies to face potential future crises.

– Adopting a teamwork approach in dealing with crises and away from the uncoordinated individual work style.

– The success of the administration in the face of the crisis, helps them to increase creativity through the creation of new methods, procedures and behaviours unfamiliar to deal with crises.

– Sometimes the need for a crisis to allow the decision-makers to change the old strategies with new ones adapted to the current and future environmental developments.

– Providing expertise and competencies when dealing with crises, which in turn will have a significant impact on the organisation, especially the role of the Executive Director during the crisis.

– Crises allow the emergence of new ideas and new individuals able to prove themselves in dealing with these crises.

Negative Effects

- One or more human, financial, material or psychological losses of one kind or more coincide.

- To promote harmful behaviours and ideas during crisis management, where the administration may rush to take illegal ways to gain and get around the crisis.

- The emergence of a state of fear, horror and stress among workers to negatively affect their ability to make rational decisions.

- The inability of the administration to make sound and decisive decisions in the event of receiving cumbersome but inaccurate information about the crisis from several sources.

- Imposing a state of conflict of interest, poor relations between individuals, and sometimes losing control of things.

3.2.5   The Concept of Crisis Management

Researchers have many ideas and concepts about the concept of crisis management. According to Vardarlier (2016), the actions and behaviours of the organisation needed to be ready to face and manage major catastrophic events safely and effectively. It is a set of functions or processes to identify, study and predict the crisis. (Larson & Rudwall, 2010, 2). Goel, (2009, 16) defined crisis management as a system applied to prevent emergencies and the mechanism of dealing with them as they occur, to mitigate their devastating effects. Mittroff, (1994) explained that it is continuous evaluation of crises and forces that pose a significant threat to its employees, manufacturing processes, products and services and the surrounding environment. Crisis management includes a range of activities to design and implement crisis plans and procedures to detect signs of enlightenment, preparedness, prevention, containment of damage, recovery, and learning from crises. While Littlejohn (1083, 10) defines it as "a system or technique for avoiding contingencies

and planning to deal with unavoidable situations, to control the results and mitigate their destructive effects".

Through a review of the definitions of crisis management, the researcher believes that several factors are referred by crisis management, which was deduced from the previous descriptions.

- Recognising that the crisis is sudden and without enlightenment, and in the event of understanding there will not be enough time to take appropriate action, and this requires the development of plans in advance.

- Considering that the crisis may lead to the collapse of the entire system is a threat to the present and future of the organisation.

- Recognising the importance of obtaining information in a relationship, disclosure of information causes uncertainty and blurred vision for decision-makers.

- Considering the different crises in terms of nature, circumstances and results, and therefore the difference in the way to deal with them.

- There is a critical role for a time during a crisis, both in the process of forecasting and during its response.

- The possibility of repeating the same crisis in the future and this requires taking lessons from previous crises and the permanent willingness to prevent them.

- The crisis is not necessarily a bad situation; in some cases, it may be a positive experience for the organisation.

3.2.6 Factors Affecting the Success of Crisis Management

Accurate and timely diagnosis of accelerating variables and critical problems is a factor in crisis management, but it requires management: leadership, courage, alertness, knowledge, skills, and risk-taking capacity. In addition, dealing with crises requires leaders and departments in institutions, the use of administrative methods based on advanced scientific methods in monitoring the success factors of crisis management to follow the appropriate management approach to face potential crises and deal effectively with different stages, and therefore the most important of these factors Bieber, 1988; Wisenblit, 1989 Farazmand, 2001.

3.2.7 Crisis Management Stages

Researchers and writers have presented several models of crisis management stages to deal with crises faced by institutions and mitigate as much as possible their adverse effects, and to take advantage of the positive opportunities that can be invested. These models are converging with each other, and each model consists of the main stages experienced by most crises. The failure of management at any stage often exacerbates the crisis and increases losses and damages, and Table 3.5 shows the most important of these models.

Table 3.5 Models Presented by Some Writers and Researchers on The Stages of Crisis Management

The Models	Stages of Crisis Management
(Herrero & Pratt, 1995) Model	Problem management, planning - prevention, crisis, post-crisis.
(Augustine, 1995) Model	Avoiding the crisis, preparing for crisis management, recognising the existence of the crisis, containing the crisis, settling the crisis, benefiting from the crisis.
(Mitroff, 1994) Model	Feeling the possibility of a crisis - detecting warning signals, preparedness and prevention.

	containing the crisis, restoring balance and activity, and learning.
(Pearson & Mitroff, 1993) Model	Detection of early warning signals, preparedness and prevention, containment of damage, restoration of balance and activity, and learning.

The researcher adopted the model Pearson & Mittrof, 1993, which is one of the most famous models that showed the stages of crisis management as shown in Figure (3-2), as it represents a comprehensive approach and integrated perspective in dealing with crises, in addition to its suitability with the crises faced by the Secretariat Accordingly, crisis management consists of five phases as shown in Figure (3-2):
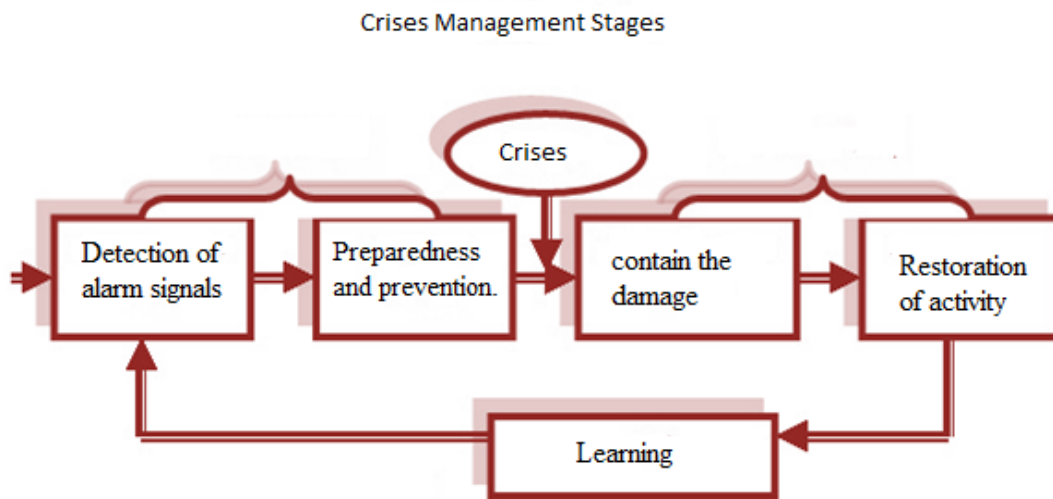
Source: Pearson, Christine M., & Motroff, Ian I., (1993). From crisis-prone to crisis prepared: A framework for crisis management. **Academy of Mgt. Executive**, 7, (1), 48-59.

The phases of this model (Pearson & Mittrof 1993) will be addressed in some detail as follows:

Stage 1: Detection of Alarm Signals

The crisis at this stage begins to emerge in the form of a vague sense of the existence of something looming, as it portends a potential risk, unclear the extent or extent to which it will reach, due to the lack of information about the emergency event, which can be obtained by management and often this stage The focus is on decision-makers in diagnosing weaknesses and deficiencies in activities and functions, as well as in identifying appropriate reactions to avoid possible damages of the event (Jr., 2015). The crisis sends a set of early and successive warning signals, which occur relatively long before they occur. If insufficient attention is paid to these signals, the crisis is very likely to occur. Alarm systems are thought to be tools that deliver pre-signs of possible malfunctions and walkthrough to know the dimensions of the situation before its exacerbation (Preedaananthasuk, 2014). Mitroff (1994) defines it as the pre-crisis phase, where the focus is on detecting early warning signals from events, preparing them for prevention and avoiding damage by management.

Crises often arise as a result of one or several problems that have not been adequately addressed. In this case, the decision-makers have the right to use the appropriate administrative processes to relieve the crisis before it reached an awkward stage to treat (Kendrick et al. 2019)

Several factors hinder early detection of a crisis and early warning of a crisis, which administrations must consider for the success of this phase (Jr., 2015):

Crises often arise as a result of one or several problems that have not been adequately addressed. In this case, the decision-makers have the right to use the appropriate administrative

processes to relieve the crisis, impede their development and growth, and then try to freeze or eliminate them. For an awkward stage to treat (Kendrick et al. 2019)

Several factors hinder early detection of a crisis and early warning of a crisis, which administrations must consider for the success of this phase (Jr., 2015):

- Withholding relevant information relevant to potential crises from interested parties.
- The organisation cannot respond quickly and effectively to emergencies that are predictable of crises.
- The existence of improper convictions among staff regarding the capacity of the Organisation, and therefore not paying due attention to potential risks, leading to crises.

Stage 2: Preparedness and Prevention

This phase reflects the preparedness and prevention of the management of the organisation to face the crisis after making sure that it cannot be avoided, to shade as much as possible of the damage and continue to make all necessary efforts to prevent it (Kendrick et al. 2019).

Preedaananthasuk (2014) argues that the preparedness and prevention phase is to exploit all the material and human resources of the organisation and to prepare for the crisis when making sure it is difficult to avoid, by trying to mitigate the adverse effects of them and shade the expected losses. Defined by (Mansoor, 2017) as a set of elements that show the extent of the administration's preparations through which crises can be predicted and prevented, as well as planning for crises that cannot be controlled, to reduce its effects as much as possible.

(Wang, 2009) defines the organisation's preparedness and preparedness to deal with the crisis after making sure it cannot be avoided to minimise its damage, and the management continues to make all possible efforts to prevent it.

Kouzmin (2008) emphasizes that this is the stage that comes after the detection of early warning signals, in which the organisation is able to prepare and prevent, and the organisation can strengthen its capacity at this stage through the following: routine examination and periodic maintenance of all equipment, technical guidance, and procedures using crisis management tools.

Crises can have significant negative impacts if they are unpredictable, confronted and dealt with scientifically. It is therefore essential for organisations in general and government authorities, in particular, to plan and organise preparedness, and to seek all necessary arrangements to respond to and prevent crises that may be exposed to them. Their effects as much as possible so as not to harm society and the environment.

Therefore, it requires all organisations to follow a set of procedures that ensure success in dealing with crises at this stage in particular (Mubeen, 2014):

- Formation of a crisis management team.
- Determine the duties of each member of this team.
- Identify the requirements and needs of the organisation to strengthen its capacity to respond to the expected crisis.
- Identify the most likely crises.
- Prepare, prepare and develop emergency procedures for all potential crises.
- Prepare a list of names and addresses of all relevant stakeholders.
- To put all the staff of the organisation fully on the expected problems and the procedures that have been put in place to address them.
- To provide an effective communication system between all staff in the organisation and between officials and external information, with the need for an integrated media plan.
- Establish specific procedures to be adopted and adhered to in the event of a crisis.

Stage 3: Contain the Damage

This stage of crisis management is to prepare the necessary means to reduce the damage and prevent it from spreading to other parts of the organisation that have not been affected yet. We expect the administration to implement the crisis response plans prepared by it for this purpose where the crisis is at its peak, which requires the exploitation and proper management of all available resources. To face them and get out of them with minimal losses and costs (1994, Mitroff).

Damage containment is considered one of the most critical phases of crisis management, and its specificity is that the specialised crisis team, which is composed of skilled and experienced people in dealing with crises, is activated and plans are implemented (Kouzmin, 2008).

This stage is the implementation of plans by the Government Authorities in the Kingdom of Bahrain, the translation of preparations and preparations on the ground, and the use and exploitation of all available resources to reduce the damage of the crisis and try to prevent the spread and aggravation within a short period when they occur.

Stage 4: Restoration of Activity

This is the stage in which the manifestations of the crisis are gradually disappearing, and the organisation's return to the natural equilibrium that prevailed before the crisis (Martinet, 2007, 33).

Mubeen, 2014, stressed the need to find managers who are competent in selecting programs, processes, elements and individuals (pre-tested and tested) at this stage, to carry out all day-to-day work to restore the organisation's activity after the crisis. External at this stage:

- Identify all internal and external needs.

- Identify the parties involved in this phase.

- Identify the most critical actions required to resume the activity.

- To mobilise resources to restore confidence and activity in the organisation.

- Determine the services and tasks required to conduct business.

- Identify the means of re-linking parts of the organisation.

- Identify the interaction between human requirements and technical means in recovery plans.

- Prioritise basic needs.

Stage 5: Learning

This is the last phase of crisis management, in which the plans and mechanisms used in the face of crises are evaluated to draw lessons from the experience of the organisation itself or from the experiences of other similar organisations to benefit from them and to form experiences to face future crises. Learning is crucial because it will make people able and willing to reduce anxiety, panic and fear. Learning does not mean exchanging accusations, blaming others, or creating a scapegoat, but focusing on developing and improving future capabilities and freezing current future problems (Mitroff, 1994).

In the learning phase, the experience is gained from the previous practices of the organisation, to be able to cope with the crisis itself or any other similar crisis in the future, and thus initiate development and continuous improvement (Odemene, 2013).

3.2.8   How to Manage Crises

Organisations are exposed to many types of crises, but they cannot prepare and plan for all expected crises with the available material, human and technical capabilities. In order to get out of this problem and to be prepared for as many crises as possible, successful organisations create the so-called "crisis portfolio". In this portfolio, potential crises are identified and then categorised into major groups based on their common characteristics and nature. The most severe crises are then selected from each group, and the preparation of action plans and preparations for coping with them is ensured. This ensures the readiness of the rest of the crises within the same group and so on (Shrivastrava, and Mitroff, 1987).

Therefore, the above method can be used to develop general crisis management plans that are flexible and comprehensive to deal effectively with the crises that organisations are likely to face, so that the differences and specificity of each crisis are considered in the group's approach to preventive and therapeutic treatment in situ (1981, Newton).

The process of planning for potential crises that organisations are likely to face,

The first step from which successful crisis management begins is where plans are prepared and implemented to respond to crises effectively. Hough & Spillane (2005) identified five steps to develop comprehensive crisis management plans:

- **Form a Crisis Team:** The selection of Crisis Group members is critical to successful crisis management, thus ensuring the survival of the organisation. Critical to successful crisis management, thus ensuring the survival and continuity of the organisation. Specialised experts from outside the organisation can be recruited when needed and experienced, and

competent retirees can be called upon to use them to analyse weaknesses and develop strategies to deal with crises.

- **Weakness Analysis:** Managers draw up a list of all expected weaknesses, and the crisis team should analyse events and evaluate results related to operational, financial, human resources and public relations.

- **Create Strategies:** It is the responsibility of the crisis team to formulate comprehensive plans to address the crisis and mitigate its adverse effects, as well as a list of priorities for potential crises.

- **Action Plans:** In this step, the implementation phase of strategies at the functional levels and the preparation and training of staff to work efficiently and effectively during crises.

- **Performance Evaluation:** Performance and analysis were identified, and deficiencies identified for future convergence.

3.3   E-Readiness

In this section of the research, we will learn about the concept and importance of electronic readiness (e-readiness), in addition to the requirements of the assessment of e-readiness and its dimensions.

3.3.1   The Concept of E-Readiness

E-readiness is a relatively modern terminology, a product of scientific and technological development in the field of administrative sciences, and has become one of the main issues that concern scientists and researchers interested in this field, and despite the frequent use of the concept of e-readiness and its circulation at present in various areas, but there is no comprehensive definition, specific and agreed upon, the views differed and there is much jurisprudence on this concept in literature, due to the novelty of this concept and its association

with information and communication technology, which is witnessing continuous development, as each of them biased to his speciality and interest in defining the concept of e-readiness. E-readiness, defined by Abraham (45-43, 2013) as a "measure of the degree to which a country, nation or economy is ready to receive the benefits of ICT".

The concept of readiness includes the establishment of specific standards in order to determine the level of advanced infrastructure owned by the society in general in the field of communications and information, thus being able to promote the task of integrating technology and communication tools with the various activities in the community, in addition to regulations and legislation dealing with the information dimension Its role in stimulating development (Al-Rezu, 2012, 159).

Durek & Redep, (2016) defined the readiness of enterprises in the public sectors through ICT infrastructures, human resource development, and the provision of material potential.

E-readiness is defined as the readiness of enterprises in the public sectors through ICT infrastructures, human resource development, and physical capabilities.

E-readiness is defined as the degree to which the economy or society is willing to participate in the digital economy (APEC 2000).

As noted by Eweni, (2012,9) it is "the state of readiness to participate in the networked world everywhere in the world, and the readiness of the institution and its ability to face the barriers and problems that stand in the way of their advancement."

Both (Turban, Miclean & Wethereby, J., 2009, 96) emphasise that e-readiness is considered the technological aspect of the information system, which represents hardware, software, databases, networks and other media.

E-readiness is often used to measure the readiness of a country to participate in e-activities such as e-commerce and e-government. In most cases, e-readiness is represented in terms of indicators, where different domains follow the classification of countries such as the number of telephone lines per 100 people, or the proportion of GDP That is spent on ICT infrastructure. The results are then defined and used to make comparisons between countries in the form of classifications (Dada, 2006).

The researcher believes that e-readiness is all that government authorities have of material resources, programs, systems, electronic devices and equipment, information and communication technology infrastructure, and qualified human cadres, in order to deal with the requirements of the recipient of the service and keep pace with technological development and the rapid changes in the surrounding environment.

3.3.2   The Importance of E-Readiness

E-readiness is a solid base for all organisations of all kinds, it contributes significantly in all respects, such as the high growth of productivity of workers in public institutions and companies, for example, global manufacturing uses modern communication systems to create a suitable environment for the success of enterprises and companies, and the organisation of economic frameworks in line with the foundations of its economic development and advancement, e-readiness (mobile phones, all ICT services, personal computers, service providers) forms the basis of the digital economy and the digital future of enterprises and the public. It also contributes to converting inputs into outputs such as providing appropriate services to domestic and international customers, which makes it an essential resource for achieving competitive advantage between enterprises (Zaid, 2007).

E-readiness is of great importance as it contributes to the creation of new and competitive business opportunities, and works to provide a suitable environment for the application of innovations and inventions.

E-readiness also provides information to decision-makers in public and private sectors regarding the appropriate levels of industrial consulting and the development of proper policies and plans for e-government projects (Potnis & Pardo, 2011).

E-readiness was an essential and strategic variable by contributing to the achievement of strategic objectives, improving the capabilities of individuals working in institutions, providing standards of trust, security and privacy, regulatory, legal and legislative frameworks, developing the economy and enhancing the welfare of organisations, and developing and improving mutual relations between the parties involved in the process. Interactive communication in the various functional units and the importance of e-readiness lies in the organisations and institutions in their ability to provide knowledge and information in their respective fields, which contributes to support and guide the institution and to achieve continuity and development of its long-term (Roy, and Upadhyay, 2017).

Based on the above, the availability of e-readiness in institutions is an imperative and a prerequisite for growth, development, excellence in light of the rapid technological development, which requires high readiness in technological infrastructure, qualified human resources, and financial capabilities, and above all will and support from senior management in these institutions to quickly absorb all the new technological innovations and make the most of them.

3.3.3 The Dimensions of E-Readiness

Although e-readiness models are widely used and currently circulated in various fields, there is no comprehensive and specific model that covers all topics and provides a complete set of data required to be agreed upon by specialists in the field of information and communication technology, views have varied on these models in the literature, the researcher reviews in Table 3.6 the most important studies and researches that addressed the dimensions of e-readiness.

Table 3.6 Dimensions Presented by Some Writers and Researchers on E-Readiness

E-Readiness Dimensions	Scholars
Technology and its accessories, creativity and innovation, educated and qualified human resources, self-development and time management ability.	(Aydın & Tasci, 2005)
Human resources skills, ICT infrastructure, access and network connectivity.	(Zaid, Khairalla & Alrashed, 2007).
Services offered by e-government websites, digital knowledge, types of technology, communication and infrastructure.	(Potnis & Pardo, 2011)
ICT infrastructure, human capital.	(Abdelghaffar & Elmessiry, 2012)
Network and ICT infrastructure, e-learning, key stakeholders, management and related support for e-readiness methodology.	(Eweni, 2012)
Skilled workforce, knowledgeable citizens, economy, digital infrastructure, industrial competitiveness, culture, ability and desire to compete, and cost of living.	(Pradhan, 2013)
ICT infrastructures and human resource development, providing material potential. Technological Readiness, Economic Readiness, Human Resources Readiness, Educational Readiness, Administrative Readiness, Environmental Readiness, Competitive Readiness and Legal Readiness.	(Durek & Redep, 2016)
Human resources skills, ICT infrastructure, access and network connectivity.	(Schreurs et al., 2009)

After reviewing the dimensions used by some writers and researchers and shown in Table 3.6, the researcher adopted the following dimensions to assess the e-readiness: ICT infrastructure, human resources, management requirements, and physical capabilities, based explicitly on (Durek & Redep, 2016), (Eweni, 2012, 44) (Schreurs, et al, 2009)

These dimensions will be addressed in some detail as follows:

First: ICT infrastructure. Technology is effectively used to adapt to technological innovation in an organisation and has two components: hardware and software. Hardware is part of the technology that includes physical components, while the software is the part of information-related aspects that are used to perform specific tasks, and if the company wants to adopt e-learning, it must have many requirements such as hardware and software necessary to use those devices, so that it owns physical devices (such as servers and networks), Access to essential services (Aydin & Tasci, 2005).

