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G2G INTERACTION MODEL OF INFORMATION SHARING AMONG LOCAL AGENCIES BASED ON PHENOMENOLOGY APPROACH: DHI-QAR PROVINCE EMPLOYEES' VIEWPOINTS

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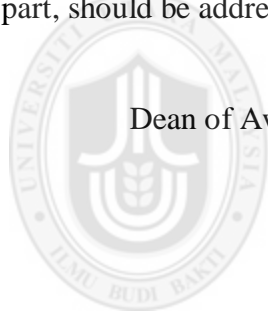
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Abstrak

Pertukaran maklumat secara elektronik telah membantu agensi tempatan meningkatkan produktiviti dan prestasi mereka. Pada masa yang sama, ia membaiki proses penggubalan dasar dengan menyediakan perkhidmatan awam yang lebih baik kepada rakyat. Bagaimanapun, terdapat sedikit kajian mengenai faktor yang mempengaruhi interaksi elektronik antara agensi tempatan di negara membangun, termasuk Iraq. Malah, agensi kerajaan biasanya bergantung kepada maklumat yang disediakan oleh agensi kerajaan yang lain, menyebabkan interaksi elektronik sangat penting bagi pengurusan operasi antara organisasi yang berkesan dalam kerajaan. Kajian ini bertujuan untuk menentukan faktor yang menjejaskan interaksi antara agensi tempatan dalam Dhi-Qar, Iraq. Maka, kajian ini mencadangkan satu model interaksi kerajaan-kepada-kerajaan (G2G) antara agensi tempatan dari konteks persekitaran, organisasi, dan teknologi, menggunakan pendekatan *Phenomenological berasaskan teori Penyebaran Inovasi dan Pertukaran Sosial*. Pengumpulan data melibatkan dua fasa. Pertama, satu siri temu bual dengan kakitangan e-kerajaan telah dijalankan untuk menemui faktor yang mempengaruhi interaksi G2G di Dhi-Qar, Iraq. Kemudian, satu lagi siri temu bual separa berstruktur dilakukan dengan menumpukan untuk mengeluarkan isu utama yang mempengaruhi interaksi G2G. Data yang dikumpulkan disahkan melalui pemeriksaan triangulasi dan ulasan ahli *(member checking)*. Satu kajian kes telah dilakukan untuk mengesahkan dapatan kajian. Kajian ini telah menemukan faktor yang mempengaruhi interaksi elektronik antara agensi tempatan di Dhi-Qar. Faktor tersebut adalah faedah, keserasian, kerumitan, kos, keselamatan maklumat, kepercayaan antara agensi, rintangan dalaman kepada perubahan, kemampuan teknologi maklumat (TM), penggubalan undang-undang, keselamatan fizikal, dan sokongan pengurusan atasan. Berdasarkan semua faktor tersebut satu Model Elektronik Interaksi kerajaan-kepada-kerajaan (G2GIM), dicadangkan. Model ini menyumbang kepada penambahbaikan teori yang telah digunakan dalam kajian ini. Model ini boleh diaplikasikan kepada pelbagai agensi tempatan dalam melaksanakan projek e-kerajaan.

Kata Kunci: E-kerajaan, teori Penyebaran Inovasi, teori Pertukaran Sosial, Kerajaan Tempatan

Abstract

The exchange of information electronically has help local agencies to increase their productivity and performance. At the same time, it improves the process of policy-making by providing better public services to citizens. However, only a few studies that examine the factors influencing the electronic interaction among local agencies in developing countries, including in Iraq. In fact, government agencies usually rely on information provided by other government agencies, making the electronic interactions crucial for effective inter-organizational operations management in the government. This study aims to determine the factors affecting the interaction among local agencies in Dhi-Qar, Iraq. Thus, it proposes a government-to-government (G2G) interaction model among local agencies from the environmental, organizational, and technological contexts, using phenomenological approach based on the Diffusion of Innovation and Social Exchange theories. Data were collected in two phases. First, a series of interviews with local e-government employees were carried out to discover the factors that influence the G2G interaction in Dhi-Qar, Iraq. Later, another series of semi-structured interviews focusing on extracting the main issues that influence G2G interaction was followed. The collected data were validated through triangulation and member checking. A case study was used to confirm the findings. The study has discovered the factors that influence the electronic interaction among local agencies in Dhi-Qar. The factors are benefits, compatibility, complexity, costs, information security, inter-agency trust, internal resistance to change, information technology (IT) capability, legislation, physical security, and top management support. Based on these factors, the government-to-government interaction model (G2GIM) is proposed. This model can be applied to different local agencies in implementing e-government projects.

Keywords: E-government, Diffusion of Innovation theory, Social Exchange theory, Local government

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CHAPTER ONE
OVERVIEW OF THE STUDY

1.1 Introduction

Technological advancement has allowed governments to respond to the demands of its citizens electronically, in an environment called electronic government (e-Government). E-Government is the use of technologies (e.g. wide area networks, the Internet, and mobile computing) by government agencies to transform relationships with citizens, businesses, and other branches of government (Haque & Pathrannarakul, 2013). These technologies provide citizens with better government services, improve interactions with business and industry, empower citizens by providing access to information, and manage a more efficient government (Wang & Hou, 2010a). With the utilization of information and communication technology (ICT), it promises accurate and agile transactions and delivery of services and information to businesses, citizens, and government agencies. Also, e-Government can contribute towards the enhancement of democracy, efficiently. In regards to that, this chapter discusses the context that leads to the necessity for this study by elaborating the background, problem to be solved, questions to be answered, objectives to be achieved, scope, and significance of this study. The chapter ends by describing the structure and sequence of the thesis.

1.2 Background of the study

ICT is one of the building blocks of modern society (Doran, Lott & Doran, 2014; Khasawneh & Ibrahim, 2008) that has a key role in the social, economic, cultural, and

political growth of a nation. It has revolutionized the way we live, think, and perform; and helps realizing the vision of good governance (Gilaninia, Mousavian, Hanifi, Omidi & Zadbagher-Seighalani, 2012; Srivastava & Hossain, 2014). In fact, Salamat, Hassan, and Muhammad (2011) discovered that governments in developing countries provide their citizens with services through ICT mechanism. As a result, ICT has brought numerous changes in their services, including among others voter registration and voting on the Internet, as well as renewing driver's license (Hung, Chang & Kuo, 2013; Hu, Pan, Lin, Kang & Best, 2014).

The e-Gov field (also known as electronic government, digital government, electronic governance, and similar names) emerged in the late 1990s (Grönlund, 2005; Grönlund & Horan, 2005; Trimi & Sheng, 2008). However, research on the e-Government is relatively new and presents a variety of diversed research opportunities (Joseph, 2013). The shift from traditional to e-Government is an important public policy issue for more technologically advanced countries (Goings, Vanjani & Goings, 2005). However, Gilaninia, Mousavian, Hanifi, Omidi and Zadbagher Seighalani (2012) found that the shift does not imply the result of public administrators, especially for developing countries that face challenges such as the low level of ICT literacy and skills of e-Government users (Khan, Moon, Rhee & Rho, 2010).

Although e-Government has undergone many changes and improvements since its inception during the late 1990s (Chadwick & May, 2003; Grönlund, 2005; Grönlund & Horan, 2005; Wang & Hou, 2010a), its development in the 21st century is an unavoidable

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trend (Kassen, 2014; Huff & Kleeman, 2012) because almost every country and government around the world has implemented it (UN, 2012) with their own visions, roadmaps, objectives, and strategies for the future of e-Government (Datar, Panikar, & Farooqui, 2008; UN, 2012).

Wang and Hou (2010b) found that although all governments have many commonalities in their functions, structures, and processes, the e-Government implementation is not homogeneous. Hence, in order to facilitate the provision of secured services to Iraqi citizens, the Iraqi government seeks to occupy a good position among ICT societies in the world after initiating the establishment of its e-Government in 2004 with the help of the Italian government (Al-dabbagh, 2011; Abdulwahida, Mutaliba & Mohd, 2014; UN/DESA, 2005).

Since the beginning, e-Government is often considered as an approach to achieve more citizen-centric and effective public administration as well to add transparency (Pardo, Cresswell, Dawes, & Burke, 2004). Thus, to assess the extent in which this declarative goal has been achieved, researchers have established several indicators and benchmarks to evaluate the e-Government efforts. However, most of these indicators focus on the implementation of government-to-citizen (G2C) and government-to-business (G2B) front-office services. They further argued that most have neglected the importance of the back-office and the government-to-government (G2G) services as the real and the most important engines of e-Government (Jovanovska, Erman, & Todorovski, 2010; Viscusi, Mecella, & Batini, 2010).

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Nevertheless, Wang and Hou (2010a) further suggest that governments have to explore new relationships among their agencies, as well as partnerships with the private sectors to ensure the quality and accessibility of e-Government activities. Similarly, Klischewski and Abubakr (2010) recommend that to fulfill their strategic objectives, government agencies need to share information and link their administrative processes.

In such context, government agencies usually rely on information services provided by other government agencies (Pardo & Tayi, 2007; Safdari & Zarei, 2011), making the electronic interactions crucial for effective inter-organizational business management. This interaction is known as G2G, which provides the availability and sharing of information to all government levels, which improves the efficiencies (Wang & Hou, 2010b).