Second: Human Resources. There has been an interest in the personal skills required to obey manufacturing industries, and as a result of the importance of using ICTs, companies have become increasingly interested in attracting qualified people. On the use of modern technological methods (2010, Galve-GOrriz & Castel), pre-planning and preparation of training courses for employees in the institution, and the selection of qualified staff scientifically, practically and technically the most crucial rehabilitation of the dimensions of human resources (2014, Memarzadeh & Jahan).

There are four areas for assessing HR readiness: organisational culture, management and leadership, operational readiness, and technical readiness (Ajami et al., 2011).

Third, management requirements. These requirements vary from organisation to organisation, but most organisations share the following (Sparx systems, 2014,5):

* Documenting the process used to manage the requirements: Determining the powers and responsibilities of each organisation working

* Make the most of available resources, whether domestic or international, to the greatest extent possible.

* Interact with the team and review: Find effective communication channels to distribute information between different teams and direct them as required and their priorities.

* Project Management: Develop plans and strategies that clarify the objective to be achieved in the project management process in organisations, and the need for prior coordination to prevent overlap and overlap between departments, and to prevent duplication of administrative activities.

* Training: It is necessary to provide members of the organisations with the information, knowledge, capabilities and skills that lead to increasing the level of productivity in the organisation and achieving its goals, and to improve the quality of work, and to provide the community with sufficiency, upgrading and cooperation and contribute to achieving the goals of institutions.

* Provision of documentation and information: Accurate and integrated information, documents and reports contribute to making appropriate decisions to ensure the continuity of organisations.

Fourth: Physical capabilities. An indicator that measures and analyses enabling factors in the development of financial and physical systems in several economies around the world identifies priorities for improvement and sustainability in institutions — providing these resources for training, which is one of the essential elements of e-readiness (Eweni, 2012).

CHAPTER 4: METHODOLOGY

This chapter examines the methods and procedures used by the researcher in the study in terms of the study methodology, the study population and the sample, how to test it, the study tools that were used in data collection, and clarify the statistical methods used in analysing the data and extracting the results.

4.1   Research Strategy

Saunders, Lewis, and Thornhill (2012) identify seven research strategies. They define experiment research strategy as the one concerned about the link between two or more variables. The variables include the dependent and independent variables. Even though the current study focuses its attention on evaluating the link between the two variables, it is not experimental in the sense that it does not contain the experimental and control groups. Besides, it does not separate the issue of crises management and strategic flexibility from its social context as experiment research strategy usually does (Biggam, 2008). Accordingly, the experiment research strategy is not utilised to conduct the current study. Saunders, Lewis and Thornhill (2012) go-ahead to define case study as the research strategy that conducts an empirical investigation on a contemporary issue within its real-life context utilising various sources of evidence. They claim that its ability to evaluate issues under investigation is normally hindered by the number of variables whose data can be collected. The current study does not limit the scope to a particular institution as it does not use the case study research strategy.

An action research strategy on its part has a unique appeal in the sense that it involves an in-depth analysis of an issue under investigation with close collaboration between people involved in the problem area and researcher. However, it tends to be iterative in the sense that the process of collecting and analysing data together with the issue under investigation are revisited to determine

whether an issue under investigation has been solved or not. The process is repeated until the problem is solved (Saunders, Lewis & Thornhill, 2012). While this research strategy is good because it involves in-depth analysis, the current study does not address a specific problem that needs to be solved. Instead, it attempts to test the relationship between crisis management and strategic flexibility and the role of e-readiness as a moderating factor among authorities in the Kingdom of Bahrain without necessarily solving the inherent problem related to those variables. Accordingly, an action research strategy is not utilised to conduct the current study.

In contrast, a grounded theory research strategy is mainly inductive and even focused much on building theories. The current study is mainly deductive in the sense that it attempts to test a theory rather than build one. Accordingly, the grounded theory research strategy is not utilised to conduct it.

Apart from the above, an ethnography research strategy is similarly rooted in inductive research approach and it attempts to describe the social world. Besides, it consumes much time because a researcher needs to immerse himself/herself into the social world under investigation to understand it (Saunders, Lewis, & Thornhill, 2012). The researcher does not attempt to describe a social world through theory building. Furthermore, the research strategy is also not utilised to conduct the current study. An archival research strategy uses organisational documents and records as its source of data. The current study does not use archival research strategy in its analysis.

A survey research strategy that is mostly deductive is utilised to conduct the current study. The strategy is widely utilised in business and management researches to answer research questions relating to how many, how much, where what and who questions (Saunders, Lewis, & Thornhill, 2012). In contrast to the other strategies, it allows researchers to collect large amounts of data from sizeable sample sizes. Accordingly, it fits into the current study that attempts to collect

large amounts of data from a few research participants. Because questionnaires utilised in this research strategy to collect data are normally viewed as authoritative by the majority of the people, they are utilised to collect data in the current study. Another essential element related to this research strategy that makes it appropriate for the current study relates to its ability to collect quantitative data and analyse it using inferential and descriptive statistics.

Furthermore, another critical aspect is that the data that is collected using this strategy can provide possible explanations relating to the relationship between various variables. In this respect, the study can explain the relationship between strategic flexibility and crisis management within the environment of authorities in the Kingdom of Bahrain. Besides, it can explain the effect of e-readiness on this relationship. The survey research strategy was adopted to conduct the current study because it gave the researcher more control over research processes. As a result, the researcher was able to generate findings that were representative of the authorities in the Kingdom of Bahrain at a relatively lower cost than was economical.

4.2   Research Philosophies

Biggam (2008) holds the view that the philosophical world view that one holds towards reality has a significant influence on research epistemology. He identifies interpretive, critical and positivist views as the leading world views. A person who holds a critical world view perceives reality as historical and influenced subconsciously and consciously by political, cultural, and social circumstances. Accordingly, he accepts that historical forces restrain the crisis management that authorities in the Kingdom of Bahrain adopt. These aspects overlap with issues under investigation (drivers and barriers to crisis management in authorities in the Kingdom of Bahrain) but the study's focus would be to free the authorities from those forces. While the current study accepts the fact that historical factors might hinder authorities in the Kingdom of Bahrain from implementing crisis

management practices in the right way, it does not attempt to free those organisations from such historical influences (Bryman, 2006). Accordingly, this worldview is not adopted in the current study because its focus is to understand the effect of strategic flexibility on crisis management among the authorities in the Kingdom of Bahrain other than free the authorities from those forces.

In contrast to the above, a person who holds an interpretive world view believes that reality can only be understood through social interaction that can be understood in terms of place and time that form the basis of interaction. In line with this world view, a researcher who embraces the ontological assumption that is constructivism in nature would believe that multiple realities exist in life, thereby conducts a qualitative study (Biggam, 2008). While the current study acknowledges the fact that there might be multiple realities relating to crisis management and strategic flexibility in the Kingdom of Bahrain, the researcher does not believe that such realities would be influenced much by context under which they occur. Accordingly, an interpretive view of the world that is constructivism in nature is not adopted in the current study.

Conversely, a person who holds a positivist view of the world believes that reality is both objective and independent of the person who observes it and it can be predicted and measured. A researcher who holds such a world view would be interested in drawing inferences from sample and testing theories (Biggam, 2008). This world view fits into the current study because it attempts to test theories relating to the influence of strategic flexibility on crisis management and the effect of e-readiness on that relationship. Besides, the researcher seeks to make inferences from the study's findings.

4.3   Target Population

This related to the people and organisations that were eligible to take part in the study. Because the study focused on government authorities in the Kingdom of Bahrain, the target

population shown in Table 4.1 included all the authorities and the people who worked in them. It was presumed that anybody working in those organisations was able to answer research questions because he/she was engaged in one way or the other in those practices.

Table 4.1 The Government Authorities in the Kingdom of Bahrain and the Number of Employees (June, 2020 from Ministry of Labour and SIO)

	Authority Name	Number of Employees
1	National Oil and Gas Authority	37
2	Electricity and Water Authority	2691
3	Bahrain Tourism and Exhibitions Authority	114
4	Bahrain Authority for Culture and Antiques	182
5	Information and eGovernment Authority	503
6	National Health Regulatory Authority	115
7	Real Estate Regulatory Authority	267
8	Telecommunications Regulatory Authority	68
9	Education and Training Quality Authority (BQA)	105
10	Labour Market Regulatory Authority	373
11	Urban Planning and Development Authority	114
12	General Retirement and Social Insurance Authority	266
13	Sustainable Energy Authority	39
14	Horse Care Affairs Authority	41
	Total Population	**4874**

4.4 Sampling Method

Simple random sampling method was utilised to select the research participants who participated in the study. The process entailed selecting those people on a random basis without preferring some over others (Saunders, Lewis, & Thornhill, 2012). Accordingly, everybody who worked in Government Authorities in the Kingdom of Bahrain that was selected to take part in the study had an equal chance of taking part in the study. This was critical because the study sought to generalise findings despite the small sample size utilised. The basic theory of probability sampling is that if each member of a population has an equal chance of being chosen in a survey, those selected will be representative of the entire population. The best way to do this

would be to assign everyone in the population a number, to pick a set of random numbers, and to select from the sample all those people whose numbers have been selected at random. This is known as the EPSEM (Equal Likelihood of Selection Method) sample. The probability theory on which this principle is based goes a step further. Not only can the approach just mentioned include a reasonably representative sample, it is possible to determine how precisely the sample represents the entire population from which it was drawn. Those selected are typical or representative of the larger populations they have been chosen from. The number of selected respondents for each authority was relative to the total number of employees mentioned in table 4-1 above.

The sample size will be (370) respondents chosen randomly. The questionnaire will be distributed to those employees. The retrieved percentage was over 100%.

4.5 Unit of Analysis

For this study, the unit of analysis is the employee working in government authorities in the Kingdom of Bahrain. The unit of analysis refers to the level of combination of the data collected during the subsequent data analysis stage. In this research, the researcher treated each response as an individual data source.

4.6 Data Collection

The process of collecting data entailed all authorities in the Kingdom of Bahrain and selecting employees working in them on a random basis to participate in the study. Before the employees were interviewed, they were introduced into the study by explaining its benefits and possible risks to them. They were then requested to participate in the study voluntarily (Bryman, 2006). The ones who agreed to take part in it voluntarily were issued with a consent form to sign

and questionnaire to fill on their own. The questionnaires they filled were then collected and assembled for data analysis purpose.

4.7   Data Analysis

The Excel program was utilised to analyse the data that was collected from research participants. On the one hand, the descriptive statistics were utilised to describe the general attributes of the study whereas the inferential statistics were utilised to make general inferences about the target population.

First, a reliability, validity and confirmation factor analysis were conducted to determine the internal consistency, validity and the construct distinctiveness of the three variables (i.e., Crisis Management, Strategic Flexibility, and E-Readiness) of the study. The SPSS was used to do the test of outliers, Multicollinearity, normality and Homoscedasticity.

Second, a of which partial least squares (PLS) path modelling using Smart PLS 3 software was done to test the hypotheses of the study. This approach was necessary due to the multilevel, nested nature of the data (Raudenbush and Bryk, 2002). According to Raudenbush and Bryk (2002), partial least squares (PLS) path modelling aids researchers in a variety of purposes (e.g., prediction, data reduction and causal inference from experiments and observational studies). According to Acedo and Jones (2007: P242) "The PLS technique is justified where theory is insufficiently grounded, and the variables or measures do not conform to a rigorously specified measurement model or fit a certain distribution" Also Ainuddin. Beamish, Hulland, and Rouse (2007: P56) mentioned that "Use of PLS is especially suited to exploratory studies such as this, where the measures [...] are new and the relationships [...] have not been previously tested". Alpert, Kami ns, Sakano, Onzo, and Graham (2001, P.177-178) also said that "Formative indicators can only be analyzed using partial least squares (PLS), and not by using the more common structural

equation] technique of LISREL". Birkinshaw, Morrison, and Hulland (1995: pp646-647) mentioned that "PLS is most appropriate when assumptions of multivariate normality and interval scaled data cannot be made, and when the researcher is primarily concerned with the prediction of the dependent variable". Finally, Calantone, Graham, and Mintu-Wimsatt (1998, p.28) mentioned that "The PLS parameter estimates belter reveal the strength and direction (i.e., positive vs. negative) of the relationships among variables compared to correlation coefficients", "PLS avoids parameters estimation biases common in regression analysis".

Ethical Consideration

The current study collected data from human subjects. Accordingly, the following measures were observed to ensure that no one of them was harmed in any way by how the study was conducted. Firstly, they were issued with consent forms to sign before they participated in the study. The consent form committed the researcher in treating the data they provided with the utmost respect. As a result, the data was not shared with anyone or utilised in any other study other than the one it was collected for. The questionnaires they filled and returned were kept in padlocked cabinets and computers that were secured with strong passwords. Similarly, the consent form committed the researcher to not exposing the identity of research participants who took part in the study (Bryman, 2006). Accordingly, anything that could be utilised to identify them was not used anywhere in the study included in the process of analysing the data. Secondly, the research participants were informed that they could withdraw from the study at any given time without giving any reason. Accordingly, they were not compelled to participate in it.

4.8 Hypothesis Development

We highlight the potential link among the identified variables in the study. Figure 1, below, illustrates the Conceptual relationship among the independent variable (IV), the dependent

variables (DVs) and the moderating variables. The conceptual framework main idea is that Strategic flexibility that is divided into four dimensions (flexibility of capabilities, resource flexibility, information flexibility, coordination flexibility) has a great effect on Crises management. (Grewal & Tansuhai, 2001). Moreover, E-readiness divided into four dimensions also (ICT Infrastructure, Human Resources, Management Requirements, Physical Capabilities) influences the relationship between Strategic flexibility and Crisis management (Ivanov & Yankov, 2016). Having known this from the literature the Conceptual framework of the study was built to test the impact of strategic flexibility on Crisis management and the intersection effect of -readiness on this relationship. So mainly the conceptual framework is coming from literature with the contribution of this thesis which is mainly in dealing with E-readiness as a moderator.
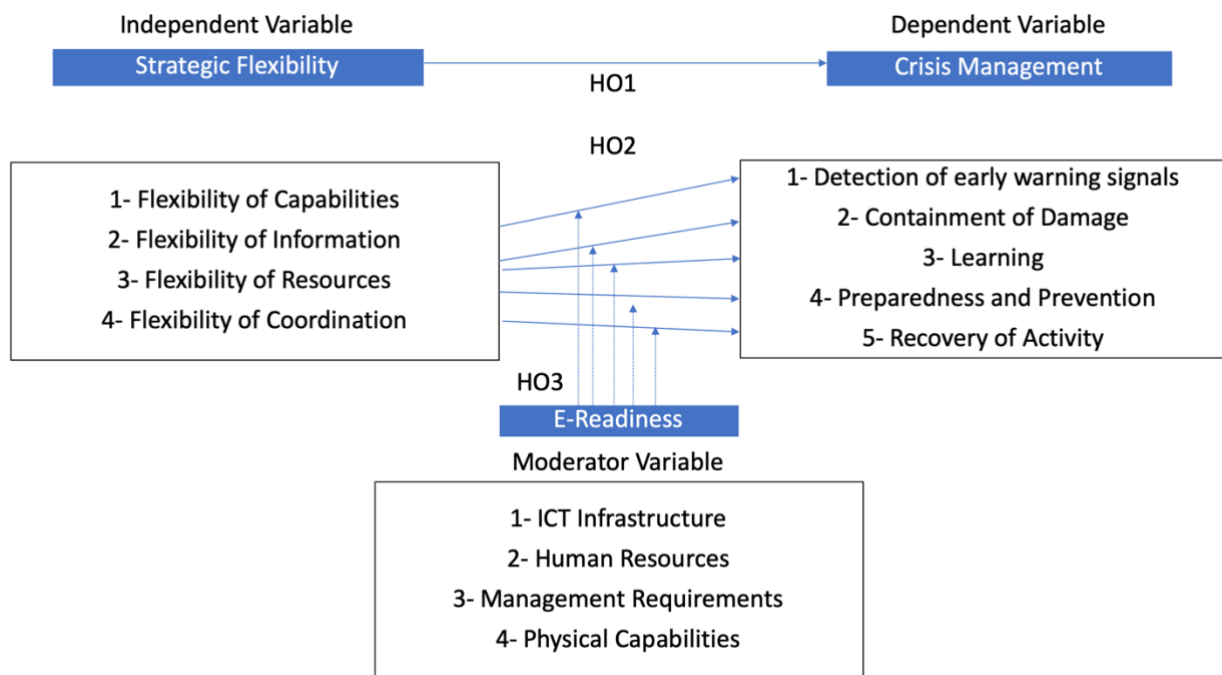
Figure 1. Conceptual Framework

Most decisions in organisations are related to opportunities and the allocation of resources that are used to build strategic flexibility. Organisations that build these resources lead to opportunities and other ways to make profits, therefore. In the context of regular events, when the organisation does not need to interact interactively and quickly with environmental facts, we expect that strategic flexibility will harm the performance of the organisation, but in cases of crises, strategic flexibility is likely to be necessary, as crises occur suddenly and with rapidly changing environmental conditions. The organisation is likely to face difficulty in its ability to change and develop its programs and strategies have been adapted to deal with these crises. Therefore, it needs a flexible approach to adapt to these developments (Grewal & Tansuhai, 2001).

Based on that, the researcher assumes that there is a vital role for strategic flexibility in enhancing the organisation's performance in facing potential crises. Therefore, this requires senior management in institutions to pay attention to strategic flexibility and build it as a strategic choice for survival, growth, development and recovery from crises. Given the above discussions, we expect the following:

H1: There is a statistically significant effect of strategic flexibility on crisis management in government authorities in the Kingdom of Bahrain.

This hypothesis can be divided into the following sub-hypothesis:

H1-a: there is a statistically significant effect of Flexibility of Capabilities on Crisis management in government authorities in the Kingdom of Bahrain.

H1-b: there is a statistically significant effect of Flexibility of Information on Crisis management in government authorities in the Kingdom of Bahrain.

H1-c: there is a statistically significant effect of Flexibility of Resources on Crisis management in government authorities in the Kingdom of Bahrain.

H1-d: there is a statistically significant effect of Flexibility of Coordination on Crisis management in government authorities in the Kingdom of Bahrain.

The above hypothesis represents the direct relationship between strategic flexibility and crisis management. To be able to explain this relationship the two variables were divided into dimensions. Strategic flexibility was divided into four dimensions (Flexibility of Capabilities, Flexibility of Information, Flexibility of Resources, Flexibility of Coordination). In comparison, management crises were divided into five dimensions (Detection of early warning signals, Containment of Damage, Learning, Preparedness and Prevention, Recovery of Activity). Given the above discussions, we expect the following:

H2: There is a statistically significant effect of strategic flexibility with its dimensions (capacity flexibility, resource flexibility, information flexibility, coordination flexibility) on crisis management with its dimensions (Detection of early warning signals, Containment of Damage, Learning, Preparedness and Prevention, Recovery of Activity) in government authorities in the Kingdom of Bahrain.

The following sub-hypotheses can be divided from the above central hypothesis:

H2-a: There is a statistically significant effect of strategic flexibility in its dimensions (flexibility of capabilities, resource flexibility, information flexibility, coordination flexibility) in discovering early warning signs of crises in government authorities.

H2-b: There is a statistically significant effect of strategic flexibility in its dimensions (capacity flexibility, resource flexibility, information flexibility, coordination flexibility) in preparedness and prevention of crises in government authorities.

H2-c: There is a statistically significant effect of strategic flexibility in its dimensions (capacity flexibility, resource flexibility, information flexibility, coordination flexibility) on containing damages of crises in government authorities.

H2-d: There is a statistically significant effect of strategic flexibility in its dimensions (capacity flexibility, resource flexibility, information flexibility, coordination flexibility) in restoring activity after crises in government authorities.

H2-e: There is a statistically significant effect of strategic flexibility in its dimensions (capacity flexibility, resource flexibility, information flexibility, coordination flexibility) in learning from crises in government authorities.

The Relationship Between E-Readiness and Crisis Management

Organisations face many crises and disasters, and they take multiple forms such as big fires, explosions in industrial and petroleum installations, warehouses and nuclear power plants, earthquakes, floods. In front of all this, they have had to develop their strategies and plans to face these crises that result in many material and human losses, this requires attention to e-readiness, especially concerning the necessary means of communication and information before, during and after crises.

Crises mainly occur as a result of the failure to identify risk, monitor and analyse information in the environment and report on it appropriately, which leads to the decision-makers failure to anticipate and deal with crises when they occur. Information is considered one of the

main pillars for facing crises by organisations and for addressing the essential risks, and the challenges arising therefrom. Hence the role of modern information systems in helping decision-makers and supporting them to avoid these crises and ensure successful management of them. Through these systems which monitor, and forecast events and changes generated by the environment and provide reports and information about them will help to prevent crises and prepare scenarios to face and reduce its implications (Reddy et al., 2009). Accordingly, there is a positive relationship between the e-readiness (with its content of techniques and information systems and sophisticated communications) and crisis management.