Al-zahrani (2011) further discovered that G2G allows governments to have the opportunity to provide new interaction channels with different government departments and business organizations, which leads to the increase in government performance and efficiency. Unfortunately, despite its importance in government operations, information sharing among agencies remains a great challenge worldwide (Fan & Zhang, 2009; Fan, Zhang & Yen, 2014). In conjunction, Yang and Wu (2014, p. 651) express that *"Information sharing among agencies remains a difficult task because it usually raises the concern of privacy and confidentiality and encounters various challenges"*. It is because information sharing involves complex interactions among government agencies (Dawes, 1996; Dos Santos, 2008; Gil-Garcia, Chengalur-Smith & Duchessi, 2007; Gil-

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Garcia, Pardo, & Burke, 2007; Gil-Garcia, Chun, & Janssen, 2009; Klischewski & Scholl, 2006; Luna-Reyes, Andersen, Richardson, Pardo & Cresswell, 2007; Pardo & Tayi, 2007; Zhang & Dawes, 2006).

In response to such complexity, this study is carried out based on two theories. Meanwhile, the factors that affect the information sharing among local agencies are discovered from the previous studies. The existing works have shown that information sharing between government agencies has increased substantially due to a need to monitor and react against the terrorist and other illegal activities. While Fan, Zhang, and Yen (2014) denote that information sharing of the public sector refers to the collaboration between two or more government agencies in sharing information and co-operating with one another through the internet or other digital channels, Bigdeli, Kamal, and Cesare (2013) use the interaction term to denote on the information sharing among the organizations. Therefore, throughout this study both terms interaction and information sharing are used intertwined.

Having said that, qualitative approach is used to extract the factor, and according to Creswell (2009), the use of theory is more varied in qualitative research. A theory can be generated as the final outcome of a study. Also in qualitative studies, theory comes at the beginning and provides the lens that shape what it looks at and what questions are asked. Creswell further states that theories guide a study on the most important issues to examine and who need to be studied (2007).

1.3 Problem statement

G2G interaction involves sharing of data and exchanging information electronically amongst various government departments and other entities at various levels (Amaripuja, 2010). Currently, exchanging information electronically among government agencies is no longer a choice, but a necessity for all countries that are aiming to improve their governance (Ouma, 2014). In fact, information sharing between government agencies is considered as the backbone of e-Government implementation (Seifert, 2008; Al-Sebie, 2014) due to the increase in e-Government adoption worldwide (Sang & Lee, 2009; UN, 2012). According to Yang, Pardo, and Wu (2014) information sharing among government agencies (G2G) plays a critical role in the e-Government development, because it is a prerequisite for other e-Government services, such as G2C and G2B (Hamza, Sehl, Egide & Diane, 2011), and completes the picture of e-Government (Obi & Hai, 2010). Consequently, G2G information sharing remains a big challenge worldwide (Fan & Zhang, 2009; Fan, Zhang & Yen 2014).

The e-Government projects are subjected to indirect bounds because of poorly identified problems that have emerged when organizations begin information exchange across traditional organizational borders (Ezz, Furlong, & Papazafeiropoulou, 2006). Although many attentions have been given to study on the management and organization of e-Services, e-Democracy, and e-Security (such as Löfstedt, 2005; Ali & Vaquer, 2008), studies related to information sharing between government agencies are still scarce (Löfstedt, 2005, 2007; Sandoval-Almazan & Gil-Garcia, 2012; Mohammed *et al.,* 2012; Ruhode, 2013). In the same context, Ramaswamy and Selian (2007) argue that the

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complexity of government to constituent interactions (such as G2G, G2B, and G2C) need to be comprehensively analyzed, by addressing that *"The nature and quality of government-to-constituent interactions all over the world have been dramatically influenced by recent innovations in the realm of information and communication technology (ICT)"(*p.1*)*. In regards to this, the inadequacy of studies on information sharing primarily motivates this study, which attempts to overcome the widening gap in G2G interaction.

This field also lacks a comprehensive framework or model to determine the factors that might affect the electronic information exchange among the government agencies, particularly at the local level (Bigdeli, Kamal & de Cesare, 2013). Accordingly, Akbulut, Kell, Pawlowski, and Schneider (2009) and Bigdeli (2012) recommend that a study that focuses on investigating the existing local government agencies is necessary. Thus a study that focuses on investigating the existing local government agencies is needed.

Meanwhile, Rahman (2010) discovered that despite the popularity, potency, and precision, the e-Government implementation in the local government remains in uncharted territory for many countries. Hence, this study will venture into this area as studies on e-government information systems implementation at the local government level are also limited.

On top of that, Ruhode (2013) emphasizes that the empirical evidences on the successes of information sharing among government agencies in developing countries are still

lacking, which is supported by Fan *et al.* (2014). In addition, Sandoval-Almazan and Gil-Garcia (2010; 2012), Bigdeli, Kamal, and DeCesare (2013), Haque, Memon, and Shaikh (2013), and Snead and Wright (2014) also also agree that despite the active research and practice in e-Government and information sharing, the field lacks empirical studies that examine the factors that affect the information sharing among the government agencies at the local level.

In fact, Bigdeli et al. (2013) specifically argue that there is a dearth of empirical studies that determine the main factors that influence the interaction process among local agencies. The information sharing initiatives among these agencies is deemed a key pillar for implementing e-Government. As a consequence, this study attempts to fill this gap by discovering the major factors that influence the G2G information sharing among local governments in Iraq as a developing country.

On the other hand, in 2004, Dhi-Qar province launched an initiative in sharing information among the local agencies electronically; the project was stopped for more than three times and for long periods. It was partly because the sharing of information amongst the agencies in Iraq was facing several challenges, and it made e-Government initative difficult (Sobel Alsalam News, 2014; Almutmar, 2014). Thus this study is carried out, to bridge the gap. It is based on the Social Exchange Theory (SET) together with the factors from the Diffusion of Innovation theory (DOI) to examine the experiences of information sharing between employees of local government agencies in the implementation of the e-Government information systems from the technological,

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organizational, and environmental perspectives. The conflicts in Iraq, as well as the limitations of local government resources were the reasons for the use of the two theories in this study to capture the phenomenon of the first e-government initiatives implemented in Iraq.

1.4 Research Questions

According to Creswell (2009; 2013), the research questions in a qualitative research begin with *what* or *how* to convey an open and emerging inquiry. As the past studies have overlooked the factors that can affect G2G interactions, this study addresses the following questions:

a) What are the main issues that affect G2G information sharing in the Iraqi province of Dhi-Qar?

b) What are the factors that might influence G2G information sharing in the Iraqi province of Dhi-Qar?

1.5 Research Objectives

The objectives of this study are devised to solve the identified problem discussed in the previous section and to answer the posed research questions. Hence, the main objective is to propose a model that could influence G2G Interaction Model (G2GIM) in Dhi-Qar, Iraq. In order to accomplish that, the following have to be achieved:

a) To highlight the main issues that affect G2G information sharing in Dhi-Qar, Iraq.

b) To discover the factors that might influence G2G information sharing in Dhi-Qar, Iraq.

1.6 Scope of the study

In June 2004, the United Nations prompted its member states to assist the new Iraqi government to rebuild their institutions (Abdulwahida, Mutaliba & Mohd, 2014). As a consequence, The Italian Ministry for Innovation and Technologies and the Iraqi Ministry of Science and Technology signed an agreement, in which the Italian government pledged in providing a technical assistance in establishing the Intranet for use by the Iraqi ministries and further developing an e-Government project (Sabah, Kadhim Jleil & Ahmed, 2014). Dhi-Qar has been selected as the first province to pilot the project (Al-dabbagh, 2011; Musa, 2010), the first step into developing an efficient e-Government platform that can support rebuilding the infrastructure of the country (Matloob, 2008). The selection of Dhi-Qar is sufficient because the information exchange process or electronic interaction among the agencies in Dhi-Qar was in traditional way (Al-dabbagh, 2011). With that, implementing e-Government is less complex rather than implementing it in a province that has already been implementing e-Government.

On top of that, Mohammed, Ibrahim, Hussein, and Anad (2013) also agree that the interaction among the agencies in Iraq are facing several challenges (such as limited resources and limited IT capacity), making e-Government initiative difficult. Nevertheless, there are scarcity of studies on the factors that might fail the entire project

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(ESCWA, 2009; Matloob, 2008) even if the local government spends enormous sums to set up the project with the help of the Italian Government.

In response to that, this study attempts to discover the factors that might influence the G2G information sharing in Dhi-Qar, a local government in Iraq, to extract the main issues and formulates the model. The Dhi-Qar province is chosen because it is the first and only province that tries to complete information sharing between the local agencies electronically (E-Iraq, 2012). It is under the control of the Italian Government, who is responsible for helping the technical development in Iraq (Al-dabbagh, 2011) since the war in 2003 (Mahncke, 2006). However, since its' first implementation, the information sharing process among the local agencies in Dhi-Qar remains incomplete. While it remains so, there has been no study discovers the factors that impact on the complete information sharing among the local agencies. At the same time, the new Iraqi Government strives for the transfer of administrative authority to the local government (Mohammed, Hussein & Anad, 2013). Therefore, the output of this study, in the form of the factors that impact the complete information sharing among local agencies can provide sufficient input to help other provinces in their e-Government project.

In terms of collecting data, qualitative technique, particularly the phenomenological approach is used. Employees of nine agencies, who involve in works related to electronic information sharing among the agencies (Thiqarprovince, 2012) are involved in this study. Involving employees is sufficient because only a few studies have done so in works related to the adoption of ICT e-Government (Henning, 2013; Zhan, Wang & Xia, 2011).

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Meanwhile, Diffusion of Innovations (DOI) and Social Exchange Theory (SET) are used to guide the determination of the vital issues to explore, what questions to ask, and who needs to be examined and provide empirical data in this domain. The researcher interviews and actually interpreted the findings based on the knowledge acquired as a local government employee and personal involvement in the design of e-Government websites and application, as well as from the literatures. The interviews were done in two rounds and the researcher discovered a wealth of information from the interacions.