On the other hand, the main task of early warning, as a stage of crisis management, is to establish a system for monitoring, controlling, analysing and diagnosing. It gives the information received in a timely manner and takes the necessary measures to prevent possible events. One of the systems that are related to monitoring systems is the geographical information systems for early warning, which includes information about a specific part of the Earth's surface, above and below it, the relationship between objects, presence, and opportunities, and looking at changes that may occur in the near future. The main goal of the GIS is to create an adequate spatial data infrastructure for the crisis system. These kinds of systems show the importance of up-to-date and evolving information and communications technology (associated with e-readiness) in providing preventive, and timely information on the indicators of the direct and immediate threat of disasters and crises to the authorities, which provides an opportunity to respond quickly at the beginning of the crisis. Thus, a functional integration between geographic information systems, early warning and assessment of previous crises and pre-planning is the starting point for the process of real prevention and reduction of human losses and material damage. (Ivanov & Yankov, 2016).

The Relationship Between E-Readiness and Strategic Flexibility

There is great importance to invest in information and communication technology to reach strategic flexibility, and this requires e-readiness in large databases, communication networks, and integrated infrastructure, to support and enable strategic flexibility in the organisation. Therefore, the spread of knowledge and information technology integration and its ability to enable and strengthening cooperation relations between organisations leads quickly to adapt to the requirements of changes in the surrounding environment, and this is the essence of the strategic flexibility sought by organisations. Thus, investing in information and communication technology supports strategic flexibility and this positively affects the performance of the organisation, especially those institutions that operate in turbulent conditions accompanied by a state of environmental uncertainty. Here it must be emphasised that what the institution needs from the information and communication technology infrastructure, is not only data but also information and its flexibility. Real-time access to data is useful only to the extent that it can be retrieved and configured in a way that is feasible for immediate use, and the same applies to archival data and its capabilities as a source of information to aid in analysis and decision-making. (Mackinnon et al., 2008)

Researchers have found that IT applications (computer-aided design, digital data exchange) can give companies speed, high diversity, and high-value knowledge to respond to customer needs and new market opportunities, in other words, the organisation that has a high level of IT infrastructure, It can seamlessly integrate and support IT support operations for activities that allow greater flexibility, and therefore has more options related to digital tools, and this gives them a high level of strategic flexibility (Chen et al., 2017).

The Relationship Between Strategic Flexibility and Crisis Management with the Presence of E-Readiness as a Moderator

In light of the tremendous and rapid development in ICT, which is considered one of the essential elements of e-readiness, the availability of accuracy in the timing of information and exchanging it between organisations facilitate access to strategic flexibility. In turn, it leads to a strategic change to meet rapid changes and uncertainties in the surrounding environment. One of these changes is crises that all organisations are facing without exception. Strategic flexibility appears through organisational adaptation to environmental change in a timely manner. This shows the importance of e-readiness, which provides the necessary information and data in real-time, which positively affects strategic flexibility, which facilitates decision-makers in organisations to take advantage of opportunities and confront threats as quickly as possible (Srour, Baird, Schoch, 2016)

Achieving competitive advantage in institutions depends on the use of modern technology in e-readiness to remain in the business environment. However, technology in today's world is changing rapidly in all industries and it is necessary to keep abreast of these technological developments continuously through strategic planning characterised by strategic flexibility. Its importance appears to these institutions by focusing on strategically important matters and issues, adapting to rapid environmental changes, and helping them to make a proper allocation of available resources and identify ways to use them, improve results and overcome current and future crises (Jafar, 2017).

Arnold et al. (2011) assure that there is a relationship between managing companies risks and strategic flexibility and integration of information technology. They also pointed out a positive impact of information technology integration on strategic flexibility, and that there is a

positive impact of information technology integration on risk management. In other words, there is a need for both information technology and strategic flexibility for effective crisis management. Information technology mediates the relationship between strategic flexibility and risk management in companies, as it was found that there is a positive impact of the robust IT infrastructure on strategic flexibility, through which it facilitates and speeds the flow of information needed to manage risks and crises.

Given the above discussions, we expect the following:

Hypothesis 3: The higher the e-readiness in government authorities in the Kingdom of Bahrain, the more robust the relationship between strategic flexibility and crisis management.

This hypothesis can be divided into the following sub-hypothesis:

Hypothesis 3-a: The higher ICT infrastructure in government authorities in the Kingdom of Bahrain, the more robust the relationship between strategic flexibility and crisis management.

Hypothesis 3-b: The higher the Human Resources in government authorities in the Kingdom of Bahrain, the more robust the relationship between strategic flexibility and crisis management.

Hypothesis 3-c: The higher the Management Requirement in government authorities in the Kingdom of Bahrain, the more robust the relationship between strategic flexibility and crisis management.

Hypothesis 3-d: The higher the Physical Capabilities in government authorities in the Kingdom of Bahrain, the more robust the relationship between strategic flexibility and crisis management.

4.9 The Development and Validation of the Questionnaire

This research investigates the relationship between Strategic Flexibility and Crisis Management moderated by E-Readiness in the Kingdom of Bahrain. The literature review has brought out significant gaps that showed the moderating role of e-readiness is not adequately investigated. The literature review has also indicated that strategic flexibility effects have never been studied within the contexts of government authorities in the Kingdom of Bahrain. Although researchers have suggested the possible linkage between strategic flexibility and crisis management, no comprehensive study has been found in the field of crisis management that focused on trying to determine the effect of strategic flexibility (independent variable) in its dimensions (flexibility of capabilities, resource flexibility, information flexibility, and coordination flexibility) on crisis management (dependent variable) in its dimensions (detection of early warning signs, preparedness and prevention, containment of damages and learning), with the presence of electronic readiness (the mediator variable) with its dimensions (information and communication technology infrastructure, human resources, management requirements, material capabilities). These aspects have been discussed in detail in Chapter 2 and Chapter 3. Based on the inferences drawn in Chapter 3, a questionnaire was developed to test the empirical model created for this research. A pilot study was conducted as a follow up to the pre-test result of which are provided next.

4.9.1 Overview of the Questionnaire

The questionnaire development followed several phases until it reached its final shape, as shown in the below table. The questionnaire was developed based on previously adopted instruments found in the literature in which it was tested and validated (e.g. Sanchez, 1995; Li, Liu, Duan & Li, 2008; Mackinnon, Grant & Cray, 2008; Pearson & Mitroff, 1993; Al-Naji-2012; Al-Mtairi, 2011; Schreurs, Gelan, & Sammour, 2009; Durek & Redep, 2016)

No.	The Phase of Questionnaire Development	Number of Questions
1	Pre-Test	57
2	Pilot Survey	57
3	Main Survey	52

Table 1 Questionnaire Development Phases

The survey questionnaire is targeting employees in government authorities in the Kingdom of Bahrain. The territory used is the Kingdom of Bahrain as a testing ground. The Kingdom of Bahrain is a place in which government ministries and authorities employ different nationalities (Bahraini, Arab, and Non-Arab). Moreover, since Arabic is the first language of the county, the questionnaire was conducted in English and was translated into Arabic. This was also proven by the number of respondents to the Pilot Survey from a variety of ages.

The questionnaire in the Pilot Survey comprised of fifty-seven close-ended questions and seven questions with single answers. The seven multiple-choice questions are related to the demographic variable to describe the nature and distribution of the sample, there are variables such as sex, age, educational level, length of service and length of time in current position, and full-time, part-time status. The range of which possible responses for a scale can very. The 5-point ordinal scale used by respondents to rate the degree to which they disagree or agree based on their perception with each construct of the conceptual model. 5-point scale format is one of the most common scale used, as it is quite simple for respondents to read out the complete list of scale descriptors. Also, simulation studies and empirical studies have generally concurred that reliability and validity are improved using 5-point scales compared to those with fewer scales point (Dawes, 2008; Malhotra & Peterson, 2006).

4.9.2 Questionnaire Structure

A structured questionnaire was designed. The structured questionnaire consisted of four sections: the first section is the welcome page in which it highlights the purpose of the questionnaire and the aim of the research. The second section enclosed the consent form by listing 5 closed questions with only two possible responses; yes, or no, to confirm that the participant has read the Participant Information Sheet (PIS), the participant is over 18 years old, the participant has agreed to take part in this study, etc. The third section included sevens multiple choices with a single answer of nominal responses related to the demographic variables, such as sex, age, educational level, length of service and length of time in current position, and full-time, part-time status. The fourth section contained fifty-seven questions with a 5-point Likert scale of interval level responses, covering all the thirteen constructs of the proposed conceptual model.

4.9.3 Pre-Test Result

A pre-test of the questionnaire was conducted before the actual survey to ensure the content validity of the questionnaire to avoid repetitive items and to ensure that all items are clear and understandable (Sekaran and Bougie, 2013; Cohen, 1988). The pre-test consists of 57 questions that were taken from previously published studies. The pre-test was carried out by two experts in the area, two academics (PhD scholars), two experts in the field of Crisis management, two practitioners, and two HR directors in the authority of Water and electricity and authority of Labour market. The pre-test resulted in some minor modifications of a few other questions, such as editing, improving the language and grammar used in constructing the items.

4.9.4 Pilot Survey Result

Before conducting the main survey, a pilot survey was carried out in July 2020. The context of this research is government authorities and the target population under investigation are employees of those organisations. Employees of all levels were approached and somehow, they are playing a part in any new crises hence the study settings were found to satisfy the need of the research.

Microsoft forms was the tool used to post the survey questionnaire online. The hyperlink of the survey was distributed to all government authorities by email and WhatsApp.

Statistical Package for Social Sciences (SPSS) version 21.0 was used by the researcher to perform the statistical analysis to test the conceptual model. For the pilot analysis reliability and validity, tests were conducted in which the rang of the minimum and maximum values were derived from previous research methodology literature (Pallant, 2016; Sekaran and Bougie, 2013; Cohen, 1988). The reliability test was conducted by using Cronbach's alpha to measure the internal consistency of how closely items related to each construct are as a group. While Cronbach's alpha can vary from a minimum of 0 and a maximum of 1, the minimum value set as acceptable for this research, at the pilot stage was 0.7 (Sekaran and Bougie,2013). Furthermore, the validity test of the questionnaire was conducted using Pearson Product Moment correlations done by correlating each item in the questionnaire with the total scores. Also, the Item to item questionnaire that significantly correlated with the total score indicates that the items are valid. Meaning, inter-item correlation and item to total correlation for each construct. Correlation values are range from -1 to 1 with negative values that were usually not accepted. Based on prior research a correlation value for inter-item was set as acceptable at a minimum of 0.3. Similarly, item to total correlation value was set as acceptable at a minimum of 0.5 (Sekaran and Bougie,2013; Cohen,1988). During the pilot analysis, where an item was found to cause concern, thus lower than the above acceptable

value, depending on how far the statistical value differed from the acceptable value, and how many items would remain, the criterion to decide whether to retain or delete the item to measure each construct.

The below Table 2 and Table 3 shows the summary of reliability and validity analyses. Construct no. 2, and 6 (Flexibility of Resource, Preparation and Prevention Stage), have some issue with validity caused by some items as indicated below (Table 2), however, it was decided that those items to be retained under observation for the main survey for its validity, as item to item correlation and item to total correlation were expected to be improved with the larger sample size. Moreover, construct no. 4, 5, 6, and 7 (Flexibility of Coordination, Early Warning Signals Detection Stage, Preparation and Prevention Stage, Damage Containment Stage), were included items which caused serious issues with both reliability and validity (Table 2), deleting those items will improve both reliability and validity without causing concern to the adequacy of the number of items needed to measure the constructs (Table 3).

Pilot Survey

Table 2. Summary of reliability and validity analyses (before deleting questions)

No.	Construct	Codes	Items	Cronbach's Alpha (>0.7)	Item-item correlation (>0.3)		Item- total correlation (>0.5)		Remarks
					Min	Max	Min	Max	
1	**Flexibility of Capabilities**	FoCap	Q1-Q4	0.823	0.717	0.701	0.613	0.697	Reliability, item to item correlation and item to total correlation values are found to be within the acceptable limit. ***All items will be retained for the main survey.***
2	**Flexibility of Resource**	FoRes	Q5 –Q7	0.689	0.289	0.508	0.442	0.609	Items Q5, Q7, and Q9 reliability, item to item correlation, item to total correlation values are found to be within acceptable limits. However, items Q5 and Q7 were causing some concern, as the correlation between these two items is found to range from poor to good with a minimum of 0.289 which is slightly lower than 0.3. ***Items Q5 and Q7 might improve with a larger sample size. Hence, items Q5 and Q7 will be under observation in the main survey for its validity. All items will be retained for the main survey.***
3	**Flexibility of Information**	FoInfo	Q8 –Q12	0.838	0.315	0.749	0.585	0.819	Reliability, item to item correlation and item to total correlation values are found to be within an acceptable limit. ***All items will be retained for the main survey.***
4	**Flexibility of Coordination**	FoCoo	Q13-Q18	0.885	0.387	0739	0.621	0.825	Reliability, item to item correlation and item to total correlation values are found to be within an acceptable limit. Except for Q18, it has problems with Q16 and Q13 and Item- total correlation is less than 0.5

									All items will be retained except q18 will be removed for the main survey.
5	**Early Warning Signals Detection Stage**	EWSDS	Q19-Q24	0.837	0.193	0.803	0.335	0.827	reliability, item to item correlation and item to total correlation values are found to be within acceptable limits except for Q22 as the correlation between Q22 with Q19, Q21, and Q24 is less than 0.3 which an indication for deleting this Question. *All items will be retained except q22 will be removed for the main survey.*
6	**Preparation and Prevention Stage**	PaP	Q25-Q30	0.636	-0.092	0.760	0.166	0.823	reliability, item to item correlation, item to total correlation values are found to be within acceptable limits. However, item Q30 is causing serious problems concerning reliability, item to item and item to total correlations. Item Q28 and Q29 is showing a correlation that is less than 0.3 but it not so much low and because of that it will be put *under observation in the main survey for its reliability and validity.* *All items will be retained for the main survey except Q30 which will be removed.*
7	**Damage Containment Stage**	DamCon	Q31-Q37	0.806	-0.126	0.785	0.275	0.786	Items Q33, Q37, are causing serious problems concerning reliability, item to item and item to total correlations values with mostly all the other questions. For the other questions Reliability, item to item correlation, item to total correlation values are found to be within acceptable limits. *Based on the result Q33 and Q37 will be removed from the final questionnaire.*
8	**Activity Recovery stage**	ActRec	Q38-Q41	0.940	0.675	0.872	0.803	0.893	Reliability, item to item correlation and item to total correlation values are found to be within an acceptable limit. *All items will be retained for the main survey.*

9	**Learning Stage**	Learn	Q42-Q45	0.833	0.364	0.827	0.494	0.797	Reliability, item to item correlation and item to total correlation values are found to be within an acceptable limit. *All items will be retained for the main survey.*
10	Information and Communication Technology Infrastructure:	ICTInfra	Q46-Q44	0.822	0.415	0.746	0.606	0.865	Reliability, item to item correlation and item to total correlation values are found to be within an acceptable limit. *All items will be retained for the main survey.*
11	HR	HR	Q49-Q51	0.751	0.331	0.869	0.382	0.757	Reliability, item to item correlation and item to total correlation values are found to be within an acceptable limit. *All items will be retained for the main survey.*
12	Management Requirements:	ManReq	Q52-Q54	0.864	0.462	0.832	0.640	0.919	Reliability, item to item correlation and item to total correlation values are found to be within an acceptable limit. *All items will be retained for the main survey.*
13	Physical Capabilities	PhyCap	Q55-Q57	0.825	0.539	0.721	0.617	0.747	Reliability, item to item correlation and item to total correlation values are found to be within an acceptable limit. *All items will be retained for the main survey*.

Table 3. Summary of reliability and validity analyses (after deleting Q18, Q22, Q30, Q33 and Q37)

No.	Construct	Codes	Items	Cronbach's Alpha (>0.7)	Item-item correlation (>0.3)		Item- total correlation (>0.5)		Remarks
					Min	Max	Min	Max	
4	**Flexibility of Coordination**	INTADOP	Q13-Q17	0.841	0.395	0.795	0.546	0.799	Reliability, item to item correlation and item to total correlation values are found to be within an acceptable limit. *All items will be retained for the main survey.*
5	**Early Warning Signals Detection Stage**	EWSDS	Q18-Q22	0.866	0.328	0.803	0.535	0.825	Reliability, item to item correlation and item to total correlation values are found to be within an acceptable limit. *All items will be retained for the main survey*
6	Preparation and Prevention Stage	PaP	Q25-Q29	0.863	0.294	0.760	0.549	0.905	Reliability, item to item correlation and item to total correlation values are found to be within an acceptable limit. *All items will be retained for the main survey*
7	**Damage Containment Stage**	DamCon	Q28 –Q32	0.827	0.345	0.758	0.541	0.700	Reliability, item to item correlation and item to total correlation values are found to be within an acceptable limit. *All items will be retained for the main survey.*

4.10 Summary

This chapter has discussed in detail the ontological stance adopted by the researcher. Also, the chapter has critically looked at the research approaches, and methods found in the methodology literature and chose the most suitable approach and method for this research. Hypothesis development was also discussed in detail. Positivist that employs an objective ontology, deductive research approach and quantitative research method was adopted. The research design and research strategy for data collection used was survey research design, sampling process and self-administered questionnaire. The reliability and validity of the questionnaire was discussed. As part of the research design, the chapter dealt with the data collection and analysis aspects. Thus, this chapter sets the basis for analysing the data dealt with in the next chapter.

CHAPTER 5: PRELIMINARY TEST AND RESULTS

5.1   Introduction

This chapter was divided into two essential parts, namely pre-test data and data analysis. The first part was centred on ensuring the data collection was eligible for testing. Besides, the editing of the data, notably through data-screening, was discussed in the first part of Chapter 5, including the review of missing data. Furthermore, the first part of the chapter clarified the data characteristics in terms of normality, linearity, homoscedasticity, reliability, multicollinearity and outliers. Moreover, factor analyses were carried out across the data collection due to the factors excluding the unused factors in the study.

The second part of the chapter was concerned with data analysis. The research was required that the data be converted into information (Neuman, 2000), with Kerlinger (1986) stating that the results of information needed to be interpreted. The second part was centred on describing the variables revealing strength and weakness of the variable within the environment of Government Authorities in the Kingdom of Bahrain as well as testing the direct connection between the dependent variables and independent variables. Also, the moderation effects are typically discussed as an interaction between factors or variables, where the effects of one variable depend on levels of the other variable in the analysis.

5.2   Treatment of Missing Data

The missing data of this research found on to 2.4% of the total number of questionnaires (9 participants of 376 participants) due to incomplete questionnaires. However, most missing data were in the demographic variables which does not have so much effect on the main variables of the study. Missing data were given the value (99), which was defined as a missing value, so the

SPSS will not include them in any calculations. According to Norusis (1995), the removal of missing values in the sample and small missing data was recognised as having no effect on the outcome results.

5.3   Detecting Outliers

In the current study, the data value was converted into a z-score or standard score (Hair *et al.*, 2010). Hair *et al.* (2010) recommended that extreme values on one or more variables occur when the standard score is ± 2.5. This value range (± 2.5) of the standard score was recommended to a small sample size, which ranged less than or equal 80. However, the sample size is over 80, z-score is ranged (± 3) or ± 4.

Osborne & Overbay (2004) resolved multivariate outliers by omitting them from the data analysis. However, Kline (2011) and Tabachnick & Fidell (2007) have recommended keeping outliers when there are a few outliers in a large sample due to the result not being significantly affected. The current study used the z-score in SPSS, with the outliers retained due to a few outliers out of the current sample, as shown in Table 5.1.

Table 5.1 - Data Outliers

Variable	Case Number	Z-Scores > ± 3.0
The flexibility of Coordination: Q14: The authority considers the information received from its various departments when dealing with different circumstances.	327	-3.04
The flexibility of Coordination: Q15: The authority's internal units often collaborate with each other to find a new use for internal resources.	127	-3.1
	129	-3.1
	259	-3.1
	301	-3.1
Activity Recovery Phase Q33: The authority's management initiates awareness campaigns to deal with the damage caused by the crisis.	287	-3.17
	129	-3.17

Activity Recovery Phase	299	-3.08
Q36: The authority's management determines the needs of the various sites affected by the	360	-3.08
	361	-3.08
Learning Stage: Q37: The authority's management benefits from the previous crisis in improving and developing its procedures and plans related to crisis management.	32	3.21934
	100	-3.12
	129	-3.12
	207	-3.12
	273	-3.12
	291	-3.12
	299	-3.12

5.4 Test of Normality

It is a well-known fact that Likert data are discrete data, so it will not follow the normal distribution as the normal distribution is a continuous one, so normality testing will be done for the grouped variables (the average of statements for each variable) which will be used in the regression and the results are shown in Table 5.2 below:

Table 5.2 - Test of Normality: Shapiro-Wilk, Skewness, and Kurtoses.

	Shapiro-Wilk		Skewness		Kurtoses	
Crisis Management	Statistic	Sig	Statistic	Std. Error	Statistic	Std. Error
Early Warning Signs	0.974	0.456	0.087	0.126	0.223	0.251
Preparation and Prevention Stage	0.973	0.493	0.234	0.126	0.297	0.251
Damage Containment Stage	0.087	0.200	0.244	0.126	0.35	0.251
Activity Recovery Phase	0.193	0.049	0.076	0.126	0.422	0.251
Learning Stage	0.831	0.391	0.232	0.126	0.523	0.251
E-Readiness						
ICT Infrastructure:	0.625	0.290	-0.176	0.126	0.197	0.251
Human Resources:	0.532	0.176	-0.093	0.126	0.332	0.251
Management Requirements:	0.101	0.102	0.085	0.126	0.424	0.251
Physical Capabilities:	0.231	0.172	0.221	0.126	0.396	0.251
Strategic Flexibility						
Flexibility of Capabilities	0.097	0.061	-0.93	0.126	0.222	0.251
Flexibility of Resource	0.95	0.101	-0.78	0.126	0.099	0.251
Flexibility of Information	0.088	0.085	-0.86	0.126	0.4556	0.251
Flexibility of Coordination	0.078	0.063	-0.102	0.126	0.347	0.251

A Shapiro-Willis test (p > .05) (Shapiro & Wilk. 1965: Razali & Wall. 2011) and a visual inspection of their histograms, normal Q-Q plots and box plots showed that all the variable that will be used in the regression were approximately normally distributed, with skewness and a kurtosis shown in Table 5.2 also shows a normally distributed data. (Cramer. 1998; Cramer & Howitt. 2004; Doane & Seward. 2011).

Minor problem with variable "Activity Recovery Phase" but it will not affect the normality of the data or the result as the difference in the significance is very small, and the skewness and kurtosis show the normal distribution.

According to Pallant (2007) With large enough sample sizes (> 30 or 40), the violation of the normality assumption should not cause significant problems; this implies that we can use parametric procedures even when the data are not normally distributed (Elliott, and Woodward, 2007). If we have samples consisting of hundreds of observations, we can ignore the distribution of the data. According to the central limit theorem, (a) if the sample data are approximately normal then the sampling distribution too will be normal; (b) in large samples (> 30 or 40), the sampling distribution tends to be normal, regardless of the shape of the data (Elliott, and Woodward, 2007), (Pallant, 2007), and (c) means of random samples from any distribution will themselves have a normal distribution.

5.5   Multicollinearity

The substantial degree of correlation between the independent variables is referred to as Multicollinearity, which is a strong correlation between variables in the multiple regression model. Hair *et al.* (2010) suggested that, when the value of the correlation coefficient exceeds or is equal to 0.8, there are then proposed problematic.

Also, they suggested that the value of Variance Inflation Factor (VIF) should not exceed 10 and that the tolerance value should be no lower than 0.1 to avoid multicollinearity in linear regression. As Table 5.3 shows, multicollinearity was absent between independent variables.

Table 5.1 - Collinearity Statistics with Tolerance and Variance Inflation Factor

Predictor	Collinearity Statistics	
	Tolerance	VIF
Flexibility of Capabilities	0.590	1.696
Flexibility of Resources	0.579	1.726
Flexibility of Information	0.823	1.215
Flexibility of Coordination	0.789	1.268
Early Warning Signs	0.851	1.175
Preparation and Prevention Stage	0.811	1.234
Damage Containment Stage	0.888	1.126
Activity Recovery Phase	0.926	1.080
Learning Stage	0.959	1.043
E-Readiness	0.949	1.054
ICT Infrastructure:	0.952	1.050
Human Resources:	0.941	1.063
Management Requirements:	0.942	1.053

5.6   Homoscedasticity

The estimation variance of variables is referred to as homoscedasticity. Field (2009) commented that the assumption of variation of variables is required to be constant in multiple

regression and that, when the assumption of normality was met, the relationships between variables would be decided as having homoscedasticity.

Levene's test of Homogeneity of Variance can decide the variability of variables (Tabachnick & Fidell, 2007). Levene (1960) commented that the Levene test is defined as follows:

H0: $\sigma_1^2 = ... = \sigma_{10}^2$

Ha: $\sigma_1^2 \neq ... \neq \sigma_{10}^2$

The null hypothesis is rejected when the significant value of the Levene test statistic is found to be less than 0.05 and when the assumption of homogeneity of variance is not met. However, the null hypothesis is accepted when the significant value of the Levene test statistic is more than 0.05 and when the assumption of the homogeneity of variances are met.

The homogeneity of variance was met when the Levene statistic ($p>0.05$) (Martin & Birdgmon, 2012). Nordstokke & Zumbo (2010) commented that a non-parametric Levene's test was used to verify the equality of variances in the samples (homogeneity of variance). The homogeneity was tested in this research whilst the homogeneity of variance was met when the Levene Statistic ($p>0.05$) to the main variables of the study (Martin and Birdgmon, 2012).

5.7   Descriptive Analysis and Hypotheses Testing

The outputs of the data's preliminary process guided the current researcher to select the proper tools of testing the hypotheses, as created from theories in the literature review. This part will test fifteen hypotheses. The hypothesis was designed to test bot the direct relationship between Strategic flexibility and Crisis management and the moderating effect of E-readiness or any of it's components.

This study will use partial least squares (PLS) path modelling which has been used by a growing number of researchers from various disciplines such as strategic management (e.g., Hulland, 1999), management information systems (e.g., Dibbern, Goles, Hirschheim, & Jayatilaka, 2004), e-business (e.g., Pavlou & Chai, 2002), organisational behaviour (e.g., Higgins, Duxbury, & Irving, 1992), marketing (e.g., Reinartz, Krafft, & Hoyer, 2004), and consumer behaviour (e.g., Fornell & Robinson, 1983).

Table 5.4 - Respondent Gender

	Frequency	Valid Percent
Female	124	33.0
Male	252	67.0
Total	376	100.0

It is clear from Table 5.1 that males make up 67% of the study sample, while females constitute (33%) of the sample, and this indicates that most of the administrative staff are males, and the researcher attributes this to the prevailing culture that prevents the appointment of women, in addition to the tendency of many females to not accept these positions due to their field nature and the significant responsibilities they require.

Table 5.5 - Level of Education

	Frequency	Valid Percent
Lower than Bachelor's Degree	51	13.6
Bachelor's Degree	180	48.1
Master's Degree	126	33.7
Doctoral Degree	17	4.5
Total	374	100.0
Missing	2	
Total	376	

Table 5.5 above shows the distribution of the sample according to academic qualification and shows that approximately 48% of the sample members are holders of a bachelor's degree. There are also 33.7% are holders of a master's degree and 4.5% are holders of a doctorate degree, and this distribution shows that the employees working in Government Authorities in the Kingdom of Bahrain have a high academic qualification, which gives the researcher an initial reassurance of their ability to understand the study questions and answer them objectively.

Table 5.6 – Sample Age Distribution

	Frequency	Valid Percent
18-30 years	129	34.3
31-40 years	170	45.2
41-50 years	55	14.6
51-59	14	3.7
60 years and above	8	2.1
Total	376	100.0

It can be noticed from Table 5.6 above that 45% of the respondents whose ages range between (31 – to 40 years), while about (34%) of the respondents are between (18 to 30 years). This indicates that the largest percentage of employees of Government Authorities in the Kingdom of Bahrain are of middle ages.

Table 5.7 - Length of Service with the Organisation

	Frequency	Valid Percent
0-1 years	19	5.1
1-5 years	101	27.0
6-10 years	95	25.4
Over 10 years	159	42.5
Total	374	100.0
Missing	2	
	376	

Table 5.7 shows the distribution of the study sample according to years of experience, as about

68% of the sample individuals have more than 6 years of practical experience, but 42.5% of the

sample has more than 10 years of experience, which enhances the initial satisfaction with their

answers to questions of the questionnaire.

Table 5.8 - Length of Time in Current Position

	Frequency	Valid Percent
0-1 years	41	10.9
1-5 years	170	45.3
6-10 years	90	24.0
Over 10 years	74	19.7
Total	375	100.0
Missing	1	
Total	376	

Table 5.8 shows the distribution of the study sample according to time spend in their current

position, as about 45% of the sample individuals have time between 1-5 years in their current

position and 24% between 6-10 years, which enhances the initial satisfaction with their answers

to questions of the questionnaire.

Table 5.9 - Distribution of Sample Positions

	Frequency	Valid Percent
Manager	74	19.7
Supervisor	152	40.4
Clerk	67	17.8
ICT	24	6.4
Engineer	28	7.4
Researcher	9	2.4
Specialist	4	1.1
Accountant	9	2.4
Public Relation	6	1.6
Others	3	.8
Total	376	100.0

Table 5.9 reflects the diversity of positions of the sample, which increase the confidence of their answers to the questionnaire.

5.8 Descriptive Statistics for the Study Variables:

Table 5.10 - Descriptive Analysis for Strategic Flexibility

Statements/Variables	Mean	Standard Deviation	Level of importance*
Flexibility of Capabilities			
The authority's management has the ability to invest the available skills in research and development in a highly efficient way.	3.57	.991	Medium
The authority has a high potential in using available technology and employing it to improve and develop its services.	3.88	.941	High
The authority's management can deal with the uncertainties (suspicion, uncertainty, and ambiguity) associated with the surrounding environmental conditions.	3.59	.905	Medium
The authority's management has the ability to restructure its various capabilities (design, arrange, and coordinate its functions and work) in line with the changes in the surrounding environment.	3.73	.946	High
Total Variable Average	3.69		High
Flexibility of Resource			
The authority's management has the potential to invest in optimising its resources (human and material) in line with changes in the external environment.	3.57	.969	Medium
The costs of switching from one use of authority's major resources to an alternative use are low.	3.52	.926	Medium
The management of the authority has a high potential in adapting the appropriate and necessary resources to implement its operational strategy.	3.68	.883	High
Total Variable Average	3.59		Medium
Flexibility of Information			
The authority's management is keen to keep abreast of technological developments to benefit from it in the process of storing and retrieving information when necessary.	3.80	.972	High

The authority's strategies and policies are based on the collection of detailed information and its scientific analysis (thoughtful).	3.44	.981	Medium
The authority's management attracts experts in the field of information technology to benefit from their expertise in research and development.	3.46	1.001	Medium
The authority's management has the information necessary to make a decision in a timely (real) time.	3.59	.932	Medium
The authority's management depends on information sources that enable it to predict future events that it may encounter.	3.37	1.062	Medium
Total Variable Average	3.53		Medium
Flexibility of Coordination			
There are effective coherence and coordination between the efforts of the authority and institutions in the public and private sectors.	3.53	1.027	Medium
The authority considers the information received from its various departments when dealing with different circumstances.	3.69	.885	High
The authority's internal units often collaborate with each other to find a new use for internal resources.	3.77	.893	High
The authority's administration prevents duplication (overlapping and conflict) in administrative activities, and clearly defines terms of reference, tasks, and responsibilities.	3.32	1.112	Medium
The organisational structure of the authority ensures that the horizontal, vertical, internal and external communication channels between all levels are identified with a high degree of flexibility and clarity.	3.48	1.038	Medium
Total Variable Average	3.56		Medium
The Grand Average	3.59		Medium

∗　Level of importance is decided low if the mean is Between 1-2033, Medium if the mean is between 2.33-3.66, and high if it is between 3.66 and 5.

This part of the study relates to the description of the strategic flexibility variable and its dimensions to determine the level of availability of strategic flexibility in the Government Authorities in the Kingdom of Bahrain and to achieve this the arithmetic mean, standard deviation and the level of importance were extracted for respondents' answers to the strategic flexibility variable shown in Table 5.10.

The descriptive analysis above for the Strategic Flexibility shows a medium level according to the perception of the respondents as the grand average for all the four dimensions of Strategic Flexibility is 3.59 which is less than 3.66 which is the threshold between the high and the medium level. It looks like in the Government Authorities in the Kingdom of Bahrain have a problem regarding Flexibility of Information as it shows the lowest average between the four dimensions. The lowest average within this dimension was about using the information to predict the future. So, the authorities look like they use latest technologies to process and store the data (Statement 1 in Flexibility of Information) but they are weak in generating information from these types of data especially in predicting the future.

In the Flexibility of Coordination, it looks like the Government Authorities in the Kingdom of Bahrain have a weakness in preventing overlapping and conflict in administrative activities, and they are not according to respondents clearly defines terms of reference, tasks, and responsibilities. The statement representing this problem got the lowest average between all the statements of the Strategic Flexibility which is 3.32. This indicates that the efforts of the Government Authorities in the Kingdom of Bahrain to prevent duplication of administrative activities are not at a sufficient level.

The Flexibility of Capabilities got the highest average between the four dimensions, the lowest average in this dimension was the ability of authority's management to invest the available skills

in research and development in a highly efficient way. This is an indication that the investment of the skills and competencies available by the Government Authorities in the Kingdom of Bahrain is not sufficient. In the flexibility of resources, it looks like the costs of switching from one use of authority's significant resources to an alternative use are high as this statement got the lowest average in this dimension.

It is also noted that the arithmetic averages for the dimensions of strategic flexibility were close, and this indicates the compatibility between the respondents about the level of strategic flexibility in the Government Authorities in the Kingdom of Bahrain.

Table 5.11 - Descriptive analysis for: Crisis Management

Statements/Variables	Mean	Standard Deviation	Level of importance*
Early Warning Signals Detection Stage			
The authority administration monitors any signs, weaknesses, malfunctions, problems, or disturbances that may be an indication of a crisis.	3.54	.920	Medium
The technologies used in other institutions such as (meteorology, civil defence) help the authority manage the discovery of early warning signs of a crisis.	3.58	.933	Medium
The authority adopts a methodology for advance planning for crisis management in the event of its occurrence through a clear strategy prepared for that	3.49	.941	Medium
There is sufficient interest in environmental monitoring (discovering strengths and weaknesses, opportunities and threats) for indicators of crisis occurrence.	3.43	.980	Medium
The staff is qualified to perform the skills of collecting and analysing indicators of the crisis.	3.50	1.013	Medium
Total Variable Average	3.51		Medium
Preparation and Prevention Stage			
The scenarios prepared by the authority's management are commensurate with the nature of the crisis it faces.	3.49	.885	Medium

The authority's management is continually adopting the development and amendment of plans related to crisis management through a specialised unit (department).	3.46	.940	Medium
The authority's management has an active alert system with the aim of preventively forecasting potential crisis.	3.34	.986	Medium
The authority's management shares information on an expected crisis with all departments concerned as a precaution.	3.50	.947	Medium
The authority forms task forces with competencies appropriate to the nature of the potential crisis.	3.61	.900	Medium
Total Variable Average	3.48		Medium
Damage Containment Stage			
The authority's management has the ability to respond immediately to contain a crisis.	3.75	.859	High
The authority's management has the ability to diagnose crisis and their damages if they happen.	3.70	.932	High
There is flexibility (speed and capabilities) to move the available resources (material and human) necessary to contain the crisis.	3.70	.958	High
The management of the decentralised body relies on decision-making and delegation of authority to the relevant authorities in crisis situations.	3.53	.909	Medium
The authority's management is keen on enhancing awareness among citizens on how to deal with a crisis when they occur.	3.82	.947	High
Total Variable Average	3.7		High
Activity Recovery Phase			
The authority's management initiates awareness campaigns to deal with the damage caused by the crisis.	3.82	.888	High
The authority's administration is working to find a state of reassurance among workers to get rid of the consequences of the crisis.	3.71	.938	High
The authority's management is keen to adopt incentives to reward workers in times of crisis.	3.34	1.096	Medium

The authority's management determines the needs of the various sites affected by the crisis while providing the necessary resources to restore regular activity.	3.65	.860	Medium
Total Variable Average	3.63		Medium
Learning Stage			
The authority's management benefits from a previous crisis in improving and developing its procedures and plans related to crisis management.	3.74	.879	High
There is an objective assessment of the crisis (plans, practices, decisions) that have taken place to benefit from them in dealing with a similar future crisis.	3.66	.893	High
The authority's management is keen on tabulating the results of the crisis within an organised memory that can be easily retrieved and taking lessons and lessons for future use.	3.61	.911	Medium
The authority's management disseminates a culture of dealing with a crisis among employee groups in a simplified way by multiple means (brochures, booklets, lectures)	3.64	.953	Medium
Total Variable Average	3.66		High
The Grand Average	3.6		Medium

* Level of importance is decided low if the mean is between 1-2033, Medium if the mean is between 2.33-3.66, and high if it is between 3.66 and 5.

Table 5.11 above relates to describing the crisis management variable and its dimensions to determine the level of effectiveness of implementing crisis management at the Government Authorities in the Kingdom of Bahrain, and to achieve this, the arithmetic mean, the standard deviation and the level of importance were extracted for the responses of the sample on crisis management, which are shown in the table.

The dimension that got the highest average is Damage Containment Stage. In this stage, the statement with the highest average was "The authority's management is keen on enhancing awareness among citizens on how to deal with a crisis when they occur" with a value of 3.82.

The learning stage also has a high average which means. This indicates good performance in classifying the results of previous crises, and the government authorities benefit from previous crises to improve and develop their procedures and plans at the required level, in addition to the interest in evaluating previous crises to benefit from them in the future when facing similar crises. The stage with the lowest average was Preparation and Prevention Stage with an average of 3.48. The authority's management doesn't have an active alert system with the aim of preventively forecasting potential crisis according to the respondent.

The lowest average in the activity recovery phase was the statement related to incentives in time of crisis this indicates that the Government Authorities in the Kingdom of Bahrain in providing material and moral incentives to all workers in times of crises was below the expected level.

In the early warning signals detection stage, the results show that the lowest average was for the statement related to the sufficient interest in environmental monitoring (discovering strengths and weaknesses, opportunities and threats) for indicators of crisis occurrence. Which means that environmental monitoring by the Government Authorities in the Kingdom of Bahrain was below the expected level.

In general, the analysis indicates better management of crisis after it happened relative to preparing for a crisis before it happened.

Table 5.12 - Descriptive Analysis for: E-Readiness

Information and Communication Technology Infrastructure:			
The authority's management provides the most recent technology used in the field of networks and systems to improve and quickly implement electronic availability.	3.76	.958	High

Inter-departmental network communication enhances the speed with which information is exchanged.	3.91	.928	High
The authority's management has comprehensive databases of available resources (including public and private sector resources) that are appropriate to the nature of its work in all circumstances.	3.65	.917	Medium
Total Variable Average	3.77		High
Human Resources:			
The authority's management provides training plans to train and qualify employees to use information and communication technology technologies.	3.67	.954	High
Individuals have the appropriate qualification to use available technological devices to exchange necessary information related to crisis management.	3.68	.947	High
The authority's management is assisted by consultants who specialise in dealing with the application of the e-readiness methodology.	3.57	.949	Medium
Total Variable Average	3.64		Medium
Management Requirements:			
Senior management in the authority supports the policy of applying the e-readiness methodology.	3.72	.945	High
There is a strategic plan for implementing the e-readiness methodology linked to the information available from the crisis forecast centres.	3.54	.911	Medium
The higher management of the authority supports electronic connectivity with the relevant government institutions (Ministry of Works, Municipalities Affairs and Urban Planning, Civil Defence, Public Security, ...)	3.78	.878	High
Total Variable Average	3.68		High
Physical Capabilities:			

The authority's management is keen on providing the financial budgets allocated for updating the hardware and software necessary to enhance e-readiness.	3.61	.937	Medium
The authority's management provides the financial support necessary to hire qualified trainers to train workers to implement the e-readiness program in the authority.	3.56	.942	Medium
The authority's management provides the necessary financial support to send employees with qualifying external courses specialising in the latest computer hardware and software to keep pace with the rapid development of information and communication technology.	3.38	1.059	Medium
Total Variable Average	3.52		Medium
Grand Average	3.65		Medium

∗ Level of importance is decided low if the mean is Between 1-2033, Medium if the mean is between 2.33-3.66, and high if it is between 3.66 and 5.

This part of the study is concerned with describing the e-readiness variable and its dimensions to the level of e-readiness enjoyed by the Government Authorities in the Kingdom of Bahrain, and to achieve this the arithmetic mean, standard deviation, importance level was extracted from the responses of the respondents to the questionnaire on the e-readiness shown in Table 5.12.

The table shows a high level for all the dimensions of e-readiness except Physical Capabilities, but the average is also very close to the high level. This indicates a high e-readiness in the Government Authorities in the Kingdom of Bahrain. The lowest average (3.38) was about providing the necessary financial support to send employees with qualifying external courses specialising in the latest computer hardware and software to keep pace with the rapid development

of information and communication technology, which indicate that interest of the management of Government Authorities in the Kingdom of Bahrain to provide material and moral incentives to all workers in times of crises was below the expected level.