1.7 Significance of the study

This study contributes significantly in terms of both theoretical and practical. Theoretically, although several factors are documented in the previous studies, there is a need to analyze and explain them in the context of local governments. Regarding this, Bigdeli *et al*. (2013) has urged that there is a dearth of empirical studies that determine the main factors that influence the process of electronic information sharing among local agencies. In the beginning, in developing countries, Heeks (2003, 2006) and Misuraca (2009) found that only 15% of e-Government applications were successful, whereas 85% failed. Later, Heeks (2006) and Shajari and Ismail (2012) categorized e-Government application outcomes into the following:

(1) Total failure: Projects that have never been implemented or implemented but have been immediately abandoned;

(2) Partial failure: Projects that do not attain their major goals and/or have significant undesirable outcomes; and

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(3) Success: Most stakeholder groups have attained their major goals and significant desirable outcomes have been produced.

Then, Kifle, Low, and Cheng (2009), Nasim (2010), Nograšek (2012), Verma, Kumari, Arteimi, Deiri, and Kumar (2012) discovered that the success rate of e-Government projects is dismal, especially in developing countries. As the G2G is the backbone of e-Government (Seifert, 2008), this study attempts to discover new issues influencing effort in the interaction among agencies in local government. This will help explaining the reasons for the failure in e-Government applications. Efforts can then be made to overcome the shortcomings. Thus, the researcher hopes that this can improve the performance of e-Government in general as the rank of the e-Government in Iraq falls down year by year (UN, 2012). The information exchange among agencies (also called G2G) is focused in this study because it represents the basic application of e-Government (Ray, Gulla, Dash & Gupta, 2011), utilized by all agencies (Ouma, 2014).

The "G2G" acronym is used for efforts enabling different government agencies to share information based on a suitable IT infrastructure (Klischewski & Askar 2010). Similarly, Realini (2004), Yang and Wu (2013), and Siau and Long (2005) agree that information sharing among agencies is important for the success of e-Government. It completes the picture of e-Government (Obi & Hai, 2010). Based on that argument, this study strives to extend the existing information sharing model in public sector by considering the employees' viewpoints. To accomplish that, this study will utilize the phenomenological approach in gathering employee's perspectives. This approach is sufficient because the

employees in Dhi Qar are among the first to work in e-Government environment. Besides, empirical research on e-Government in Iraq (Khan, Moon, Park, Swar & Rho, 2011) especially G2G interaction (Mohammed et al., 2012) is still scarce. Thus, this study seeks to be the basis for research works in the future.

From the practical perspective, Iraq attempts to progress towards becoming a developed, stable, and secure country. In order to achieve this goal, it is trying to update its institutions through the introduction of modern techniques in public sectors to improve the quality of services. Further, the electronic information sharing among government agencies will provide new opportunities to enhance governance, which can include improved efficiency, new services, increased citizen participation, and an enhanced global information infrastructure (Ruhode, 2013). However as mentioned in earlier sections, the e-Government implementation has faced many challenges and delays since 2004. Until now, it is threatened by failure. Therefore, the discovery of the factors that retard the process of completing the electronic interaction between local agencies in Dhi-Qar in this study is considered important. Further, the findings could assist other local governments in their e-Government implementation.

1.8 Definition of terms

According to Creswell (2009), qualitative researchers may define the terms used in the context of the study at the beginning of the research. Hence, the terms used in operating this study are described below:

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E-Government: This structure provides online services to citizens using ICT and IT as the interface. Their interaction is possible through the Internet.

G2C: Government-to-citizen, in which the interface is provided between the government and citizens to benefit the citizens with efficient delivery of a wide range of public services.

G2B: Government-to-business, that refers to front-office services.

G2G: Government-to-government, which is the most important engine of the e-Government structure.

G2G Interaction: This interaction provides the availability and sharing of information to all government levels, and improves the efficiency of these levels.

Dhi-Qar: A local government in southern Iraq. It is also sometimes called Thi-Qar. This thesis calls it Dhi-Qar in order to be consistent with the previous researches.

Qualitative Analysis: This process examines and interprets data to elicit meaning, gain understanding, and develop empirical knowledge.

Code: A code in qualitative inquiry is most often a word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data.

Themes: Also known as categories, themes are similar codes aggregated together to form a major idea in the database.

Phenomenological approach: This qualitative approach focuses on describing the common characteristics of all participants as they experience a phenomenon.

Gatekeeper: This individual has an official or unofficial role at the site, provides entry to a site, helps researchers locate people, and assists in the identification of place to study.

CAQDAS: This acronym stands for computer assisted qualitative data analysis software. CAQDAS is designed to help the researcher handle messy inputs.

Nvivo: This latest version of software from QSR International helps in the analysis, management, and shaping of qualitative data.

1.9 Organization of thesis

This thesis comprises seven chapters, which enables the research to be organized and to follow the sequence indicated in qualitative research.

i. **Chapter 1: Overview of the study**

Chapter 1 discusses the background works on e-Government and G2G interaction in local government as well as a summary of the most important studies and theories in this area. Based on these studies, the problem statement has been formulated, research objectives are outlined, and the scope of the study is set. This chapter also presents the research strategy that is used to facilitate the research process. The final section of this chapter highlights the significance of the study.

ii. **Chapter 2: Literature review**

Chapter 2 is divided into two sections. The first section explains the overview of the e-Government and explains in detail most of the information sharing studies in the world and in various levels. This chapter also analyzes the models that are related

in the current phenomenon, as well as the strengths and the weaknesses of each model. Meanwhile, the second section explains the theories used and the components of the conceptual model.

iii. Chapter 3: Research methodology

This chapter focuses on the research methodology employed in the study. Additionally, this chapter explains the rationale of the methods used and how the whole research has been carried out. It further outlines and justifies the steps that were taken to ensure responsible data gathering and analysis, trustworthiness of the study, and compliance with various ethical considerations are neat and appropriate.

iv. Chapter 4: Findings and Analysis

Chapter 4 presents the findings and analysis of the empirical study. Data that have been gathered through a series of interviews were analyzed using Nvivo 10. Illustrative graphs further visualize the outcomes.

v. Chapter 5: Case Study Validation of the Electronic Interaction Model

To validate the findings of the study, chapter 5 compares the main factors that influence the information sharing initiative with the e-Iraq portal project.

vi. Chapter 6: Discussions

Chapter 6 discusses the findings of the empirical study. It includes a detailed explanation on the results of the study.

vii. Chapter 7: Research Insight and Conclusion

Finally, the thesis ends with research insight and conclusion by discussing the contributions, limitations and directions for future research.

1.10   Summary of Chapter One

This chapter introduces the background of the study. It comprises the problem to be solved and the objectives to be achieved. It shows that studies on e-Government and G2G interactions in Iraq are still limited. The chapter illustrates Iraq as a developing country with unstable political circumstance, and from which the sample of the study has been drawn. Besides the problem statement and objectives, the research questions, scope, and significance of study are also outlined. The next chapter deliberates on relevant literatures for this study.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter reviews relevant literatures upon which this thesis builds, particularly towards forming the research questions from chapter 1 (Creswell, 2009; Bazeley & Jackson, 2013). Further, Creswell (2013) states that research problem come from "real life" issues or form a gap in the literatures, or both. Therefore, this chapter contains two sections. In the first section, an overview of electronic government (e-Government) is addressed. This is followed by previous studies on inter-agency information sharing, which is reviewed to gain an understanding on the context of electronic information sharing. In a complement, second section reviews the literatures on technology adoption, based on Diffusion of Innovations Theory and Social Exchange Theory. Theory is a prominent element in quantitative, qualitative, and mixed methods research (Cesswell, 2009). It is intensified by Maxwell (2013, p.41), who says: *"It is important for researcher to pay attention to the existing theories and research that are relevant to what researcher plans to study, because these are often key sources for understanding what is going on with these phenomena".* With reference to that, this chapter discusses the theories to shed light into the factors of electronic information sharing. Nevertheless, it explains the determination of components for the proposed conceptual model.

2.2 Electronic Government

The word 'government' traces its root to a Greek word '*kybernan*', which literally means "to steer". In its most general sense, it pertains to a body that has the authority and power to make laws and enforces these laws within an organization, such as civil, corporate, religious, and academic organizations (Fallahi, 2007) to be implemented. At the national level, government generally pertains to the administration of a state, in general to the executive function or branch of the body of the exercising authority. Particularly, the government that handles a district, province, or city, is referred to as local government (Van der Borgh, 2007). Government also refers to the means by which the society aims to accomplish essential objectives, such as maintenance of collective security, administration of justice, provision of economic infrastructure, and enhancement of vital social capitals such as by improving health and education and maintaining strong families and communities (Dawes, Bloniarz, & Kelly, 1999; Liu, 2001).

When the word 'government' is prefixed with an 'e', it suggests the use of ICT, such as the Internet, wide area networks, and/or mobile computing to perform its functions efficiently and effectively. As a result, it transforms its relations with citizens, businesses, and other government entities (Kitaw, 2006). Sharing similar characteristics with e-commerce or e-banking, e-Government (also known as e-gov, digital government, or online government) aims to improve the internal efficiency such as legislature, judiciary, or administration (Elmorshidy, 2011) through the use of ICT.

E-Government is considered as a powerful tool for human development and vital to the realization of the agreed development goals, which includes the Millennium Development Goals (UN, 2010). Since the early 1990s, a series of new demands have confronted public administration as the influence of the new technology that has transformed the society (Jeorg, Algermissen & Niehaves, 2006). As a result, the use of computer has become part of the daily lives of the citizens (Mahmoud, 2010). They have become more inclined to using the Internet and have experienced good electronic services from private agencies; hence, they have started to expect the same level of standard from government agencies (Weerakkody, El-Haddadeh & Al-Shafi, 2011).