5.9 Testing Direct Effect of Strategic Flexibility on Crisis Management:

Model (1)

In this model, the effect of Strategic Flexibility (SF) and Organisational Crisis Management will be tested alone without the Moderating variable, in order to test the direct effect of SF on OCM. In this model we will treat the SF as a bundle and the OCM also as a bundle which will be like conducting a simple linear regression. This model will be helpful in testing Hypothesis no. (1).
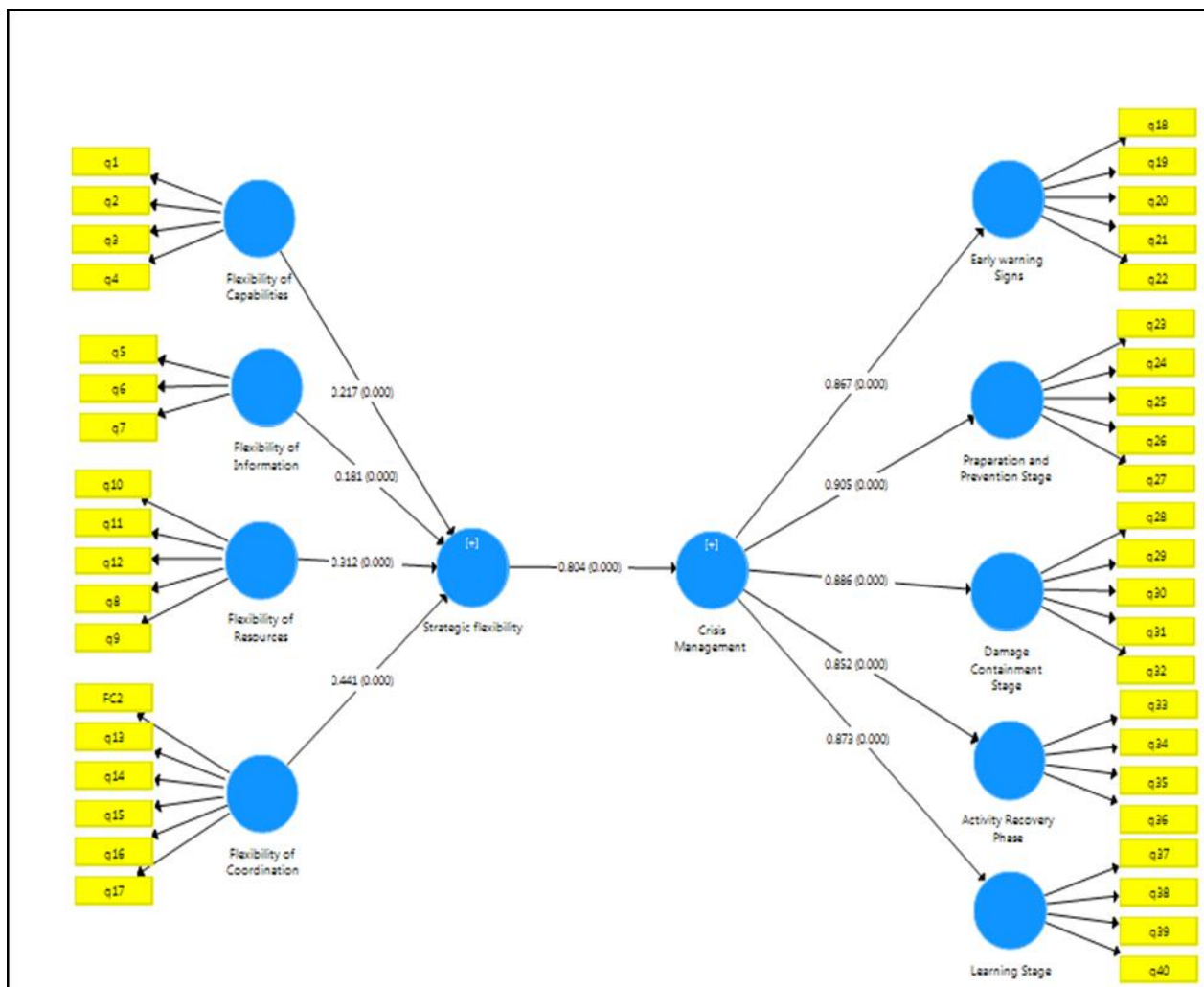
Model (1) Strategic Flexibility used as a bundle and OCM also used as a bundle. Reflective to reflective construct was used.

The results of this model show that there is a significant effect at level P=<0.01 of Strategic Flexibility as a bundle and Crisis Management as a bundle also.

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P-Value
Strategic Flexibility -> Crisis Management	0.804	0.803	0.026	31.399	0

Table 5.16
R-Square of the Endogenous Latent Variables

Constructs	R^2	Result
Crisis Management	0.646	Moderate

Chin (1998) suggested that the values of R^2 that above 0.67 considered high, while values ranging from 0.33 to 0.67 are moderate, whereat values between 0.19 to 0.33 are weak and any R^2 values less than 0.19 are unacceptable. For Model (1) R^2 is Moderate and very close to high which means that SF explains around 65% of changes in the OCM.

Regarding the Effect Size (F^2) it is = 1.826 between SF and OCM which is considered as large effect size. According to Cohen (1988), F^2 above 0.35 is considered a large effect size. F^2 ranging from 0.15 to 0.35 are medium effect size. F^2 between 0.02 to 0.15 considered small effect size, values less than 0.02 are considering with no effect size.

Model (2)

In this model, we will test each dimension of SF on OCM as a bundle to test for the direct effect of each dimension of Strategic Flexibility. This model will be helpful in testing Sub-Hypothesis (1.a - 1.b - 1.c - 1.d).
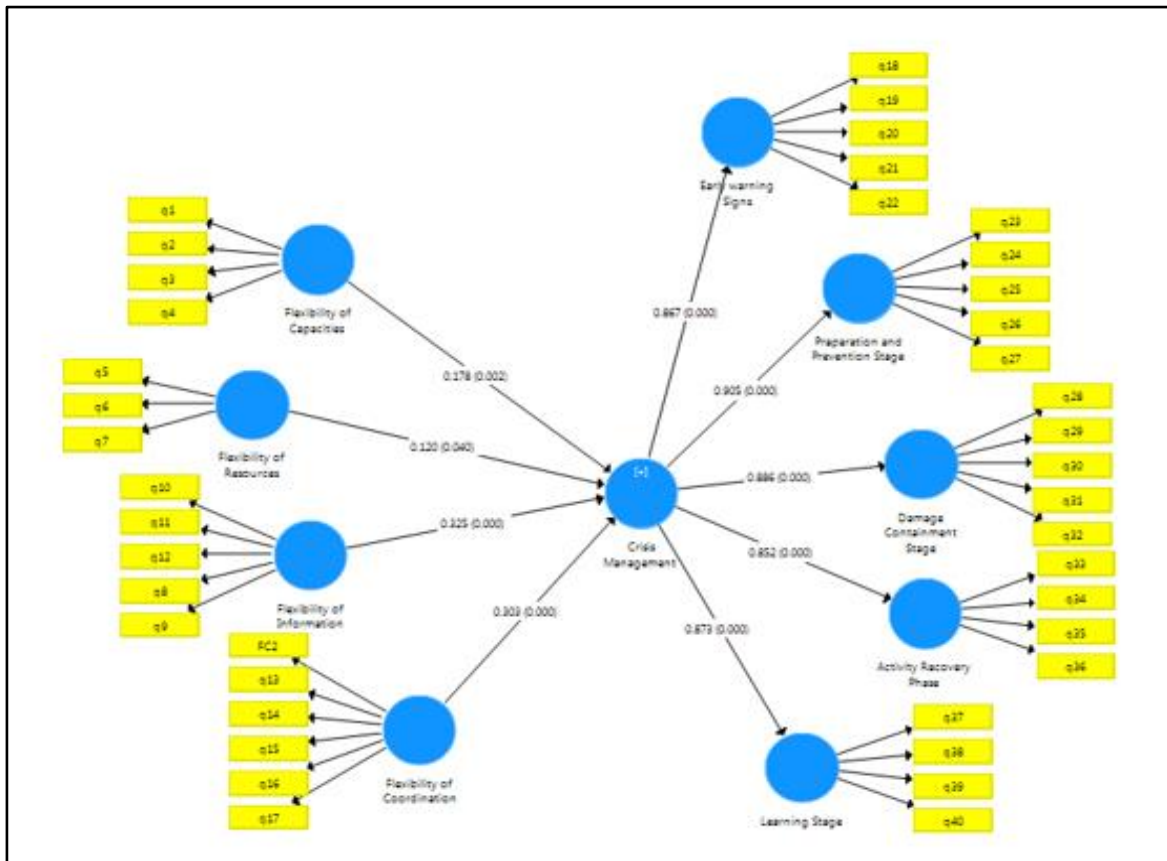
Model (2) testing the effect of each dimension on OCM. (Direct Effect)

As can be noted from the table all the dimensions of strategic flexibility have a significant effect on OCM as the four values of P are less than 0.05, which means that hypothesis 1 with its sub-hypothesis can be accepted.

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Flexibility of Capabilities -> Crisis Management	0.178	0.176	0.057	3.148	0.002
Flexibility of Coordination -> Crisis Management	0.303	0.303	0.06	5.063	0
Flexibility of Information -> Crisis Management	0.325	0.33	0.058	5.59	0
Flexibility of Resources -> Crisis Management	0.12	0.118	0.058	2.063	0.04

Table 5.16
R-Square of the Endogenous Latent Variables

Constructs	R^2	Result
Crisis Management	0.649	Moderate

For Model (1) R^2 is Moderate and very close to high, which means that SF explains around 65% of changes in the OCM.

The table below shows the Effect Size (F^2) for all the four dimensions of the Independent variable, which is = 1.826 between SF and OCM which is considered as large effect size.

Independent Variables	Crisis Management
Flexibility of Capabilities	0.046
Flexibility of Coordination	0.099
Flexibility of Information	0.113
Flexibility of Resources	0.02

According to Cohen (1988), the four dimensions have a small effect size, and flexibility of information is showing the highest effect size.

Model (3)

In this model, we will test the impact of SF on each stage of OCM. This Model also is a test of the direct relationship. Furthermore, will test the hypothesis No. 2 and its sub-hypothesis.
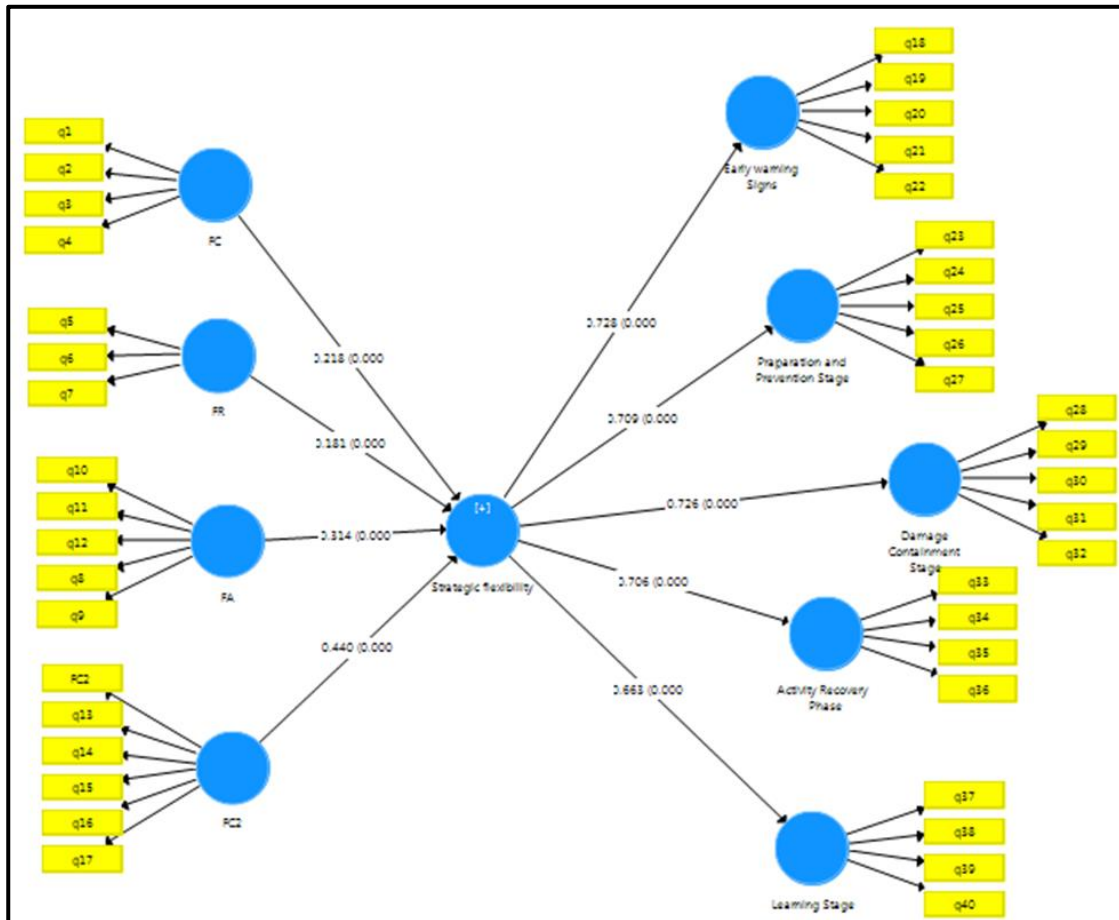
Model (3) The effect of SF on each stage of OMC

The table below shows that there is a significant impact of SF on each stage of OMC. As the P Values for all the stages is less than 0.01

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Strategic flexibility -> Activity Recovery Phase	0.706	0.706	0.038	18.647	0
Strategic flexibility -> Damage Containment Stage	0.726	0.727	0.031	23.426	0
Strategic flexibility -> Early Warning Signs	0.728	0.73	0.032	22.583	0
Strategic flexibility -> Learning Stage	0.663	0.663	0.042	15.708	0
Strategic flexibility -> Preparation and Prevention Stage	0.709	0.71	0.037	19.276	0

The table below shows the F^2, which reflect a strong effect of SF on all the dimensions of OCM.

The most substantial effect is the effect of SF on Damage Containment stage.

	Activity Recovery Phase	Damage Containment Stage	Early Warning Signs	Learning Stage	Preparation and Prevention Stage
Strategic Flexibility	0.993	1.116	1.13	0.786	1.012

The Table below shows R^2 for each dimension of OCM and it reflects a moderate

R-Square of the Endogenous Latent Variables

	R Square	Result
Activity Recovery Phase	0.498	Moderate
Damage Containment Stage	0.527	Moderate
Early Warning Signs	0.53	Moderate
Learning Stage	0.44	Moderate
Preparation and Prevention Stage	0.503	Moderate

5.10 Testing the Moderating Effect of E-Readiness:

Model (4)

In this model, all main variables are treated as a bundle. The aim is to test for the moderating effect of e-readiness.
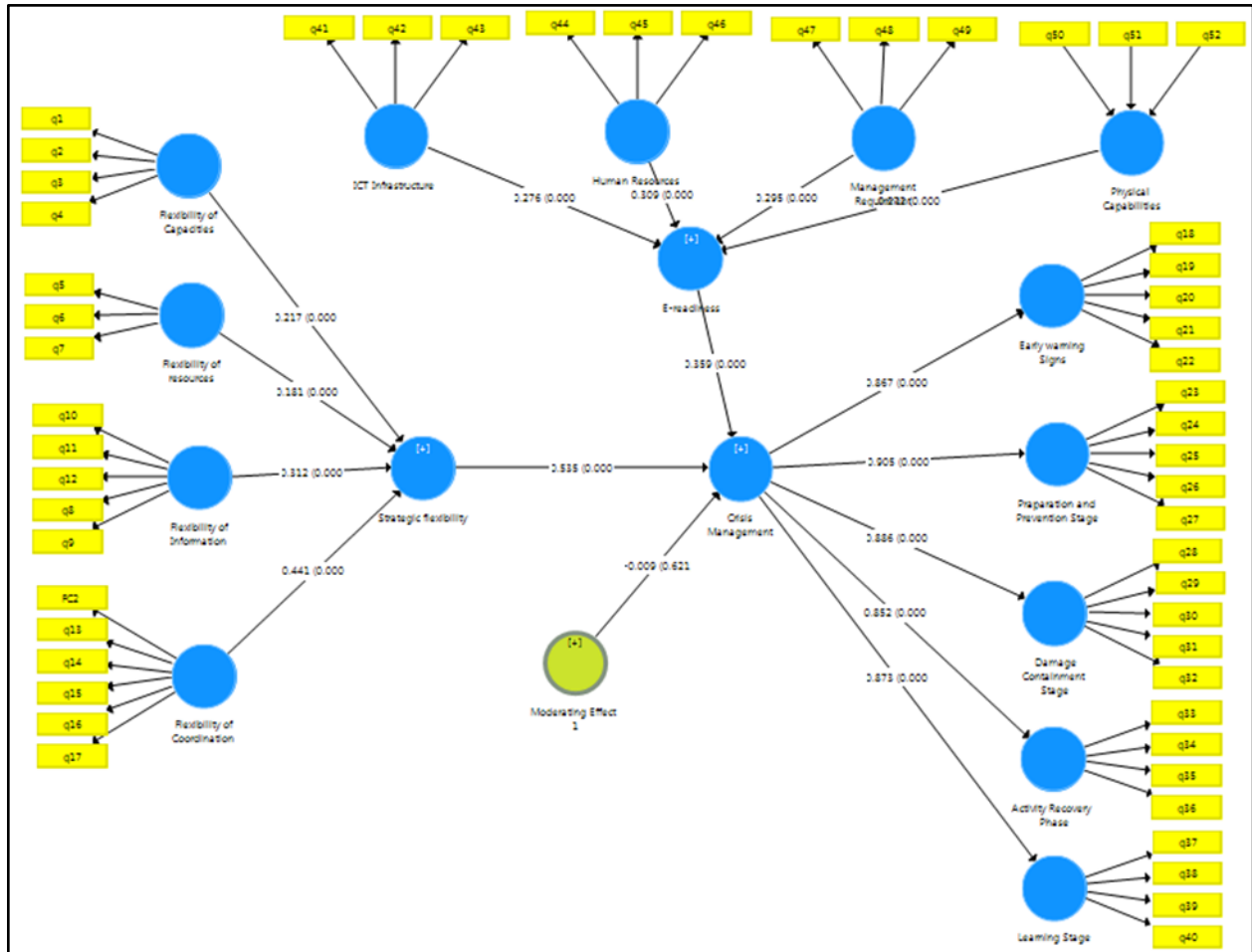
Model (4) to Test the Moderating Effect of E-Readiness

As can be noted in the table below the moderating effect of e-readiness was insignificant as the P-Value is more than 0.05 which means the null hypothesis is accepted and no significant effect for the e-readiness on the relationship between Strategic Flexibility and Organisational Crisis Management.

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P-Values
E-Readiness -> Crisis Management	0.359	0.36	0.052	6.927	0
Moderating Effect 1 -> Crisis Management	-0.009	-0.008	0.019	0.494	0.621
Strategic Flexibility -> Crisis Management	0.535	0.535	0.053	10.138	0

It can be noted that e-readiness has a significant effect on OCM but not as a moderator between SF and OCM. Introducing the moderator also does not affect the impact of SF on OCM as the impact is still significant.

The below table is showing R^2, which is high which means SF explains changes in OCM strongly.

R-Square of the Endogenous Latent Variables

	R Square	R Square Adjusted	Results
Crisis Management	0.706	0.704	High

While the F^2 size effect as shown

	Crisis Management	Results
E-Readiness	0.199	Moderate effect
Moderating Effect 1	0.001	No effect
Strategic Flexibility	0.431	Large effect

The table above shows no effect for the Moderating effect and a moderate effect for e-readiness and large effect for SF as the F^2 is higher than 0.35.