The trend makes public services around the world acknowledge the importance of being accessible and serving efficiently (Weerakkody *et al.*, 2011). This could be noticed since the last ten years, which also changes the outmoded bureaucracies. In fact, the changes provide better services to citizens and businesses, and encourage participation and democracy (Rowley, 2011). In order to corroborate with the assertions, Al-dabbagh (2011) defines e-Government as the use of ICT in the public sector to reach out to the citizens in a modern and effective way. He agrees with Silcock (2001, p.1) who emphasizes "*e-Government is the use of technology to enhance the access to and delivery of government services to benefit citizens, business partners and employees*". They convey that e-Government can create a new mode of public services, in which the citizens experience a modernized, integrated, and seamless public service from all public organizations.

Similarly, Ramaswamy and Selian (2007) define e-Government as a means by which the government delivers information and services to its constituents through the use of ICT. Additionally, Alshomrani (2012) coins the use of World Wide Web (WWW) in e-Government to provide governmental services.

Based on the described definitions, this study deduces that e-Government is aimed at improving the performance of internal and external services of the government through the use of ICT. This is because ICT offers a range of tools to the components of the government (agencies, citizens, and businesses) that can transform the future operations of the interaction between the components of the government, service delivery, knowledge utilization, policy development and implementation, participation of citizens in governance, and reforms in public administration and good governance goals. With regards to that, it has to be noted that e-Government is not only about the computerization of a government system, but, more importantly, it is also a about the belief that technology has the ability to achieve high levels of improvements in different areas of government, hence, changing the nature of politics as well as the relations between governments and their citizens.

2.3 Benefits of e-Government

E-government can deliver huge benefits to government if it is successfully built. It seeks to accomplish utmost efficiency in government performance by enhancing the performance of services and transactions professionally for users from different sectors of the society (Almarabeh & Abuali, 2010).

OECD (2003), Yesser (2005) and Zhang and Hsieh, (2010) discovered that e-government offers various benefits. As an illustration, it (a) helps raising the productivity and efficiency of the public sector, (b) provides better and more convenient services for individual and business customers, (c) increases return on investment, and (d) provides desired information on time and accurately. Further, Krishna and Walsham (2005) and Bhatnagar (2002) complement that e-Government can lead to increased rates of development and allow for greater democracy. On the other hand, Schuppan (2009) and the World Bank Website (2005) emphasize that the benefits of e-Government include less corruption, increased transparency, greater convenience, revenue growth, and/or cost reductions. In order to ensure that the e-Government portal serves at users' expectation, a robust interaction in the e-Government portal is highly essential.

2.4 What is Interaction?

E-Government has been viewed not merely as the simple provision of information or services via the Internet, but as a way of transforming how citizens interact with government and how government interacts with itself (Rose & Grant, 2010; Fan, Zhang & Yen, 2014) and with business players. This shows that the users of e-Government portal vary. Hence, the interaction should take place.

Nariman and Yamamoto (2008) and Seifert (2008) argued that interactions are relatively simple and include information provision. Cloutier, DiMario, and Polzer (2009) considered the interactions as the exchange of information over an ICT. Furthermore, Apak (2005), Okot-Uma and London (2000) and Homburg and Bekkers (2002) stated

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that, G2G interaction is information sharing among different authorities in government. More specific, Ezz and Themistocleous (2005) pointed out that G2G interaction involves information sharing among government agencies, such as local level. Interaction among government agencies could improve the production and efficiency among them (Elmorshidy, 2011). Peel and Rowley (2010) specified that, there are few research on information sharing in the public sector. On the other hand, with regards to the interaction, the scenario mentioned in Section 1.3 is referred to. Accordingly, this study focuses on the interaction between local agencies in a developing country (as Iraq). Yang and Maxwell (2011) denoted that, factors affecting the interaction G2G are more diverse and complicated when it comes for government agencies. Section below illustrates types of e-Government Interaction.

2.5 Types of Interactions in E-Government

E-Government portal is very potential to facilitate interaction between different stakeholders in governance. In terms of interaction, scholars (Al-Khouri & Bal, 2006; Fan, Zhang & Yen, 2014; Kaur, 2010; Mutula, 2010; Ramaswamy, 2007; Ziemann, Kahl & Matheis, 2007) have classified the nature into three; government to citizens (G2C), government to business (G2B) and government to government (G2G). These interactions are described as follows:

2.5.1 G2G (Government to Government)

In this type, ICT is used to enhance the flow of information services within and between various entities and not just to restructure the governmental processes concerning the

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functions of government entities. Generally, this type of interaction limits its' boundary to the sphere of government bodies, in which the interaction can be both horizontal and vertical. Horizontal interaction is the interaction between various government agencies as well as between various functional areas within an organization. Meanwhile, vertical interaction connects between national, provincial, and local government agencies as well as between various levels within an organization. The primary objective of this kind of interaction is to increase efficiency, performance, and output. In this study, the interaction will be between the agencies within local government; hence, it is horizontal, for instance, the exchange of documents between the University of Dhi-Qar and province council about new graduates.

2.5.2 G2C (Government to Citizens)

This type of interaction interfaces the government and citizens. It benefits the citizens through the efficient delivery of a wide range of public services. Not only public services are more accessible and available, but also the quality of these services is improved. The citizens have the choice of when and where to interact with the government. As an example, the citizens can interact with the government 24 hours a day 7 days a week. Additionally, the citizens can either interact with the government from a service center or at the comfort of one's home, and in any way such as whether through the Internet, telephone, and face-to-face. Thus, the primary purpose of this kind of interaction is to make the government-citizen friendly.

2.5.3 G2B (Government to Business)

In this kind of interaction, e-Government tools are used to help the business community experience a seamless interaction with the government. It aims to cut red tape, save time, lower operational costs, and provide a more transparent business environment when dealing with the government. Its initiatives can be transactional, including licensing, releasing permits, and revenue collection. Also, it can be promotional and facilitative, as seen in trade, tourism, and investment. These measures then help create a friendly environment for businesses, thus allowing the latter to perform more efficiently.

In fact, the G2G sector stands as the backbone of e-Government, which involves data sharing and electronic exchanges between governmental actors. At the same time, it involves both intra- and inter-agency exchanges at the federal level and exchanges between and among the federal, state, and local levels (Seifert, 2008). It has been suggested that for the electronic transactions of governments (federal, state, and local) with their citizens and businesses to be successful, governments need to improve and update their respective internal systems and procedures first.

2.6 Government-to-Government Interaction

As has been well known, e-Government allows interactions without constraints in terms of time and location (Rose & Grant, 2010). In fact, it attempts to provide more convenient access to government information and services to citizens, business organizations, and government agencies (Löfstedt, 2007). In addition, e-Government becomes an important tool for the public sector not only in providing electronic services to citizens, but also in

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interacting with businesses, other organizations, and governments (Alshomrani, 2012). According to Al-Khouri and Bal (2006) and Seifert (2008), G2G represents the backbone of e-Government. Joia (2004: 2008) reported that the use of traditional government processes between two or more public agencies consistently yield lower efficiency and effectiveness, which results in higher costs than those of similar services in the private sector.

G2G Interaction is the collaboration of two or more governments or governmental agencies sharing information and cooperating with one another through the Internet, Extranet, disks, EDI, phone, and/or other electronic tools; it can lead to effective service and the realization of the monitoring goals (Akbulut *et al*, 2009; Fan, Zhang & Yen, 2014). Similarly, Realini and Riedl (2004) pointed that G2G can be considered as the basis for a complete, efficient, and effective e-Government strategy. However, Bajaj and Nag (2005) noted that G2G interactions take place without citizens' knowledge. Fostering the electronic interaction between agencies in these initiatives is challenging as these agencies face several hurdles for interactions (Dawes, Cresswell&Cahan, 2004). Fan, Zhang and Yen (2014) asserted that, understanding of the factors influencing on the G2G interaction is critical in establishing and maintaining collaborative between agencies.

One of the main concerns is that G2G interaction in the public sector will increase the evaluation or criticism because it makes governmental organisations more transparent. Reduced cost and increased productivity, accuracy of information, completed information for decision-making, and improvement of networked collaboration among governmental

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organisations are some examples of the benefits of exchange of electronic information (Fan & Zhang, 2007). Nevertheless, G2G helps government improve and accelerate the interactions among different government agencies (Alzahrani, 2011). Besides, Jaeger (2003) adds that G2G enhances government transitions and ensures that tasks are completed consistently. In addition, it speeds and facilitates networked information among different governmental departments. It allows information to flow easily and smoothly, reducing employee time wastage and cost. Moreover, the ability to G2G interaction among agencies is a prerequisite to improve the provision of services to citizens and effective decision-making (Sayogo, Jong, Nam, Gharawi, 2012).

Seifert (2008) pointed out that interactions are relatively simple and generally revolve around information provision. Literatures on e-Government often focus on the front office of the organization as well as on the interaction between government agencies and their citizens. However, the focus must be geared towards back-office for e-Government initiatives to be successful (Bekkers, 1998), because it focus on improved public service (Fan, Zhang & Yen, 2014). The front office is the interaction between government agencies and citizens (Homburg & Bekkers, 2002). In addition, the front office handles specific office processes or service components, with a focus on certain target groups (Lenk & Traunmüller, 2001). The back office, which can be spatially separated from the front office, is the place where decisions are made, as well as where IT functions such as databases, applications (Schuppan, 2009). Thus, the back-office operations serve as the backbone of any form of e-Government, in which information and knowledge exchange

between different units, departments, or organizations may be necessary (Homburg, 2007).

Moreover, Homburg and Bekkers (2002) referred that, back-office operations are G2G interaction. Apparently G2G services rarely are the first goal in e-Government applications. In fact Bigdeli, Kamal and deCesare, (2011) found that there is a scarcity of research on G2G, as opposed to other e-Government sectors. So far, a commonly accepted definition does not exist and the domain of G2G projects is still unclear. Likewise, Joia (2004) stated that one of the most challenging e-Government sectors is to get full cooperation among different government agencies. Joia also said that G2G e-Government involves sharing data and conducting electronic exchanges between governmental actors (Joia, 2004). In Figure 2.1, some examples of G2G showing that G2G applications could serve as a backbone for other sectors, such as G2C facilities, or that G2G could also be applied to inter-governmental integration for other purposes.
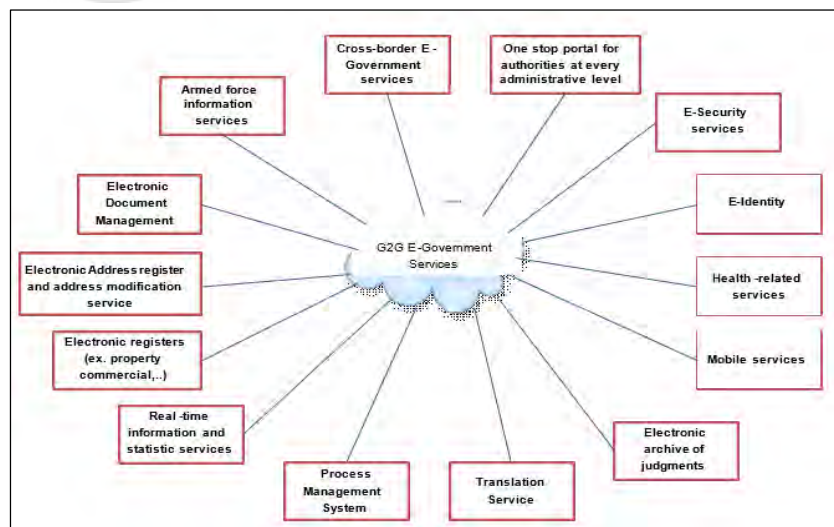
Figure 2.1. G2G e-Government Services
(Realini & Riedl, 2004:p.16)

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The interaction between public administrations presents many difficulties and barriers, both from an internal perspective and from indirect barriers. G2G projects have to handle many technological and organizational problems. Further, large-scale projects involve many stakeholders and create many interactions among them (Realini & Riedl, 2004).

In a study of the development of e-Government in 2008, the levels of e-Government in 190 nations were identified (UN, 2008). In the study, five stages of e-Government were outlined, emerging, enhanced, interactive, transactional, and seamless (integration) (Belanger & Hiller, 2006; Moon, 2002). When the survey was conducted, none of the surveyed nation reached the integration level. In detail, only 17 of the surveyed nations had reached the transaction stage. Most developing nations were found to be either at the emergence or the broadcast stage as these nations offered very few interactive services to their citizens. On the other hand, nations that have a wide range of interactive services maintained a significant IT and governmental infrastructure to provide these services and generally had sufficient funds. As a result, the important questions about whether e-Government is primarily a matter of resources, and particularly whether the provision of significant IT resources is required in managing knowledge arise (Wagner, Cheun, Lee & Ip, 2003).

2.7 E-Government in Developing Countries

The technology revolution has been noted in the way of business being conducted and organizational competition the reason of which is digital connectivity, the basic developments in information and communication technologies, and the exerted

worldwide competition (Ndou, 2004). According to the study of Lee and Luedemann (2007), the continues prosperity of the "e" trend such as e-learning, e-business, and e-Government was investigated as it lays a rising demand for communication across the boundaries of organizations. For gaining efficiency and effectiveness in operations, for the past 20 years, the information and communication technologies are being incorporated to sector of government (OECD, 2003; O'Neill, 2009). For public sectors, both in developing and developed countries, it has been considered the new way. But, unfortunately the gap still exists in the e-government implementation both in developed and developing countries (Obi, 2013).

Despite the developed e-Government, the rate of e-Government failure is still considered high in the countries which are developing (Verma, Kumari, Arteimi, Deiri& Kumar, 2012). In fact, it was found by Mkude and Wimmer (2013), Yangzi, Sol and Boonstra (2010) and Schuppan (2009) that in developing countries, only a few researches have considered e-Government. Heeks (2006) and Misuraca (2009) also worked in this field and according to them, the e-Government applications were only successful which almost 15% is and the rest 85% is considered a failure. Moreover, total failure, partial failure and success were the categories made by Heeks for the outcome of e-Government. The total failure is the case that either to not implement the initiative or stop immediately after being initiated. In partial success, the objectives of the initiatives are not met and the results are not satisfactory. Moreover, according to the study of Alghamdi, Goodwin and Rampersad (2011) and Verma, Kumari, Arteimi, Deiri and Kumar (2012), the rate of success, in developing countries, is considered dismal. Considering the study of Al-Sobhi

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and Weerakkody (2010), in developing countries, the reasons of failure related to e-Government are various in numbers like no infrastructure of ICT, the lack of the needed skills for using e-service, lack of accessing internet, and low trust and e-government technologies related little awareness. And the study of Basu (2004) considered that in these countries comparatively easy part of the e-Government was considered for implementation: websites development, putting these services on internet and piloting few applications. Furthermore, Shakya and Kharel (2013) in their studies have made a focus on the importance of the infrastructure of internet and the e-Government like services are still in the development stage. The better technology infrastructure was their focus so that the efficiency of government can enhanced and the bureaucracy's related ineffectiveness will be eliminated. Flexibility in providing services to the citizens is considered important for government (Pina, 2010). The elimination difficulty often faced by citizens was their focus. For the e-Government success, the goals must be pre-defined and also the initial strategies related to the improvement of access of services provided to the citizens, and simultaneously making efforts for decreasing the service delivery cost (Kumar, Mukerji, Butt &Persaud, 2007).

In other words, the backbone of e-Government is the information sharing among agencies (also called G2G) (Ray, Gulla, Dash & Gupta, 2011). In addition, numerous of the researchers have indicated the critical role that cross-boundary information sharing plays in the stages of e-Government development (Klievink & Janssen, 2008; Klievink & Janssen, 2009; Yang, Pardo & Wu, 2014). The effort of all agencies of government is to support the initiatives made by government through the enhancement of information

exchange between Governments to Government (G2G) (Ouma, 2014). The concept of G2G is difficult for various agencies of government to share information on the basis of IT infrastructure (Klischewski&Askar 2010). Similarly, the studies of Realini (2004) and Yang and Wu (2013) and Siau and Long (2005) considered that for a successful projects of government and completing the picture of e-government (Obi &Hai, 2010). The sharing of information between agencies is important and also complex task in the public sector (Yang *et al.,* 2014). Hence, this study is making efforts to identify the sharing information related influencing factor between local agencies. Thus, it generally enhances the e-Government performance. Furthermore, misuse or misinterpretation of the information is associated with the sharing of electronic information. The sensitivity of information will be high if collected by an agency. The privacy right of an individual will be violated if the collected information is shared. The issues can be exacerbated by the sharing of electronic information as it has own security risks which is in need of proper and comprehensive safeguards. If the security of agency inter-connectivity is not proper, the electronic information can be easily accessed and misused by unauthorized people (Akbulut, 2003; Dawes 1996; Landsbergen&Wolken, 2001; Rocheleau, 1997; Gil-Garcia, Chengalur-Smith &Duchessi, 2007).

2.7.1 Implementation of e-Government Developing in Countries: Benefits, Issues and Challenges

2.7.1.1 Benefits of E-government Implementation

The most significant application of Information and Communication Technology is e-Government and the digital services for various social segments of particularly

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developing countries (Schuppan, 2009). Various benefits of e-Government are realized globally (Lee & Lei, 2007). The idea behind the emergence of e-government is the realization of the benefits which is possible with the help of the application of ICT in the practices of government (Odat, 2012). In developing countries, the governments are making efforts for the implementation of e-Government for the purpose of the required benefits, while the advantages related to e-Government implementation are similar in both developed and developing countries (Abdalla, 2012).

The study of Shareef, Archer, Kumar and Kumar (2010) stated that if the implementation of e-Government is done properly, it will support good governance, accountability will be increased, enhance the present governance. It will make the services more effective and efficient and it will also help in the minimization of cost that will reduce time taken by government doing repetitive tasks. The study of Basu (2004) argued that with the help of e-government the transparency can be ensured in the government administrations and will make the services better, and will be 24/7 accessible to the employees of government even in developing countries, thus, the progress is promoted this way. Moreover, the study of Alonso et al., (2009) stated that e-government, with the help of creating new possibilities of interaction with government, will provide better services using Information and Communication technology like social media networks and forums for voice opinions, email, online meetings, online voting and online transactions.

The study of Foley and Alfonso (2009) focus on new technology use in the practices of government agencies and departments for the purpose of reducing corruption and making

the practices of government more transparent. Using ICT can reduce bribery from the user (Foley & Montfort, 2008). That is, to be more specific, e-Government will eliminate the paper work and will minimize the overhead from fewer offices (Veit & Huntgeburth, 2014). This will make the functions of e-Government agencies error free and will enhance the services quality (Krishnan, Teo, & Lim, 2013).