Model (5)

Because in Model (4) we found no moderator effect for e-readiness as a bundle, in this model we will treat it as a separate four moderators where each dimension will be considered as a separate moderator. This model will test all the sub-Hypothesis (3.a - 3.b - 3.c - 3.d) and the results as follows:
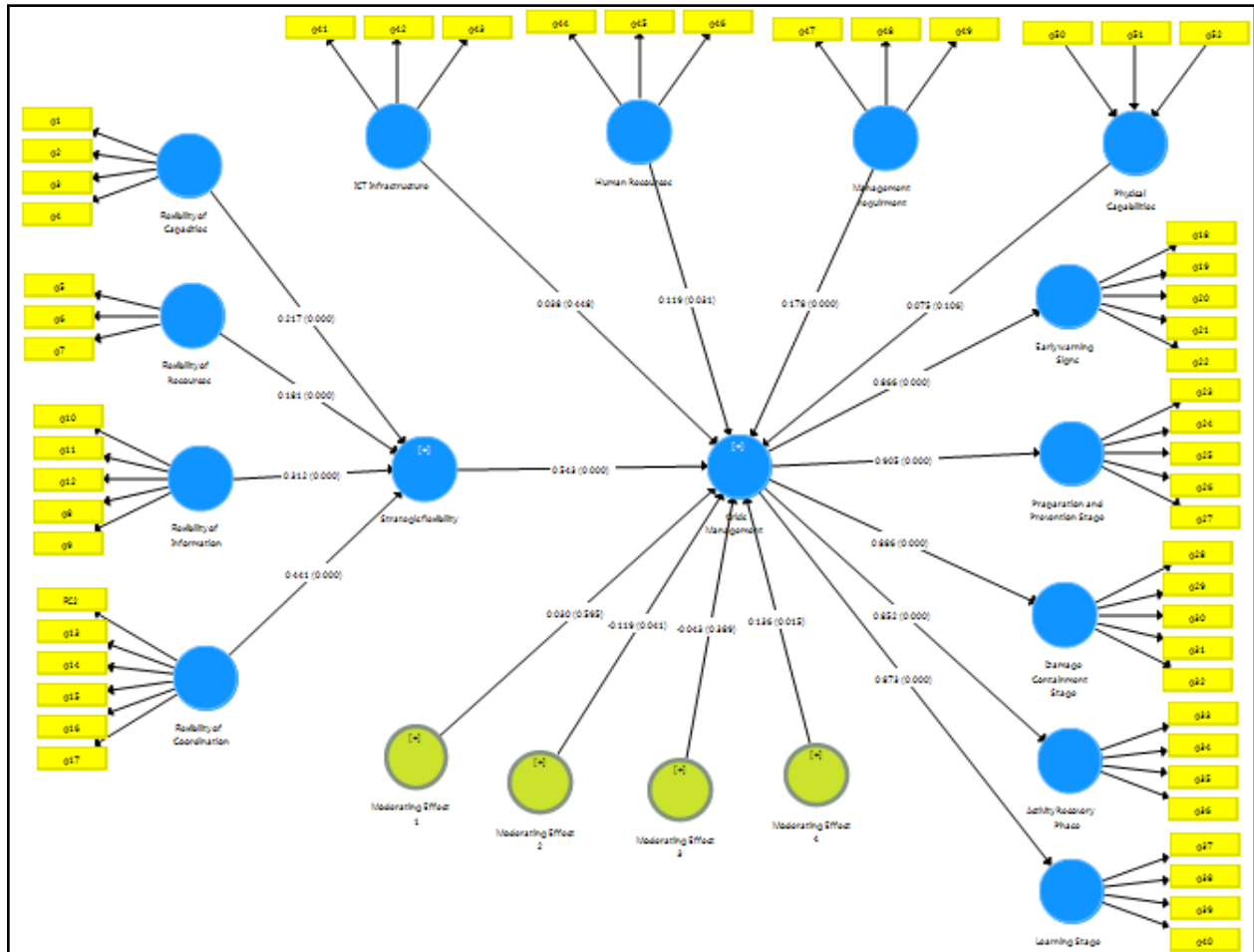
Model (5) treating the four dimensions of E-Readiness as separate moderators

The table below shows the results of the above model, where it appears that strategic flexibility has a statistically significant impact on organisational crisis management. It also appears that there is a modifying effect for each of the human resources that deal with computers

and communication devices and that there is also a modifying effect of the Physical Capabilities

in the electronic field as the P-Value is less than 0.05 for both dimensions.

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Human Resources -> Crisis Management	0.119	0.112	0.055	2.159	0.031
ICT Infrastructure -> Crisis Management	0.038	0.038	0.049	0.759	0.448
Management Requirement -> Crisis Management	0.178	0.184	0.046	3.882	0
Physical Capabilities -> Crisis Management	0.075	0.082	0.046	1.62	0.106
Moderating Effect 1 -> Crisis Management	0.03	0.023	0.056	0.532	0.595
Moderating Effect 2 -> Crisis Management	-0.119	-0.117	0.058	2.045	0.041
Moderating Effect 3 -> Crisis Management	-0.043	-0.039	0.05	0.862	0.389
Moderating Effect 4 -> Crisis Management	0.136	0.135	0.056	2.429	0.015
Strategic Flexibility -> Crisis Management	0.543	0.535	0.052	10.416	0

Moderating effect 1 = ICT Infrastructure
Moderating effect 2= Human Resources
Moderating effect 3= Management Requirement
Moderating effect 4= Physical Capabilities

The table below shows that R^2 is High as it is more than 00.67.

	R Square	R Square Adjusted	Results
Crisis Management	0.721	0.715	High

The table below shows that the size effect for the components of e-readiness is small, and it is

also small for the two significant moderators and that there is no effect for the other two

moderator effects. While there is a large effect for the SF variable.

F^2 size effect

	Crisis Management
Human Resources	0.017
ICT Infrastructure	0.002
Management Requirement	0.046
Physical Capabilities	0.008
Moderating Effect 1	0.002
Moderating Effect 2	0.018
Moderating Effect 3	0.003
Moderating Effect 4	0.023
Strategic Flexibility	0.467

To be sure about the effect of e-readiness as an independent variable, I conducted another model without the moderating effect of e-readiness, so I treated the e-readiness as an independent variable, and the model showed the following results regarding SF and e-readiness as following:

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
E-Readiness -> Crisis Management	0.361	0.358	0.054	6.686	0
Strategic Flexibility -> Crisis Management	0.539	0.54	0.051	10.544	0

R^2 was 0.706, which is high. F^2 for e-readiness is 0.203 and for Strategic Flexibility is 0.453, which shows the moderate effect of e-readiness and high effect for SF.

Summary of Study Hypothesis Results:

H1: There is a statistically significant effect of strategic flexibility on crisis management in government authorities in the Kingdom of Bahrain.

H1-a: there is a statistically significant effect of Flexibility of Capabilities on Crisis management in government authorities in the Kingdom of Bahrain.

H1-b: there is a statistically significant effect of Flexibility of Information on Crisis management in government authorities in the Kingdom of Bahrain.

H1-c: there is a statistically significant effect of Flexibility of Resources on Crisis management in government authorities in the Kingdom of Bahrain.

H1-d: there is a statistically significant effect of Flexibility of Coordination on Crisis management in government authorities in the Kingdom of Bahrain.

Hypothesis 1 and its sub hypothesis was accepted according to Model (1) and (2) the above hypothesis represents the direct relationship between strategic flexibility and crisis management.

H2: There is a statistically significant effect of strategic flexibility with its dimensions (capacity flexibility, resource flexibility, information flexibility, coordination flexibility) on crisis management with its dimensions (Detection of early warning signals, Containment of Damage, Learning, Preparedness and Prevention, Recovery of Activity) in government authorities in the Kingdom of Bahrain.

The following sub-hypotheses can be divided from the above central hypothesis:

H2-a: There is a statistically significant effect of strategic flexibility in its dimensions (flexibility of capabilities, resource flexibility, information flexibility, coordination flexibility) in discovering early warning signs of crises in government authorities.

H2-b: There is a statistically significant effect of strategic flexibility in its dimensions (capacity flexibility, resource flexibility, information flexibility, coordination flexibility) in preparedness and prevention of crises in government authorities.

H2-c: There is a statistically significant effect of strategic flexibility in its dimensions (capacity flexibility, resource flexibility, information flexibility, coordination flexibility) on containing damages of crises in government authorities.

H2-d: There is a statistically significant effect of strategic flexibility in its dimensions (capacity flexibility, resource flexibility, information flexibility, coordination flexibility) in restoring activity after crises in government authorities.

H2-e: There is a statistically significant effect of strategic flexibility in its dimensions (capacity flexibility, resource flexibility, information flexibility, coordination flexibility) in learning from crises in government authorities.

Hypothesis (2) and sub hypothesis was accepted, which means that Strategic Flexibility Affect Crisis Management as a whole and affects all the stages of Crisis Management. This result was concluded from Model (3).

Hypothesis 3: The higher the e-readiness in government authorities in the Kingdom of Bahrain, the more robust the relationship between strategic flexibility and crisis management.

Hypothesis 3-a: The higher ICT infrastructure in government authorities in the Kingdom of Bahrain, the more robust the relationship between strategic flexibility and crisis management.

Hypothesis 3-b: The higher the Human Resources in government authorities in the Kingdom of Bahrain, the more robust the relationship between strategic flexibility and crisis management.

Hypothesis 3-c: The higher the Management Requirement in government authorities in the Kingdom of Bahrain, the more robust the relationship between strategic flexibility and crisis management.

*Hypothesis 3-d: The higher the Physical Capabilities in government authorities in the Kingdom of Bahrain, the more robust the relationship between strategic flexibility and crisis management.*

According to Model (4), Hypothesis (3) was rejected, so the moderating effect as measured by the four dimensions cannot be proved.

According to Model (5), Hypothesis 3-a and Hypothesis 3-c were rejected while Hypothesis 3-b and Hypothesis 3-d were accepted. This means that HR and Physical capabilities have a moderating effect on the relationship between Strategic Flexibility and Crisis Management. And we need to decide whether this moderating effect is a positive or a negative one that is whether it will strengthen or dampen the relationship.
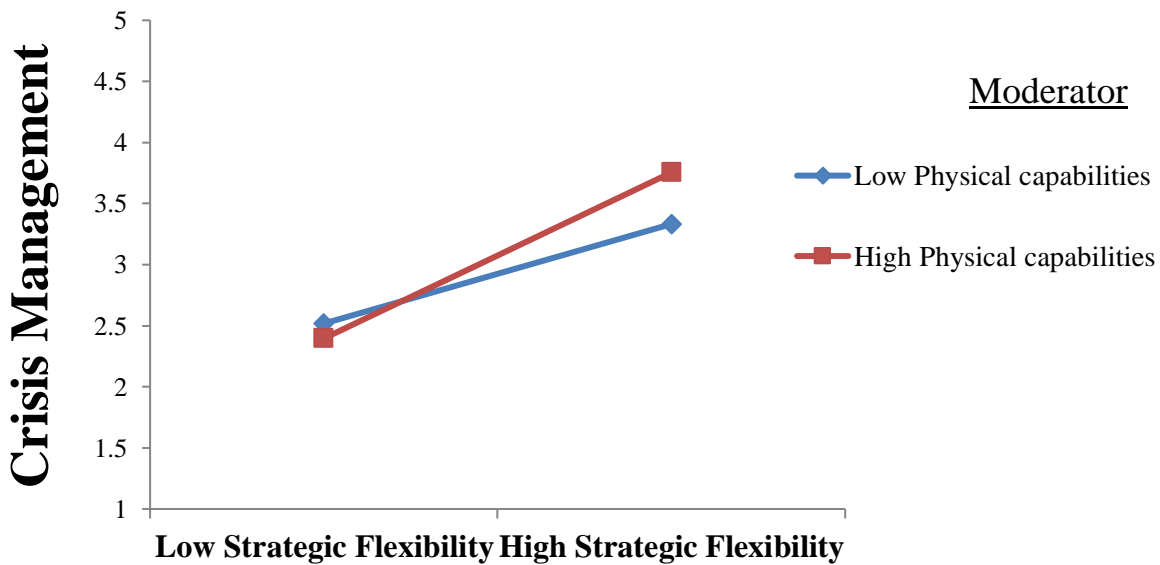
Variable Names:	
IV	Strategic Flexibility
Moderator:	Physical Capabilities
DV	Crisis Management
Unstandardized Regression Coefficients:	
Path Coefficient of the IV --> DV	0.543
Path Coefficient of the Moderator--> DV	0.075
Path Coefficient of the Interaction--> DV	0.136
Intercept / Constant:	3

It can be concluded from the graph that Physical Capabilities strengthen the positive relationship between Strategic Flexibility and Crisis Management.
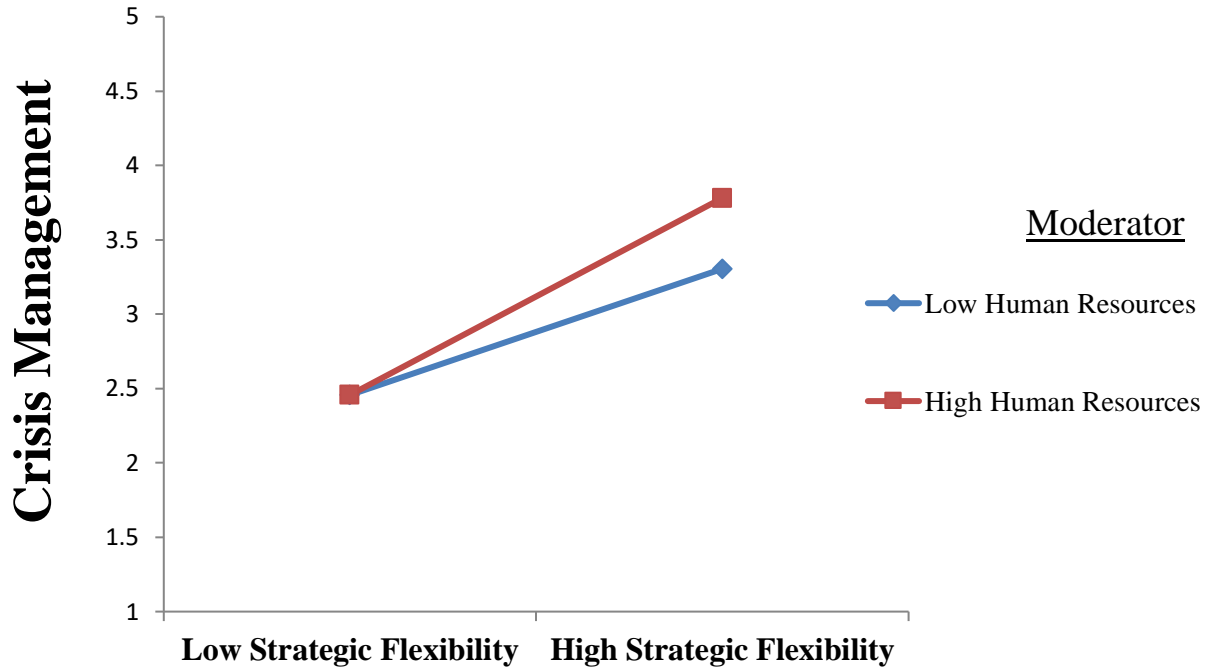
Variable Names:	
IV	Strategic Flexibility
Moderator:	Human Resources
DV	Crisis Management
Unstandardized Regression Coefficients:	
Path Coefficient of the IV --> DV	0.543
Path Coefficient of the Moderator--> DV	0.119
Path Coefficient of the Interaction--> DV	0.119
Intercept / Constant:	3

It can be concluded from the graph that the Human Resources strengthens the positive relationship between Strategic Flexibility and Crisis Management.

CHAPTER 6: CONCLUSIONS AND CONTRIBUTIONS

6.1   Introduction

This chapter presents the theoretical or academic contributions, social impact, as well as recommendations and limitations of the research and future research directions. The primary aim of this study is to address the impact of Strategic Flexibility on Organisational Crisis Management within the Government Authorities in the Kingdom of Bahrain and by introducing E-Readiness as a moderating factor in this relationship. Authorities were given a special status which is different from normal government ministries and departments. The authorities were created based on their independent nature in terms of employment, preparation and approval of their budget. Authorities are managed by the board of directors appointed by the Prime Minister, It is worth noting that the authorities were independent in determining their salary schedules, but this was before the civil service law issued in 2012, according to which the employment schedules were unified and now everyone is employed according to the Civil Service Bureau's schedules in the leading authorities, the context was that they attract the best skills and competencies, and this was the motivation for setting higher salaries, but the situation soon changed in 2012 and all authorities were included under the umbrella of the Civil Service Bureau. The Government Authorities in the Kingdom of Bahrain are supposed to work partially independently in collecting profits from the services provided, and so they are added to their budget that they receive from the government, and because of this, they were referred to as semi-government entities. These advantages will give authorities more flexibility in terms of capabilities and resources after evaluating the dimensions that were used by some writers and researchers the researcher adopted Flexibility of Capabilities, the Flexibility of Resources, the Flexibility of Information and Flexibility of Coordination, based explicitly on (Sanchez, 1995),

(Li et al), (Mackinnon et al. 2008), As such, these dimensions apply to Government Authorities in the Kingdom of Bahrain as service institutions.

In conventional crisis management the successful organisational and strategic elements of coping with emergencies and crisis, such as saving lives, property security and resources distribution, are essential tasks. Citizens from every corner of society expect the managers to carry out these activities in the right and successful way. Politico-strategic crisis management is equally essential for symbolic and communicative aspects.

Government Authorities in the Kingdom of Bahrain operates in a dynamic and uncertain setting. Organisational preparation, including flexibility, would then become a required skill for success and survival (Nutt 1993). Given the inherent uncertainty in the public administration context, administrators must be very flexible in their management styles. Prior studies indicate that managers in highly competitive and slackness are less agile (Sharfman and Dean 1997). Crisis conditions are also seen as detrimental to flexibility in management.

6.2   Conclusion

6.2.1   The Direct Effect of Strategic Flexibility on Crisis Management

The results referred to the critical and positive role of strategic flexibility in Government Authorities in the Kingdom of Bahrain and the direct reflection on crisis management. This study draws some implications where administrators may use this knowledge when determining how Government Authorities in the Kingdom of Bahrain handle a crisis. Thus, the Government Authorities in the Kingdom of Bahrain can pay more attention to strategic flexibility by preparing an integrated study to demonstrate the viability of strategic flexibility and its essential requirements. Authorities administrators must have an interest in strategic flexibility in handling all the shifts and crises.

The present study agreed with the study of Grewal & Tansuhai, (2001), which concluded through its results to the existence of a positive effect of strategic flexibility in managing economic crises. Also, the study found that there is a statistically significant direct relationship with each dimension of strategic flexibility, and crisis management in the Government Authorities in the Kingdom of Bahrain. The most influential was the flexibility of information, then the flexibility of coordination, then the flexibility of capabilities, and finally the flexibility of resources. Accordingly, Government Authorities in the Kingdom of Bahrain should focus on strategic flexibility as one of the factors that could improve the authorities' performance in crisis management. The results also show a direct impact of strategic flexibility on every stage of crisis management. Strategic flexibility affects the early warning stage and preparation and Prevention Stage and Post-crisis stages represented by Damage Containment Stage, Activity Recovery Phase and Learning Stage.

It was concluded that current crises also require the participation of multiple players, within and outside emergency services, and this requires good coordination for a successful outcome. The need for more flexible coordination also presents significant public governance challenges, as crisis management roles are mostly exercised at sub-national levels but centralized at government centres. Capacity to organize crisis management is a critical aspect of good governance, since it measures the ability of governments to have effective responses at the right time to protect their people and businesses and minimize disaster effects. Ensuring that national authorities have the right tools and resources for collective action is important.

The need for information flexibility in the Government Authorities in the Kingdom of Bahrain was apparent in recent crises that have challenged political leadership and risk management, mostly due to unexpected or unforeseen circumstances, but also due to short ties and information flow breakdowns. Progress in the management of research, technology and information in recent

decades has contributed to a greater understanding of the exposures of the built environment to hazards and threats and vulnerabilities of people, economic assets and environmental resources. This allowed risk management to make greater use of risk assessment for a more systematic and strategic approach, including preventive policies and mitigation initiatives to mitigate exposure and vulnerability.

The availability of high flexibility in information, in an appropriate manner and in a suitable time, for Government Authorities in the Kingdom of Bahrain, leading to a greater ability to sense early warnings of crises, and then try to control them.

The complexities of novel crises and our societies 'growing interconnectivity require the government to change its functions and capacities to meet citizens' expectations. To this end, the national crisis governance system should be set up to ensure sufficient mechanisms and institutional processes are in place to cope with both classic and unprecedented crises. The system needs to be able to cope with trade-offs linked to these two approaches: to prepare for the classic crisis through standard operating procedures and pre-defined plans, and to build adaptable and versatile capacities for new crises (to prepare for the unpredictable and attract public finances). Such a national structure should identify core principles for all crisis management stakeholders and should also apply to boundary-spanning frameworks for crisis response. Mechanisms of upscaling are essential.

Through the descriptive statistics of strategic flexibility, the researcher believes that there is inadequate interest in the concept of strategic flexibility in the Government Authorities in the Kingdom of Bahrain, and the researcher sees the need to pay attention to this concept to lead creative solutions to the crises that these authorities face. Its e-readiness must be increased in line with current and future requirements and to improve the efficacy and efficiency of operations

within these authorities, reflecting positively on the services rendered to satisfy service users and everyone concerned. This is achieved through a process that starts with evaluating e-readiness, predicting potential requirements and technologies, making appropriate plans to improve e-readiness, and creating success metrics to assess its implementation and effectiveness.

6.2.2 Interaction Effect of E-Readiness

The study found a non-significant moderating effect for E-Readiness when it was entered into the model as a single bundle consisting of four dimensions (human resource skills, ICT infrastructure, physical capabilities, and administrative requirements) it did not affect the moderator variable in the sense that this bundle did not improve the direct relationship between strategic flexibility and crisis management. It didn't weaken it as well, which means that e-readiness as a bundle has no effect. but when separate dimensions were entered in the model as moderators, it was found that the dimension of human resource skills and the dimension of material capabilities had a positive modifying effect on the relationship between strategic flexibility and crisis management, and this indicates that the material factor and the human factor are important in strengthening the direct relationship between strategic flexibility and crisis management. What makes e-readiness is the human factor and material capabilities, it is not the infrastructure or management requirements. This led us to the conclusion that traditional assessments of e-readiness are conducted over the past few years which have mainly centred on infrastructural connectivity is not very accurate (Barzilai-Nahon, 2006). Today the evaluations should be extended to other issues and dimensions that produce e-readiness and digital inequalities. While the conventional access-oriented thought centred on issues related to measures such as ownership, availability, and affordability of infrastructure, now the emphasis is shifting beyond technology to the users. According to Corrocher & Ordanini, (2002), conventional literature on various aspects of readiness, electronic

connectivity, and performance implications identified many variables that are considered important to e-readiness and the digital divide. Yet, the importance of what, how and why is mostly unclear.