2.7.1.2 Issues and Challenges in E-government Implementation

In developing countries, the initiative of various e-Governments is considered the primary stage of implementation (infancy) (Nabafu & Maiga, 2012). Despite the related benefits of the implementation of e-Government in developing countries, various researches like Nkwe (2012) and Alateyah et al. (2012) and also the studies of Almarabeh and AbuAli (2010) have shown that many initiates taken for the implementation of e-Government are facing issues in making it successful because the e-Government, in developing countries, did not meet their objectives. Many fundamental issues are faced by developing countries, in comparison to developed countries, which are the reason of the failure of the implementation of e-Government (Li &Elhadi, 2013; Nabafu & Maiga, 2012).

For further research to understand the reason of failure of e-Government in developing countries, many researchers have shown agreement from all countries to focus these issues and to make the implementation of e-Government error free and successful (Elkadi, 2013; Dzhusupova, Janowski, Ojo& Estevez, 2011). Despite, the percentage of e-Government project is very high which are considered a failure; there is a worldwide agreement on the possibility for the initiatives of e-Government for meeting all the

objectives (Almarabeh & AbuAli, 2010). For achieving the initiative, one of the possible ways is accessing the barriers related better understanding and then makes further clarification on the elimination of these barriers (Nkwe, 2012; Almarabeh & AbuAli, 2010). Also the study of Al Athmay (2013) focus on the lack of a proper and coordinated plan, lack of trust in sharing the information, the back office inefficacy, the absence of good governance, and the absence of the important analysis and evaluation of the current system of e-Government for the reason of poor identification of the developing countries' objectives particularly in the Arab countries.

2.8 E-Government in Local Government

Local government can be defined as a city, country, parish, township, municipality, borough, ward, board, district, sub-district, or other general-purpose political subdivision of a state or a country. In other words, it is a county, municipality, city, town, township, local public authority, school district, special district, intrastate district, council of governments, regional or interstate government entity, or agency or instrumentality of a local government; a tribe or authorized tribal organization, native village or organization; and a rural community, unincorporated town or village, or other public entity, for which an application for assistance is made by a state or political subdivision of a state (Rahman, 2010). "*Local Government is often portrayed as representing the highest form of decentralization*"(Miller, 2002, p.4).

Countries must strengthen e-Government initiatives to accommodate the new model of internet use, telephone (traditional public or private), fax, and palm pilot, computer, and

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mobile digital interactions in domestic and international governmental interactions (Al-Hujran, 2012; Alhomod & Shafi, 2013). Besides the typical national government services, including registrations, customs, taxation, and elections, local governments have direct contact with citizens to provide them with a wide range of services that they need. Accordingly, it is seen that specific e-Government services offered at the local level have increased (Lanvin & Lewin, 2006). These initiatives and frameworks have been operated for central e-Government applications (e.g. Ebrahim and Irani, 2005; Pina, Torres and Acerete, 2007), a solution suitable for local e-Government applications on the level of agencies remains challenging (Klischewski & Ukena, 2007; Koussouris, Charalabidis, Gionis, Tsitsanis & Psarras, 2007; Barnickel, 2011). Moreover, Kaylor, Deshazo and Van Eck (2002) point out that agencies in the local level are very interested in implementing e-government but that they may have to pick and choose which subset of services to implement because of their limited funding to support e-government initiatives and the high costs of the related technologies.

In fact, research conducted in the area has focused mainly on the national level, while there is a paucity of studies that focus on the local level (Löfstedt, 2005: 2007). In addition, relevant theories and models for e-Government at the local level are still lacking. Hence, there is a need for further research works on local e-Government (Bigdeli *et al.*, 2011). In accordance, this research attempts to fill the gap.

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2.9 Overview of Iraq

Iraq is a country in Western Asia encompassing the Mesopotamian alluvial plain, the northwestern end of the Zagros mountain range, and the eastern part of the Syrian Desert (Mason, 2010). Iraq borders Turkey to the north, Iran to the east, Kuwait to the southeast, Saudi Arabia to the south, Jordan to the southwest, and Syria to the west as illustrated in Figure 2.2 below:

Figure 2.2. Iraq Map

The politics of Iraq takes place in a framework of a federal parliamentary representative democratic republic. It is a multi-party system whereby the executive power is exercised by the Prime Minister of the Council of Ministers as the head of government, as well as the President of Iraq, and legislative power is vested in the Council of Representatives and the Federation Council (Feldman & Martinez, 2006). Indeed, Iraq consists from a federal government and local government (Press, 2013). The federal government of Iraq

is defined under the current Constitution as an Islamic, democratic, federal parliamentary republic. The federal government is composed of the executive, legislative, and judicial branches, as well as numerous independent commissions (Beeks, 2011). On the other hand, the basic subdivisions of the country are the regions and the provinces. Both regions and provinces are given broad autonomy with regions given additional powers such as control of internal security forces for the region such as police, security forces, and guards, and all this under local government concept. Under the law, a region can be created out of one or more existing province or two or more existing regions, and a province can also join an existing region to create a new region. Iraq is divided into eighteen provinces, three of which "Dahuk, Arbil, and Sulaymaniyah" have joined together into a regional government, the Kurdish Regional Government (KRG) (Gunter, 2013), Figure 2.3 shown Iraqi provinces:
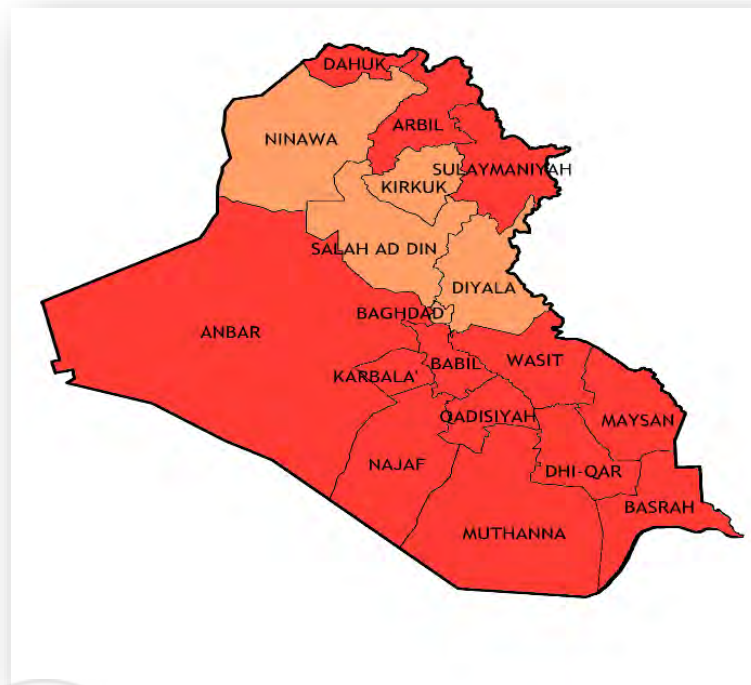
Figure 2.3. Iraqi Provinces map

The United Nations has long been at the forefront of supporting Iraq's efforts towards improved governance at the local level and the delivery of quality services to its people (Brinkerhoff & Johnson, 2009). The province of Dhi-Qar was chosen , due to it was under the control of the Italian government after war in 2003, which was responsible for a helping develop the technical side in Iraq (Al-dabbagh, 2011) as well as the first province that try to complete sharing the Information between local agencies (Fadhil, 2014).

2.10 E-Government in Iraq

With regards to the Internet and networking revolution in the past a few years, the scope of information systems has expanded, thus crossing organizational boundaries (Meier,

2012). As a result, the way people do business, commerce, and administer have evolved (Al Hujran, Aloudat & Altarawneh, 2013) into electronic landscape. In fact, Verdegem, and Verleye (2009) found that, various governments have seized the moment provided by ICT as the ideal opportunity to rethink and reformulate their administrative praxis.

Similarly, Iraqi Government has been developing an e-Government project (for instance, e-Iraq portal project) in an environment that is receptive to innovative ideas. These informative ideas will be the catalysts of a positive and good future (Sharief *et al*., 2007). This has to be within concern of the government because Iraq is still too far from the mainstream in terms of e-Government utilization (Younus, 2014) as seen in Table 2.1. This is in tandem with the study conducted by Chatfield and Alhujran (2009) e-government to 16 Arab countries. It was revealed that Arab countries lag behind more developed nations in terms of e-government service delivery capability. A wide digital divide was found among Arab countries in terms of advanced e-government services (Chatfield & Alhujran, 2009). One of these countries is Iraq, where, there is greater need to invest more in infrastructure, education, and online applications. Actually, Iraq lags far behind the other Arab countries in terms of e-government service delivery capabilities, such as two-way interactions, payment transactions, and e-democracy. Moreover, Iraq in general has fewer e-government Web sites with limited services and information content (Al-Athmay, 2013). The table compares Iraq with other countries in Western Asia between 2010 and 2012. It shows that Iraq's rank has fallen from 136 to 137.

Table 2.1

Compare Iraq with other countries in Western Asian

Country	E-Government development index value		World e-Government development ranking	
	2012	**2010**	**2012**	**2010**
Israel	0.8100	0.6552	16	26
United Arab Emirates	0.7344	0,5349	28	49
Bahrain	0.7344	0.6552	36	13
Saudi Arabia	0.6946	0.5349	41	58
Qatar	0.6508	0.5142	48	62
Kuwait	0.6405	0.5705	63	50
Oman	0.5960	0.4928	64	82
Georgia	0.5944	0.5290	72	100
Turkey	0.5563	0.4576	80	69
Lebanon	0.5281	0.4248	87	93
Armenia	0.5139	0.4780	94	110
Azerbaijan	0.4997	0.4388	96	83
Jordan	0.4984	0.4025	98	51
Syrian Arab Republic	0.4884	0.4571	128	133
Iraq	0.3705	0.5278	137	136
Yemen	0.2472	0.2154	167	164

Source: United Nations E-Government Survey 2012

In June 2004, the United Nation asked Member States to aid the new Iraqi government in terms of institution building (Abdulwahida, Mutaliba & Mohd, 2014; Younus, 2014). As a result, the Italian Minister for Innovation and Technologies and the Iraqi Minister of Science and Technology signed a Memorandum of Understanding. In the Memorandum, the Italian Government committed to building an e-Government project and giving technical and financial assistance for the construction of an Intranet, which links the ministries in the new Iraqi Administration (Al-dabbagh, 2011). Further, the United States Agency for International Development (USAID) and Iraq Ministry of Science and

Technology created a strategy to be implemented for the 2007-2010 term, to develop an

Iraqi e-Government project as shown in Figure 2.4 (Sharief *et al.*, 2007).
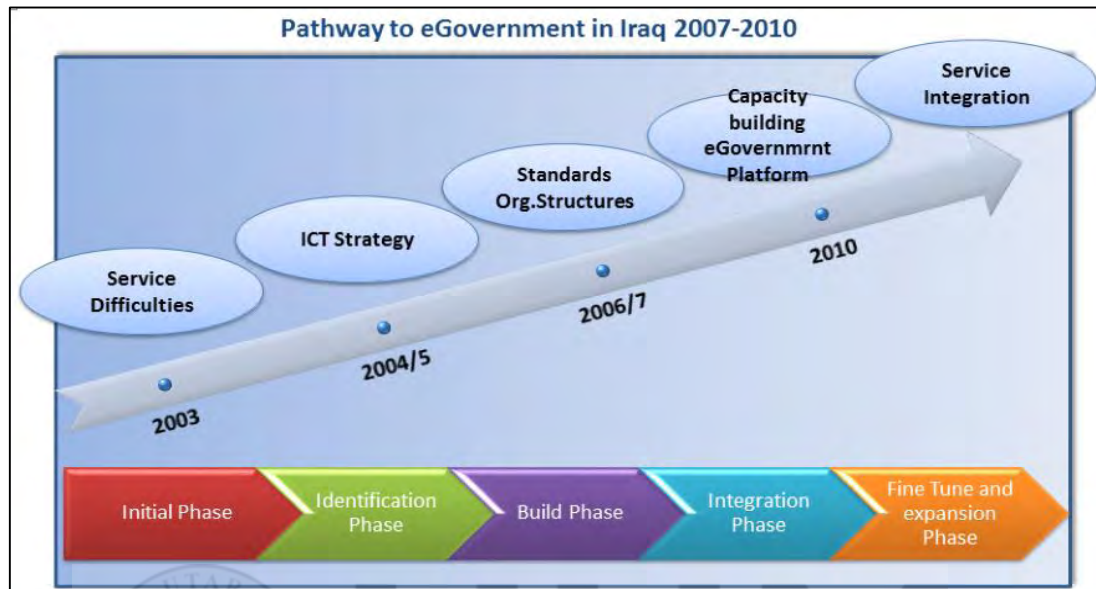
Figure 2.4. Pathway to e-Government in Iraq 2007-2010
     (Sharief et al., 2007: p.18)

2.10.1 Benefits of e-Government in Iraq

The adoption of e-Government benefited the government by delivering more effective

and efficient information and services to the citizens of Iraq. The key benefits for both

agencies and citizens are: 1) helping the citizens to understand how the government is

organized or who provides the information and services they require; (2) helping in the

development of integration and collaboration culture within and between governments;

(3) facilitating the exchange of information within and between government agencies; (4)

easing the Iraqi to participate in government-level decision-making; (5) providing more

options for the Iraqi to gain access to information and services that suit their

circumstances; (6) allowing the Iraqi to access information and services at any time more

conveniently; and (7) providing greater flexibility for government agencies to deliver information and services more effectively and conveniently (Sharief *et al*.,2007). Although the benefits mentioned are many, Iraq faces many challenges to establish e-government (e.g. infrastructure instability and political influence, corruption and poor resource management) (Al-Dabbagh, 2011; Sabah, Kadhim, Jleil & Ahmed, 2014).

2.10.2 Challenges of e-Government in Iraq

Younus (2014) asserted that, the most important challenges facing the Iraqi's E-government security situation is deterioration, and terrorism, the daily attacks to the institutions of the state, especially in recent years, which makes the E- government restricted because of bombings and vandalism. In Iraq, since 2003, has been experiencing a wave of violence that leads to the death of 172,907 civilians and combatants from March 2003 until December 2012 (Iraq Body Count, 2013). On the other hand, Internet service is the worst in Iraq compared with neighboring countries such as Turkey and Saudi Arabia (Al-Taie & Kadry, 2013; Abdulwahida, Mutaliba, Yusofa & Alib, 2014).

Moreover, Al-Dabbagh (2011) and Dawood (2012) asserted that, there are shortages in the legal structure. There is also lack of qualified IT staff, as many of them have migrated to other countries for better living chances. For example, 20% of the Iraqi ministries lack the necessary skilled IT staff and therefore, they still proceed with their daily works in the traditional way (Mahmoud, 2010). This is consistent with Younus (2014), who pointed out that, there is a significant lack of qualified cadres and personnel to manage the electronic government because the current Iraqi government is new and do not have any

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experience in information technology. Infrastructure for IT services remains underdeveloped in most parts of the country, as IT access is limited and uneven, and education remains highly dependent on printed materials (U.S. Department of Commerce, 2012). It is necessary to allocate an efficient portion from the Iraqi yearly budget for IT human resources training and establish a community of highly-qualified IT individuals to put and run technology projects in Iraq.

2.11 Previous Theoretical Models of Information Sharing between agencies

A review of the literatures indicates that the works in the field of information exchange between government agencies are still infancy. In this section, models of the information sharing between agencies are discussed. Each study is presented in the form of a table, with a detailed explanation to connect with the goal of this study.

Dawes's (1996) study was the first that discusses the exchange of information between agencies. Table 2.2 details the study, which has been the nucleus in the area. This study was published in 1996 by Sharon Dawes, a researcher of the Center for Technology in Government (CTG), University of Albany (See Table 2.2). The aim of the study was to understand the opinions and attitudes of state government managers towards the benefits and costs of inter-agency information sharing. In order to do that, Dawes organized her work in two phases. In the first phase, Dawes performed a literature review to identify the benefits and barriers associated with interagency information sharing. The benefits and barriers identified are listed in Table 2.3.

Table 2.2

Summary of study by Dawes (1996)

Area	Author(s)	Country	Government levels involved	Objectives	Research Approach	Results
Info. Sharing	Dawes (1996)	USA	State-State	To understand the opinions and attitudes of state government managers towards the benefits and costs of inter-agency information sharing.	Literature review Survey	List of seven benefits and seven risks of interagency information sharing, which are classified into three categories: Technical, Organizational, and Political. Model for inter-agency information sharing.

Dawes conducted a survey in New York to evaluate the attitudes and opinions of state government managers towards the benefits and barriers identified in the literatures and to examine the policies and tools used to govern information sharing activities.

Table 2.3

Benefits and barriers of interagency information sharing

	Technical	Organizational	Political
Benefits	Streamlines data management. Contributes to information infrastructure.	Supports problem solving. Expands professional networks**.**	Supports domain-level action. Improves public accountability. Fosters program and service coordination.
Barriers	Incompatible technologies.	Organizational-self-interest.	External influences over decision-making.

	Dominant professional	
Inconsistent data structure.	frameworks.	Power of agency discretion.
		Primacy of programs.

As a result of Dawes' work, Dawes proposed the theoretical model of interagency information sharing in Figure 2.5. This model argues that, as a consequence of their participation in previous sharing initiatives, agencies have perceptions about the potential benefits and risks involved that affect their performance in future similar initiatives.
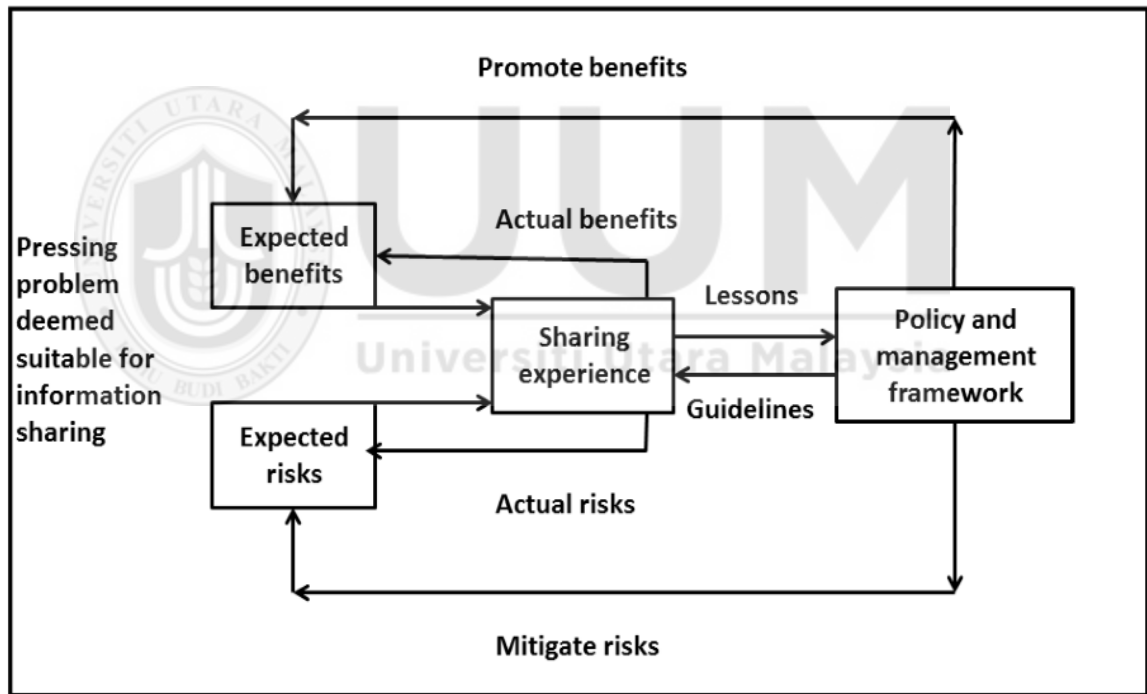
Figure 2.5. Theoretical model of interagency information sharing

(Dawes 1996: p.391)

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This model was established based on the potential benefits and risks of information sharing in previous sharing experiences. It provides a useful tool that takes the benefits and risks of information sharing in account and emphasizes the necessity of a policy and management framework to promote the benefits and mitigate the risks, which influences the information sharing process. Through a factor analysis test, five key elements of attitude (respondents' attitudes were influenced by the degree to which they perceived that sharing) were derived:

(1) held potential for solving domain-level problems;
(2) reinforced valued relationships;
(3) was aided by awareness of information resources;
(4) threatened program integrity; and
(5) generated costs to the participants.