The study also tested the direct effect of e-readiness on crisis management and found it significant in a model that also included strategic flexibility as an independent variable, so it can be included that e-readiness as discussed in this study also affect crisis management.

These results are consistent with a study Wojciechowicz, et al., (2012), Which showed that there is a positive impact of the use of information and communication technology in managing crises and disasters that organizations are exposed to, and the study of Reddy et al., (2009), which recommended the need to support technology resources. Information, communications, and its infrastructure, and working to enhance it with the necessary resources, in addition to the necessity to provide sufficient information before, after and during the occurrence of crises due to a positive relationship in good crisis management, and the study of Leidner, Pan & Pan, (2009) which concluded that the effectiveness of the response process Crises come through the optimal use of information technology. Alsoand the results are consistent with Gomez & Turoff, (2007) showed that community crisis response teams that rely on electronic readiness for information and communication technology are of the utmost importance and very effective in facing crises. Accordingly, it can be said that the electronic readiness variable has made a contribution to the influence between strategic flexibility and crisis management

6.3   Recommendations

The study emphasises the continued support and commitment of the higher departments in Government Authorities in the Kingdom of Bahrain to work on developing mechanisms to enhance strategic flexibility in them to reflect the needs and requirements the citizens of the

Kingdom of Bahrain in providing appropriate services to them, by providing the necessary administrative, financial and moral support for this, which enables them to deal with environmental variables.

The need to enhance the interest of Government Authorities in the Kingdom of Bahrain in possessing sufficient knowledge in dealing with the stages of crisis management to have the ability to deal with crises efficiently and effectively, by creating a knowledge station to keep pace with technical progress and employing and directing this progress in a way that contributes to reducing the burden of accessing the correct information at the right time.

The need for Government Authorities in the Kingdom of Bahrain to establish specialized units for crisis management made up of highly qualified and experienced individuals in facing crises, by attracting specialized individuals who can deal with environmental developments and respond to them. Governmental bodies in the Kingdom of Bahrain must provide all capabilities and material requirements, with the aim of developing and qualifying individuals and creating the appropriate environment, by holding training courses related to crisis management and diversifying them between practical and theoretical training and using specialized competencies to implement this.

Work to build an information base that is flexible and has the ability to continuously update in line with environmental developments in identifying available opportunities and exploiting them.

The researcher recommends in any study which is related to the definitions of factors affecting crisis management the variable strategic flexibility should be one of the factors that should be included, otherwise the model can be misspecified.

6.4   Future Directions

Understanding the sources of that can help in dealing and reducing the negatives effects of a crisis is a central pursuit of strategic management research. This study examines the relationship between Strategic Flexibility and Organisational Crisis Management. The study also tries to test the moderating effect of E-Readiness on the relationship between Strategic Flexibility and Crisis Management.

It is noteworthy that while both the proactive and reactive approaches of strategic flexibility are essential, they underemphasised a crucial element of strategy that of making irreversible commitments and building capabilities that are not easily appropriated or duplicated by government authorities. An extension of this thesis is to recognise the critical importance for organisations to be flexible because the nature of the current public-sector environment is more dynamic than ever before. However, it is essential to integrate two seemingly opposite constructs: commitment and flexibility. Besides, since strategic flexibility is cost-effective, it is interesting to explore the concept in combination with strategic commitment, in the context of the information technology industry. Intuitively the terms "strategic flexibility" and "strategic commitment" present a paradox. Therefore, it is interesting to explore how firms resolve this paradox. Future research could examine how E-Readiness of Government Authorities in the Kingdom of Bahrain resolve this paradox by developing a synergistic relationship between strategic flexibility and strategic commitment (Ghemawat, 1991), helping in Crisis Management. The implications of this line of research would be helpful to government entities as they try to use technology to develop a more flexible stance to environmental turmoil.

The concept of Strategic Flexibility developed in this thesis can be viewed as a firm's opportunity to choose a course of action from a set of options to either adapt or shape its environment.

Strategic flexibility allows organisations to not only choose from a set of options but also create options that can be exercised in the future. It is reasonable to assume that government entities reserve the capability to choose from among various choices to exploit the opportunities inherent in changing environmental conditions and changing technology. Organisations with choices have accumulated capabilities that lead to better handling of a crisis. The dimensions of strategic flexibility explored in this study can be enriched by introducing what is called Flexibility of Communication which has been recognized as an essential component of communication competence.

The ability to communicate efficiently is the most closely defined skill in crisis management (Wooten and James, 2008). According to Wooten and James (2008), communication is critical because it forms the understanding of the crisis and the organisation of the stakeholders. Specifically, the task of communication in crisis is during the damage control or containment process, and the leaders can connect with the staff of the organisation to provide information and guidance and calmness or reassurance to the respective constituents. It is crucial for leaders at this point to be optimistic, convincing or emphatic in their message. In addition, the leadership's ability to communicate effectively depends on its ability to interact emotionally and psychologically with the public and manipulate perception that is either more favourable in the aftermath of the crisis (Mileti and Beck, 1975).

Improving and developing strategic flexibility and adopting it as a strategic option in Government Authorities in the Kingdom of Bahrain, by paying attention to the dimensions of strategic flexibility adopted by this study and to acknowledged by the Strategic Planning Department of the government authorities.

The necessity of investing the available human and material resources and directing the qualified competencies in the administration of government authorities in an effective manner in all fields in line with the variability of the external environment. This can be achieved through the exploitation of these energies and competencies by the Human Resources Department by placing them in the appropriate place and retain them from leaving to the private sector by developing their capabilities and motivating them. To achieve the objectives of the Government Authorities in the Kingdom of Bahrain at the desired level.

Planning should be included for crisis management as an integral part of strategic planning by the Strategic Planning Department since a large part of the work carried out by the authorities falls under the management of crises.

More efforts and attention should be exerted to crisis management to raise its level and improve it to face potential future crises through the application and strengthening of decentralization by the senior management in the Government Authorities in the Kingdom of Bahrain and delegating authority to those concerned, especially in crisis situations that need speed in procedures and decision-making.

It is necessary to create a comprehensive database that includes the crises that the Government Authorities in the Kingdom of Bahrain has been exposed to, and potential future crises, in addition to all available resources at the Government Authorities in the Kingdom of Bahrain through the creation of a unit specialized in the documentation and archiving and giving this issue the attention of the top management due to its great importance in taking lessons and lessons learned in dealing effectively with crisis management.

6.5 Limitations

The limitation of the study's sample frame to Government Authorities in the Kingdom of Bahrain's public sector can correspondingly limit the generalisability of the study's findings to organisations within other parts of the public sectors in the Kingdom of Bahrain and industries, organisations and industries outside the Kingdom of Bahrain. The strategy literature suggests that strategic flexibility is different for organisations in dynamic environments and stable environments (Nadkarni and Narayanan, 2007; Bogner and Barr, 2000).

REFERENCES

Abbott, A. & Banerji, K. (2003). Strategic flexibility and firm performance: The case of US-based transnational corporations. **Global Journal of Flexible Systems** Management.9, 42-66.

Abdelghaffar, Hany & Elmessiry, Ingy (2012). SME's e-readiness for e-government services in Egypt. **Journal of E-Government** 35.143-151.

Abraham, D. (2013). **Technology Readiness as a Predictor of Cognitive Presence in Online Higher Education**. The Degree of Doctor of Philosophy: Walden University.

Ajami, S., Ketabi, A., Isfahani, A. &Heidari, A. (2011). Readiness assessment of electronic health records implementation**. *ACTA INFORM MED, 19*(4): 224-227.

Alaaraj, H. & Ibrahim, F. W. (2014). An overview and classification of e-readiness assessment models. **International Journal of Scientific and Research Publications**, 4 (12), 1-5.

Approach (2nd edn). New Jersey: Prentice Hall

Arnold, V., Canada, J., Benford, T., & Sutton, S. (2011). **Enhancing Strategic Flexibility and Performance through Enterprise Risk Management: The Enabling Role of Information Technology.1-53 Available:**

Augustine, Norman R. (1995). Managing the Crisis, You Tried to Prevent. **Harvard Business Review**, 73 (6), 147-158.

Aydın, C. & Tasci, D. (2005). Measuring readiness for e-learning: Reflections from an emerging country. **Educational Technology & Society**, 8 (4), 244-257.

Barzilai-Nahon, K. (2006). Gaps and Bits: Conceptualizing Measurements for Digital Divide/s. The Information Society, 22, 269-278.

Bhandari, G. Bliennel, Harold, A. & Hassanein.Kh, (2004). Flexibility in e-Business Strategy: A Requirement for Success, **Global Journal of Flexible Systems Management**, 5 (2 & 3):11S, Kh, 11-22.

Bieber, Robert M., Clutch management in a crisis, (1988). **Risk Management** ,36(4), 72-75.

Bogner WC, Barr PS. 2000. Making sense in hypercompetitive environments: A cognitive explanation for the persistence of high velocity competition. Organization Science 11: 212–226

Boseman, G, & Phatak, A. (1989). **A Strategic Management: Text and Cases**, U.S.A, (2)., John Wiley & Sons, Inc.

Brinckmann, J., Villanueva, J. and Grichnik, D., 2017. Sources of Strategic Flexibility in New Ventures: The role of Resource Leveraging Practices. In Academy of Management Proceedings (Vol. 2017, No. 1, p. 15678). Briarcliff Manor, NY 10510: Academy of Management.

Cascio, Wayne & Montealegre, Ramiro. (2016). How Technology Is Changing Work and Organizations. Annual Review of Organizational Psychology and Organizational Behavior. 3. 349-375.

Cingöz, A., and Akdoğan, A. (2013). Strategic Flexibility, Environmental Dynamism, and Innovation Performance: An Empirical Study. Procedia - Social and Behavioral Sciences, 99, pp.582-589. Chen, Yang, Wang, Yi, Nevo, Saggi,Benitez, Jose, & Kou, Gang (2017). Improving strategic flexibility with information technologies: insights for firm performance in an emerging economy. Journal of Infirmation Technology, 32,10-15.

Cohen, J. (1988). Statistical power analysis for the behavioural sciences (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.

Combe, I. A. & Greenly, G.E., (2004). Capability for strategic flexibility: A cognitive content framework. **European Journal of Marketing**, 38, (11/12), 1456-1480.

Coombs, T., (2007). Protecting organization reputations during a crisis: The development and application of situational crisis communication theory. **Corporate Reputation Review,** 10 (3),16-176.

Corrocher, N., & Ordanini, A. (2002). Measuring the digital divide: a framework for the analysis of cross-country differences. Journal of Information Technology, 17, 9-19.

Cramer D 1998 Fundamental Statistics for Social Research: Step-by-step Calculations and Computer Techniques using SPSS for Windows; London: New York, Routledge.

Cramer D and Howitt D L 2004 The Sage Dictionary of Statistics: A Practical Resource for Students in the Social Sciences; Sage, London and Thousand Oaks, CA.

Dada, D., (2006). E-readiness for developing countries: Moving the focus from the environment to the users. **EJIDC**, 27 (6): 1-14.

De Toni, Alberto & Tonchia, Stefano, (2005). Definitions and Linkages between operational and Strategic Flexibility, **Omega**, 33(6), 525-540.

Doane D P and Seward L E 2011 Measuring skewness: A forgotten statistic; J. Stat. Educ. 19(2) 1–18.

Durek,Valentina & Reðep, Nina Begičević, (2016). Review on e-readiness assessment tools. **Central European Conference on Information and Intelligent Systems**. Varaždin, Croatia,161-168.

Elliott AC, Woodward WA. Statistical analysis quick reference guidebook with SPSS examples. 1st ed. London: Sage Publications; 2007. [Google Scholar]

Elliott, A. C., & Woodward, W. A. (2007). Statistical analysis quick reference guidebook. Thousand Oaks, CA: SAGE Publications, Inc. doi: 10.4135/9781412985949

Eweni, Samuel O., (2012). **A study of e-readiness assessment the case of three universities in Nigeria, In Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in Science/Mathematics Education**, Southern University and A & M College, Baton Rouge, Louisiana.

Farazmand, Ali, (2001). **Handbook of Crisis and Emergency Management.** United States of America, New York: Butterworth-Heinemann Inc.

Farndale, E., Horak, S., Phillips, J., and Beamond, M. (2019). Facing complexity, crisis, and risk: Opportunities and challenges in international human resource management. Thunderbird International Business Review, 61(3), pp.465-470.

Fink, Steven, (1986). **Crisis Management, American Management**. New York, Association, 7(1).

Fonkam, Mathias & Emmanuel, Ukpe (2013). Application of Information and Communication Technology (ICT) in Human Induced Crisis Management: The case of Nigeria**. European International Journal of Science and Technology,** 2(8).104-110.

Ford, Jeffrey D., (1981). The management of the organizational crisis, **Business Horizons**, 24(3), 10-16.

Galve-Górriz, C & Castel, A., (2010). The relationship between human resources and information and communication technologies: Spanish firm-level evidence. **Journal of Theoretical and Applied Electronic Commerce Research**, 5 (1), 11-24.

Ghemawat, P. (1991) Commitment: The Dynamic of Strategy. New York: Free Press

Gladwin T., & Kumar R., 1987, The social psychology of crisis bargaining: Toward a contingency model, **Columbia Journal of World Business**, 22(1), 23-32.

Goel, Suresh, (2009). **Crisis management: Master the Skills to Prevent Disasters**, New Delhi: Global India Publications.

Gomez, Elizabeth, Avery & Turoff, Murry (2007). Community Crisis Response Teams: Leveraging Local Resources through ICT E-Readiness. **40th Annual Hawaii International Conference on System Sciences,** Waikoloa, HI, USA, **DOI:** 10.1109/HICSS.2007.135.

Gosling, J., Purvis, L., & Naim, M.M., (2010). Supply chain flexibility as a determinant of supplier selection. **International Journal of Production Economics**,128 Issue 1, 11-21.

Grant, R. M (2005). **Contemporary Strategy Analysis: Concept, Techniques, Applications, (5)**. Oxford, Blackwell Publishing.

Grewal, Rajdeep, & Tansuhai, Patriya, (2001). Building organizational capabilities for managing economic crisis: The role of market orientation and strategic flexibility. **Journal of Marketing**, 65, 67-80.

Gryszkiewicz, Anna & Chen, Fang, (2010). Design Requirements for Information Sharing in a Crisis Management Command and Control Centre. **The 7th International Conference**, 1-10. Seattle, USA.

Gryszkiewicz, Anna & Chen, Fang, (2012). Temporal Aspects in Crisis Management and its Implications on Interface Design for Situation Awareness. **Cogn Tech Work**, 14 (2), 169-182.

Gundel, Stephan, (2005). Towards a new typology of crisis. **Journal of Contingencies and Crisis Management**, 13 (3), 106-115.

Hair, J. F., Black, W. C., Babin, B. J. & Anderson, R. E. 2010. Multivariate Data Analysis: A Global Perspective, New Jersey, Pearson Prentice Hall.

Hayes, R.H & Poisano, G.E., (1994). Beyond world-class: The new manufacturing strategy. **Harvard Business Review**.72, 77-86.

Herman, Charles (1963). Some Consequences of Crisis which Limit the Viability of Organizations. **National Emergency Training Center,** 61-82.

Herrero, Alfanso G., & Pratt, Cornelius B., (1995). How to manage a crisis before-or whenever-it hits, **Public Relations Quarterly**, (40), (1), 25-29.

Higgins, James M., (1986). **Organization Policy and Strategic Management,** 3rd ed.

Hilhorst, Smits & Heck, (2009). Strategic Flexibility and IT Infrastructure Investments - Empirical Evidence in Two Case Studies, **Strategic Management Journal**, 20, 1087-1108.

Hough, M. & Spillan, G., (2005). Crisis planning: Increasing effectiveness, Decreasing discomfort. **Journal of Business and Economic Research**, 3(4), 19-24. http://raw.rutgers.edu/docs/seminars/Fall11/SCMPaper_Rutgers_16Sep2011%5B1%5D.pdf

Hunger, J. Daved; Wheelen, Thomas L. Essentials of strategic management (5th ed.). Upper Saddle River, New Jersey; Pearson Prentice Hall, 2010, 87-94.

Ilgaz, H. and Gülbahar, Y., 2015. A snapshot of online learners: e-readiness, e-Satisfaction and expectations. The International Review of Research in Open and Distributed Learning, 16(2).

Iravani, Seyed M., Kolfal, Bora & Oyen, Mark, P., Van, (2011). Capability flexibility: a decision support methodology for parallel service and manufacturing systems with flexible servers. **IIE Transactions**, 43,363-382.

Ivanov, Milen, & Yankov, Yavor (2016). Application of geographic information systems in crisis management, **Management and Economics**, 170-176.

Jafar (2017), The Impact of Strategic Planning on Crisis Management an Empirical Study: Public Institutions in the Jerusalem Suburbs. Al-Aqsa University Journal, 21(1), 293-324

James, E., & James, E., (2008). Linking crisis management and leadership competencies: The role of human resource development. **Advances in Developing Human Resources**, 10(3),352-379.

Jansch, K. (2009). Strategic management in mass customization enterprises in Germany and Russia: An empirical-based spotlight on strategy. **Advanced in Production and Management**, 4, (1), 59-68.

Jaques, T. (2010). Reshaping crisis management: the challenge for organizational design. **Organizational Development Journal**, 28(1), 9-17.

Jaques, T. (2012). Crisis leadership: a view from the executive suite. Citation: **Journal of Public Affair,** 12 (4), 366-372.

Jr., Tommy Bennett McClelland (2015) experts' recommendations to create effective teams for successful crisis management: a Delphi study. PhD dissertation, University of Phoenix.

Kastsuhiko,S. & Hitt,M.A.,(2004). Strategic flexibility: Organizational preparedness to reverse ineffective strategic decision. **Academy of Management Executive**.18, (4), 44-58.

Kazozcu, SecilBayraktar, (2011). Role of strategic flexibility in the choice of turnaround strategies: A resource-based approach, 7th International Strategic Management Conference, **Procedia Social and Behavioural Sciences** 24, 444–459.

Kendrick, Madeleine Iris, Timothy Bartram & Jillian Cavanagh, John Burgess (2019) Role of strategic human resource management in crisis management in Australian greenfield

hospital sites: a crisis management theory perspective. Australian Health Review, 2019, 43, 157–164

Kerlinger, F.N. 1986. Foundation of behavioral research. 3rd ed. Fort Worth: Harcourt.

Kline, R. B. (2011). Principles and practice of structural equation modelling (3rd ed.). New York, NY: Guilford Press.

Kouzmin, Alexander (2008) Crisis Management in Crisis? Administrative Theory & Praxis Vol. 30, No. 2, 2008: 155-183

Larson, J. & Rudwall, P., (2010). **Crisis Management: Media's perception of Crisis in Organizations**. (Unpublished Bachelor Thesis). Lulea University of Technology.

Lau, R.S.M., (1996). Strategic flexibility: A new reality for world-class manufacturing. **Advanced Management Journal**. 61,5-11.

Li, Yuan; Liu,Yi, Duan, Yi & Li, Mingfang, (2008). Entrepreneurial orientation, strategic flexibilities and indigenous firm innovation in transitional China. **International Journal of Technology Management**,41/ (1/2),223-245.

Li, Yuan; Su, Zhongfeng, Lui,Yi, & Li, Mingfang,(2011).Fast adaptation, strategic flexibility and entrepreneurial roles, **Chinese Management Studies**,256-271.

Liou, Y.H., 2015. School crisis management: A model of dynamic responsiveness to the crisis life cycle. Educational Administration Quarterly, 51(2), pp.247-289.

Littlejohn, Robert F., (1983). **Crisis Management: A Team Approach**. New York: AMA.

Mackinnon, William, Gerald Grant, & David, Cray, (2008). **Enterprise Information Systems and Strategic Flexibility**. Proceedings of the 41st Hawaii International Conference on System Sciences, 1-9.

Malhotra, N. & Peterson, M. (2006) Basic Marketing Research: A Decision-Making

Manders, Jorieke, Caniels, Marjolein C.J, & Ghijsen, Paul (2014). **Supply Chain Flexibility: A Systematic Literature Review and Research Directions for Future Research, Annual IPSERA Conference**, At Pretoria, South Africa, (23).

Mansor, Farhana and Noor Nasir Kader Ali (2017) Crisis Management, Crisis Communication, and Consumer Purchase Intention Post-Crisis. Global Business and Management Research: An International Journal, Vol. 9, No. 4s (2017, Special Issue).

Martinet, Michael E. (2007) Crisis Management and Local Government Master dissertation, California State University, Long Beach.

Memarzadeh, R, & Jahany,R., (2014). The presenting a model for municipalities e-readiness assessment. **Int. J. Manag. Bus. Res.**, 4, (2), 107-123.

Milburn, T., Schuler, R&Watman, K., (1983). Organizational crisis part I: Definition and conceptualization, **Human Relations**, 36, (12), 141-159.

Mileti, D. S., & Beck, E. M. (1975). Communication in crisis: Explaining evacuation symbolically. Communication Research, 2(1), 24–49. https://doi.org/10.1177/009365027500200102

Mitroff, Ian I.,(1994). Crisis management and environmentalism: A natural fit**, California Management Review**, 6, (2), 101-113.

Mitroff, Ian.,Shrivastava, P., & Udwadia, F.,(1987). Effective crisis management, **The Academy of Management Executive**, 1, (3), 283-292.

Mosa, A., Naz'ri bin Mahrin, M., and Ibrrahim, R. (2016). Technological Aspects of E-Learning Readiness in Higher Education: A Review of the Literature. Computer and Information Science, 9(1), p.113.

Mubeen, Adnan (2014) Pakistan's Crisis Management: Examining Proactive and Reactive Strategies. Journal of Political Studies; Lahore Vol. 21, Iss. 1, (Summer 2014): 161-177.

Nadkarni S, Narayanan VK. 2007. Strategy frames, strategic flexibility and firm performance: The moderating role of industry velocity. Strategic Management Journal 28(3): 243–270.

Neuman, W.L. 2000. Social research methods: Qualitative and quantitative approaches. 4th ed. Boston: Allyn & Bacon.

Newton, Charles G., (1981). Coming to grips with crisis, **AMA Management Digest**, 4, (3), 17-19.

Norusis, M.J. (1993). SPSS professional statistics 6.1. Chicago, IL: SPSS.

Odemene Glory C. (2013) Crises Management in the Oil and Gas Industry: The Niger Delta Experience, doctoral dissertation, Walden University.

Olalekan U. A (2006). **Market–Focused strategic flexibility and sales growth: Empirical evidence from Nigeria**. Thesis Doctor of Business leader of South Africa University.

Olsen, E. (2007), Strategic planning for dummies, **Wiley Publishing, Inc. Indianapolis**, Indiana, USA.

Osborne, J. W., & Overbay, A. (2004). The power of outliers and why researchers should ALWAYS check for them). Practical Assessment, Research and Evaluation, 9(6)

Pallant J. SPSS survival manual, a step by step guide to data analysis using SPSS for windows. 3 ed. Sydney: McGraw Hill; 2007. pp. 179–200. [Google Scholar]

Pallant, J. (2007). SPSS survival manual—A step by step guide to data analysis using SPSS for windows (3rd ed.). Maidenhead: Open University Press.

Pallant, J. (2016). SPSS survival manual: A step by step guide to data analysis using SPSS program (6th ed.). London, UK: McGraw-Hill Education

Pauwels, Peter, & Matthyssens, Paul, (2004). Strategic flexibility in export expansion: growing through withdrawal. **International Marketing Review**, 21(4/5), 496-510.

Pearson, Christine M., And Motroff,Ian I.,(1993).From crisis-prone to crisis prepared: A framework for crisis management. **Academy of Mgt. Executive**, 7, (1), 48-59.

Phelps, Norman L., (1986). Setting up a crisis recovery plan, **J. of Business Strategy**, 6, (4), 5-10.

Porter, M.E. (1996). What is strategy, **Harvard business review,** 61-78.

Potnis, D. &. Pardo, T., (2011), Mapping the evolution of e-readiness assessments, **Transforming Government: People, Process and Policy**, 5, (4) , 345 –363.

Pradhan, Lopamudra, (2013). A Generalized state of the art e-readiness framework. **The IUP Journal of Management Research**, XII, (2), 40-53.

Preedaananthasuk**, Chatree** (2014). Integrated Crisis Management, what did We Learn from Flood Management in Thailand. **Universal Journal of Industrial and Business Management, 2(7), 151 – 155, DOI: 10.13189/ujibm.2014.020702.**

Radomska, Joanna, (2015). Strategic flexibility of enterprises. **Journal of Economics**, **Business and Management**, 3(1), 19-23.

Reddy, C., Paul, A., Abraham,J., McNeese, M., DeFlitch, C. & Yen, J. (2009). Challenges to effective crisis management: Using information and communication technologies to coordinate emergency medical services and emergency department teams. *International journal of medical informatics, 78*, 259–269.

Roca-Puig, V., Beltrán-Martín, I., Escrig-Tena, A., and Bou-Llusar, J. (2005). Strategic flexibility as a moderator of the relationship between commitment to employees and performance in service firms. The International Journal of Human Resource Management, 16(11), pp.2075-2093.

Roy Saikat Ghosh and Upadhyay Parijat (2017) Does e-readiness of citizens ensure better adoption of government's digital initiatives? A case-based study Journal of Enterprise Information Management Vol. 30 No. 1, 2017 pp. 65-81.

Sanchez,R., (1995).Strategic flexibility in product competition. **Strategic Management Journal**.16,135-159.

Sawalha, I (2013). Organizational performance and business continuity management: A theoretical perspective and case study. **Journal of Business Continuity & Emergency Planning**, 6(4), 360-373.

Schneider, Sabrina, & Spieth, Patrick (2014). Business model innovation and strategic flexibility: insights from an experimental research design. **International Journal of Innovation Management,** 18, (6), 1-21.

Schreurs, Jeanne, Gelan, Anouk & Sammour, George (2009). E-Learning Readiness in Organisations – Case Healthcare. **International Journal of Advanced Corporate Learning**, 2 (2), 34-39.

Sekaran, U. and Bougie, R. (2013) Research Methods for Business—A Skill Building Approach. 6th Edition, John Wiley and Sons, West Sussex

Sharfman, M.P., & J.W. Dean, Jr. 1997. Flexibility in strategic decision-making: Informational and ideological perspectives. Journal of Management Studies, 34: 191-217.

Sharplin,Arthur (1985). **Strategic Management**. McGraw-Hill Company, New York Shimizu, Katsuhiko & Hitt, Michael A., (2004). Strategic flexibility: organizational preparedness to reverse ineffective strategic decisions. **Academy of Management Executive**, 18(4),44-59.

Shirzad, Sara Robaty & Bell, David (2013). A systematic literature review of flexible E-procurement marketplace. Journal of Theoretical and Applied Electronic Commerce Research, 8(2),49-70.

Shrivastava, Paui, & Mitroff, Ian, I., (1987). Strategic Management of Corporate Crisis. **Columbia J. of World Business**, 22, 5-11.

Singh, Doordarshi, Oberoi, Jaspreet Singh & Ahuja, Inderpreet Singh, (2013). An empirical investigation of dynamic capabilities in managing strategic flexibility in manufacturing organizations. **Management Decision**, 51(7), 1442-1461.

Sparx Systems, (2014). **Requirements management with enterprise architect**. Available at: http://www.sparxsystems.com/downloads/whitepapers/Requirements_Management_in_Enterprise_Architect.pdf (accessed 28 May 2017).

Srour, Mark, Baird, Kevin, & Schch,Herb (2016). The role of strategic flexibility in the association between management control system characteristics and strategic change. **Contemporary Management Research**,Vol. 12, No.3,371-406.

strategic flexibility, and new product development. **J PROD INNOV MANAG** ,31(4):832–847.

Taymouri, Seyed, Rouhollah, Eslami, Siamak, Fadaei, Samad, Delfan, Ganbar, Ali & Ghasemi, Masoud (2014). An Investigation on the Relationship between Strategic Management and Crisis Management in Hospitals of Shahid Beheshti University, Tehran. **Journal of Educational and Management Studies, 4 (3), 660-665.**

Turban, E., Miclean, E., & Wethereby, J. (2009). Information Technology for Management, Making Connections for Strategic Advantage, (2), **John Wiley & Sons.Inc , N.Y.**

Vardarlier, Pelin, (2016). **Strategic Approach to Human Resources Management During Crisis, Social and Behavioural Science,** (235),463-472.

Volberda, H. W., (1996). Toward the Flexible Form: How to Remain Vital in Hypercompetitive Environments. **Organization Science**, 7 (4), 359-374.

Wang.W., (2009). **Knowledge Management Adoption in Times of Crisis, Industrial Management & Data Systems**.109 (4): 445 462. Emerald insight. ISNN: 0263-5577.

Wei, Zelong, Yi, Yaqun, & Guo, Hai, (2014). Organizational learning ambidexterity,

Wisenblit, Joseph Z., (1989). Crisis Management planning among U.S. corporations: Empirical evidence and a proposed framework, **SAM Advanced Mgt., J.**, 54, (2), 31-41.

Wojciechowicz, Wojciech, Zych, Jan & Hołubowicz, Witold(2012). Information and communication technology and crisis management. Institute of Computing Science, Poznań University of Technology, 15(1), 101-110.

Wooten, L. P., James, E. H., & Parsons, K. (2013). Leadership strategies and tactics for crisis management. In A. J. Dubrin (Ed.), Handbook of research on crisis leadership in organizations (pp. 193-208). Northampton, MA: Edward Elgar.

Wuttigrai Ngamsirijit, BEng, MSc (2008). **Manufacturing Flexibility Improvement**. **Case Studies and Survey of Thai Automotive Industry**, Thesis submitted to the University of Nottingham for the degree of Doctor of Philosophy.

Yonggui, W. & Hing-Po, Lo, (2004). Customer-focused performance and its key resource-based determinations: An integrated framework. **Customer Relationship.** 14(1/2),34-59.

Yu, Feifei, (2012). Strategic flexibility, entrepreneurial orientation and firm performance: Evidence from small and medium-sized business (SMB) in China. **African Journal of Business Management,** 6(4), 1711-1720.

Zaid, Abdel Nasser, H., Khairalla, Faraj, A., & Alrashed, Wael, (2007). Assessing e-readiness in the Arab countries: Perceptions towards ICT environment in public organizations in the state of Kuwait. **The Electronic Journal of eGovernment,** 5, (1), 77-86.

Zhou, Kevin Zheng, & Wu, Fang, (2010). Technological capability, strategic flexibility, and product innovation. **Strategic Management Journal**, 31, 547–561.

Zhu,Y.(2011).**Crisis Responses Strategies and Roles of Media in a Crisis from a Cultural Aspect: A Case Study of San Lu Groups Melamine Crisis in 129 China Mainland.** Ball State University, Indiana. USA. Available at: http://cardinalscholar.bsu.edu/bitstream/123456789/195044/1/ZhuY_2011-3_BODY.pdf.

Appendix A

Study Questionnaire:

Questionnaire

Dear Sir/Madam,

The purpose of this letter is to request your cooperation in data collection for my Doctoral Research Project. I am presently pursuing a Doctoral Programme in Business Administration at Brunel University, London.

My dissertation topic is: ***Crisis Management and Strategic Flexibility: The Moderating Role of E-Readiness the Case of Government Authorities in The Kingdom of Bahrain.*** The concept of e-readiness has been introduced and identified as an important element in the relation between crisis management and strategic flexibility.

The enclosed survey is organised into four sections:

1. General Questions (Demographic Data)

2. Crisis Management

3. Strategic Flexibility

4. E-Readiness

I would appreciate that you answer the entire questionnaire as we will not be able to use incomplete surveys in the data analysis. Please respond to each question as you believe the situations exists and not as you think it should be. I am interested in the information from groups as a whole, not in the individual responses. This study will contribute to the advancement of knowledge on the relation between crisis management and strategic flexibility.

This survey has been approved by the Institutional Review Board of Brunel University. There are no risks associated with participating in this study. All responses are confidential as you are not asked to write your name on the survey, or any identifying information. Participation in the survey is voluntary. If there are queries regarding this study, please contact me on Mohamed.AlKhalifa@brunel.ac.uk

Thank you for participating.

Sincerely yours,

Mohamed Hamad Mohamed Abdulla Al Khalifa

Candidate for Doctorate in Business Administration

Brunel Business School – Brunel University London

Part 1: Demographic Data

Please complete the following demographic information. Responses to all questions on this survey are strictly confidential.

1 What is your gender?

Male ○   Female ○

Non-Binary ○   Prefer not to say ○

2 What is your level of education?

Lower than Bachelor Degree ○   Bachelor Degree ○

Master's Degree ○   Doctoral Degree ○   Other_____

3 What is your age?

18-30 years   ○   31-40 years ○

41-50 years   ○   51-59 years ○   60 years and over ○

4 Length of service with organisation?

0-1 year ○   1-5 years ○

6-10 years ○   Over 10 years ○

5 Length of time in current position?

0-1 year ○   1-5 years ○

6-10 years ○   Over 10 years   ○

6 Full-time employed ○   Part-time employed ○   Other _____

7 Please indicate your job title?

Manager ○   Supervisor ○   Clerk ○

Other_____

Part 2: Strategic Flexibility

Listed below is a series of statements related to Strategic Flexibility. Please indicate your level of agreement or disagreement with the following statements by circling a number from 1 = Strongly Disagree to 5 - Strongly Agree. (Authority's Management Means Top management and directors that manage the Kingdom of Bahrain's Government Authorities) if you can't answer a certain question because you don't know the answer please mark it with "I don't know" or skip.

#	**Flexibility of Capacities**	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
1	The authority's management has the ability to invest the available skills in research and development in a highly efficient way.	**1**	**2**	**3**	**4**	**5**
2	The authority has a high potential in using available technology and employing it to improve and develop its services.	**1**	**2**	**3**	**4**	**5**
3	The authority's management can deal with the uncertainties (suspicion, uncertainty, and ambiguity) associated with the surrounding environmental conditions.	**1**	**2**	**3**	**4**	**5**
4	The authority's management has the ability to restructure its various capabilities (design, arrange, and coordinate its functions and work) in line with the changes in the surrounding environment.	**1**	**2**	**3**	**4**	**5**

#	Flexibility of Resource	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
1	The authority's management has the potential to invest in optimising its resources (human and material) in line with changes in the external environment.	1	2	3	4	5
2	The costs of switching from one use of authority's major resources to an alternative use are low.	1	2	3	4	5
3	The management of the authority has a high potential in adapting the appropriate and necessary resources to implement its operational strategy.	1	2	3	4	5

#	Flexibility of Information	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
1	The authority's management is keen to keep abreast of technological developments to benefit from it in the process of storing and retrieving information when necessary.	1	2	3	4	5
2	The authority's strategies and policies are based on the collection of detailed information and its scientific analysis (thoughtful).	1	2	3	4	5
3	The authority's management attracts experts in the field of information technology to benefit from their expertise in research and development.	1	2	3	4	5
4	The authority's management has the information necessary to decide in a timely (real) time.	1	2	3	4	5
5	The authority's management depends on information sources that enable it to predict future events that it may encounter.	1	2	3	4	5

#	**Flexibility of Coordination**	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
1	There is effective coherence and coordination between the efforts of the authority and institutions in the public and private sectors.	1	2	3	4	5
2	The authority considers the information received from its various departments when dealing with different circumstances.	1	2	3	4	5
3	The authority's internal units often collaborate with each other to find a new use for internal resources.	1	2	3	4	5
4	The authority's administration prevents duplication (overlapping and conflict) in administrative activities, and clearly defines terms of reference, tasks, and responsibilities.	1	2	3	4	5
5	The organisational structure of the authority ensures that the horizontal, vertical, internal and external communication channels between all levels are identified with a high degree of flexibility and clarity.	1	2	3	4	5

Part 3: Crisis Management

Listed below is a series of statements related to Crisis Management. Please indicate your level of agreement or disagreement with the following statements by circling a number from 1 = Strongly disagree to 5 - Strongly agree. (Authority's management means top management and directors that manage the Kingdom of Bahrain's Government Authorities) if you can't answer a certain question because you don't know the answer please mark it with "I don't know" or skip.

#	**Early Warning Signals Detection Stage**	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
1	The authority administration monitors any signs, weaknesses, malfunctions, problems, or disturbances that may be an indication of a crisis.	**1**	**2**	**3**	**4**	**5**
2	The technologies used in other institutions such as (meteorology, civil defence) help the authority manage the discovery of early warning signs of a crisis.	**1**	**2**	**3**	**4**	**5**
3	The authority adopts a methodology for advance planning for crisis management in the event of its occurrence through a clear strategy prepared for that	**1**	**2**	**3**	**4**	**5**
4	There is sufficient interest in environmental monitoring (discovering strengths and weaknesses, opportunities and threats) for indicators of crisis occurrence.	**1**	**2**	**3**	**4**	**5**
5	The staff is qualified to perform the skills of collecting and analysing indicators of the crisis.	**1**	**2**	**3**	**4**	**5**

#	Preparation and Prevention Stage	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
1	The scenarios prepared by the authority's management are commensurate with the nature of the crisis it faces.	1	2	3	4	5
2	The authority's management is continually adopting the development and amendment of plans related to crisis management through a specialised unit (department).	1	2	3	4	5
3	The authority's management has an active alert system with the aim of preventively forecasting potential crisis.	1	2	3	4	5
4	The authority's management shares information on expected crisis with all departments concerned as a precaution.	1	2	3	4	5
5	The authority forms task forces with competencies appropriate to the nature of the potential crisis.	1	2	3	4	5

#	Damage Containment Stage	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
1	The authority's management has the ability to respond immediately to contain crisis.	1	2	3	4	5
2	The authority's management has the ability to diagnose crisis and their damages if they happen.	1	2	3	4	5
3	There is flexibility (speed and capabilities) to move the available resources (material and human) necessary to contain the crisis.	1	2	3	4	5
4	The management of the decentralised body relies on decision-making and delegation of	1	2	3	4	5

#		Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
5	authority to the relevant authorities in crisis situations.					
	The authority's management is keen on enhancing awareness among citizens on how to deal with crisis when they occur.	1	2	3	4	5

#	**Activity Recovery Phase**	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
1	The authority's management initiates awareness campaigns to deal with the damage caused by the crisis.	1	2	3	4	5
2	The authority's administration is working to find a state of reassurance among workers to get rid of the consequences of the crisis.	1	2	3	4	5
3	The authority's management is keen to adopt incentives to reward workers in times of crisis.	1	2	3	4	5
4	The authority's management determines the needs of the various sites affected by the crisis while providing the necessary resources to restore regular activity.	1	2	3	4	5

#	Learning Stage	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
1	The authority's management benefits from previous crisis in improving and developing its procedures and plans related to crisis management.	1	2	3	4	5
2	There is an objective assessment of the crisis (plans, practices, decisions) that have taken place to benefit from them in dealing with similar future crisis.	1	2	3	4	5
3	The authority's management is keen on tabulating the results of crisis within an organised memory that can be easily retrieved and taking lessons and lessons for future use.	1	2	3	4	5
4	The authority's management disseminates a culture of dealing with crisis among employee groups in a simplified way by multiple means (brochures, booklets, lectures)	1	2	3	4	5

Part 4: Intermediate Variable (E-Readiness)

With respect of your knowledge of E-Readiness in your workplace, please indicate the degree of agreement or disagreement with each statement by circling a number from 1 - Strongly disagree to 5 = Strongly agree. (Authority's management means top management and directors that manage the Kingdom of Bahrain's Government Authorities) if you can't answer a certain question because you don't know the answer please mark it with "I don't know" or skip.

#	E-Readiness	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
A	Information and Communication Technology Infrastructure:					
1	The authority's management provides the most recent technology used in the field of networks and systems to improve and easily implement electronic availability.	1	2	3	4	5
2	Inter-departmental network communication enhances the speed with which information is exchanged.	1	2	3	4	5
3	The authority's management has comprehensive databases of available resources (including public and private sector resources) that are appropriate to the nature of its work in all circumstances.	1	2	3	4	5
B	Human Resources:					
1	The authority's management provides training plans to train and qualify employees to use information and communication technology technologies.	1	2	3	4	5
2	Individuals have the appropriate qualification to use available technological devices to exchange necessary information related to crisis management.	1	2	3	4	5
3	The authority's management is assisted by consultants who specialise in dealing	1	2	3	4	5

	with the application of the e-readiness methodology.					
C	Management Requirements:					
1	Senior management in the authority supports the policy of applying the e-readiness methodology.	**1**	**2**	**3**	**4**	**5**
2	There is a strategic plan for implementing the e-readiness methodology linked to the information available from the crisis forecast centers.	**1**	**2**	**3**	**4**	**5**
3	The higher management of the authority supports electronic connectivity with the relevant government institutions (Ministry of Works, Municipalities Affairs and Urban Planning, Civil Defence, Public Security, ...)	**1**	**2**	**3**	**4**	**5**
D	Physical Capabilities:					
1	The authority's management is keen on providing the financial budgets allocated for updating the hardware and software necessary to enhance e-readiness.	**1**	**2**	**3**	**4**	**5**
2	The authority's management provides the financial support necessary to hire qualified trainers to train workers to implement the e-readiness program in the authority.	**1**	**2**	**3**	**4**	**5**
3	The authority's management provides the necessary financial support to send employees with qualifying external courses specialising in the latest computer hardware and software to keep pace with the rapid development of information and communication technology.	**1**	**2**	**3**	**4**	**5**