However, the Dawes study is limited in certain important respects. Even though the Dawes article was published in 1996, the study was conducted in early 1990's. Therefore, it fails to capture the issues related to more recently developed ICT, which can enable and facilitate electronic information sharing between agencies. Besides, Dawes (1996) does not distinguish between electronic or paper-based information sharing. This study believes that in terms of the benefits and barriers involved, certain differences between paper-based information sharing and electronic information sharing may exist. Another issue is that Dawes' model relies on the experiences of managers in the state governments only, not including the local governments. It may tell different story if it is tested at the local government level.

Based on the discussions at the later part of Dawes's model, Landsbergen and Wolken (2001) criticizes it, stating that agencies in Dawes' investigation participated in interagency information sharing because they were driven by clear and tangible benefits, as well as strong political pressures to share information. They believe that Dawes' model is not sufficient to provide explanations for future cases, especially when the pace of technological change is highly dynamic (Drengson, 2010). Hence, Landsbergen and Wolken (2001) propose model based on the Dawes' model as illustrated by Figure 2.6.

Table 2.4

Summary of study Landsbergen and Wolken (2001)

Area	Author (s)	Country	Governme nt levels involved	Objectives	Research Approach	Results
Info. Sharing	Landsbergen andWolken (2001)	USA	Federal– State + Federal – Federal	To identify the benefits and barriers of interoperability. To determine if all the problems are equally prevalent. To understand what interoperability leaders are doing.	Literature review Doc. Analysis Case studies Interviews	List of barriers and recommendations for interoperability between federal agencies and state agencies. Extended theoretical model of Interagency Information Sharing (expands Dawes' model)

Table 2.4 extends Dawes' model by making it interoperable between interagency. Having used the interoperability term in their work, the fundamental contribution of these authors is at the interagency information sharing level, by reviewing and updating Dawes' model of interagency information sharing. In their study, Landsbergen and Wolken specifically focus on electronic information sharing in federal agencies and state agencies. Local

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governments are not simply scaled-down models of federal or state government agencies. Local agencies tend to fall behind state and federal government agencies in terms of financial and technological resources and, therefore, they might face greater risks and costs in participation in electronic information sharing initiatives. Moreover, local government employees might have limited IS skills and training compared to state agencies due to human resource issues and limited funding dedicated to training initiatives (Akbulut, 2003). These issues, among many other characteristics unique to local agencies, require discover of the factors that influence on electronic information sharing among local agencies (G2G).

Based on the literatures, through document analysis and case studies, as well as interviews, they identified three main benefits of interoperability (effectiveness, efficiency, and responsiveness), as well as 11 barriers as shown in Table 2.5. They are classified into four different categories: political, organizational, economical, and technical. The principal contribution of the model is its emphasis on the need for the existence of an infrastructure to support agencies in information sharing, as well as on the need for legal, managerial, and policy approaches to maintain interagency information sharing.

Table 2.5

Barriers for Information sharing

Technical	Economical	Organizational	Political
Hardware or software incompatibility.	Lack of resources.	Trust.	Privacy.
Public or private property.	"Low-bid" procurement methods.	Lack of experience.	Ambiguity about statutory authority.
Data-sharing standards.		Lack of awareness of opportunities to share.	Openness to public scrutiny.

In coming out with the model, the authors conducted two case studies. One concentrated on environmental reporting and another investigated Geographic Information Locator Service (GILS). In selecting these two cases, they focused on understanding what innovators and members of expert agencies thought about interoperability rather than a range of agencies with varied levels of expertise. By interviewing federal and state officers, they collected data from five states: Kansas, Massachusetts, Ohio, Texas, and Washington, where GILS and environmental reporting had been implemented at a fairly significant degree. Then, based on the results of the case studies, they adapted Dawes' model (Figure 2.6).

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┌─────────────────────────────────────────────────────────────────┐  ┌─────────┐
│          ┌──────────────────────────────────┐                    │  │ Stage 1 │
│          │  Theoretical Model of Interagency│                    │  └─────────┘
│          │  Information Sharing (Dawes 1996)│                    │      │
│          └──────────────────────────────────┘                    │      ▼
│      ┌───────────────────────────────────────────────┐           │  ┌─────────┐
│      │  Infrastructure to support information sharing │           │  │ Stage 2 │
│      ├───────────────┬───────────────┬───────────────┤           │  └─────────┘
│      │   Technical   │Interoperability│ Institutional │           │
│      ...                                                          │
└─────────────────────────────────────────────────────────────────┘
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Theoretical Model of Interagency Information Sharing (Dawes 1996)

Infrastructure to support information sharing

Technical	Interoperability	Institutional
• Support for software and hardware compatibility • Greater participation in standards processes and integration of best practices into standards processes	• Meta-data infrastructure to increase access to relevant and useful information • Planning, implementation and evaluation requirements move from hierarchical to hierarchical/lateral (such as interagency contacts)	• Clearinghouse to support formal and informal networks by collecting, developing, and disseminating best practices in the sharing information and information technology • Develop a formbook of contracts from which agencies can surface potential problems and chose how to allocate risk

Synthesize legal, managerial and policy approaches to interoperability sharing

Stage 1 → Stage 2 → Stage 3

Figure 2.6. Extended Theoretical Model of Interagency Information Sharing
(Landsbergen & Wolken, 2001: p.215)

The Landsbergen and Wolken study is limited in one important aspect. Particularly, when investigating the issues of exchange of information between agencies, instead of focusing on those of the average government agency that are relatively unfamiliar with these initiatives, the authors focused on understanding the experiences and viewpoints of government agencies that were technologically advanced. Given the limited accumulated knowledge related to electronic information sharing at an average government agency, Landsbergen and Wolken's findings do not generalize those government agencies that are unaccustomed to electronic information sharing. In short, the model does not focus on

information security, which is important in the information exchange process (Appari& Johnson, 2010).

In accordance, Akbulut (2003) studied on the interconnectivity between state and local agencies. In conjunction, Table 2.6 lists the factors that influence local agency participation in electronic information sharing with state agencies. The first part starts with the development of a research framework, which includes 14 factors, classified in three different groups (environmental characteristics, electronic information sharing characteristics, and agency characteristics).

Table 2.6

Summary of study by Akbulut (2003)

Area	Author (s)	Country	Government levels involved	Objectives	Research Approach	Results
Info. Sharing	Akbul ut (2003)	USA	State -Local	To investigate the factors that influence shared knowledge between local and state agencies	Case study Survey	The researcher found out that local government's participation in electronic information sharing with state agencies is determined by agency characteristics, environmental characteristics, and electronic information sharing characteristics. Set of 33 recommendations to increase the participation of local agencies and state agencies, organized in three categories: agency characteristics, environmental

			characteristics, and electronic information sharing characteristics.

The framework was then tested through a survey involving local agencies and state agencies. In the study, qualitative data related to a major state-to-local electronic information initiative was collected and analyzed. This was conducted to seek more support for the results of the quantitative data analysis and to identify additional factors that are not found in the quantitative aspect. Having combined the data gathered in both parts of the study, it was found that, as shown in Table 2.7 (1) five factors (of the 14 included in the framework) influenced the participation of local agencies in electronic information sharing with state agencies, (2) one factor had no influence on the participation of local agencies in electronic information sharing with state agencies, and (3) eight factors may have influenced local government participation in electronic information sharing with state agencies.

Table 2.7

Characteristics that influence, might influence, or have no influence on local agency participation in electronic information sharing with state agencies

	Electronic information sharing characteristics	Agency characteristics	Environmental characteristics
Influence	Costs of electronic information sharing.	IT capability.	External influence.
	Risks of electronic information sharing.		
	Complexity of electronic information sharing**.**		

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	Benefits of electronic information sharing.	Top management support.	Policy/legal Framework.
Might influence	Compatibility of electronic information sharing.	Agency championship.	Interagency trust. Critical mass System-wide championship.
No influence		Size.	

Akbulut focused on the factors that influenced information sharing between local and state agencies in developed countries, but the model still does not tackle the security part. This is seen in the proposed framework in Figure 2.7, which proposes that the participation of local agencies in electronic information sharing with state agencies is strongly influenced by: (a) characteristics of electronic information sharing, (b) agency characteristics, and (c) environmental characteristics.

In the sharing process, security aspect is very important (Appari & Johnson, 2010). It pertains not only on data security, but also it includes physical security, particularly those hardware and networks and protection of these devices from disasters and wars. Hence, Appari and Johnson studied the resistance to change, which abounds in countries not having a high level of training on the use of technology in the process of exchanging information between agencies (as detailed in Table 2.7).

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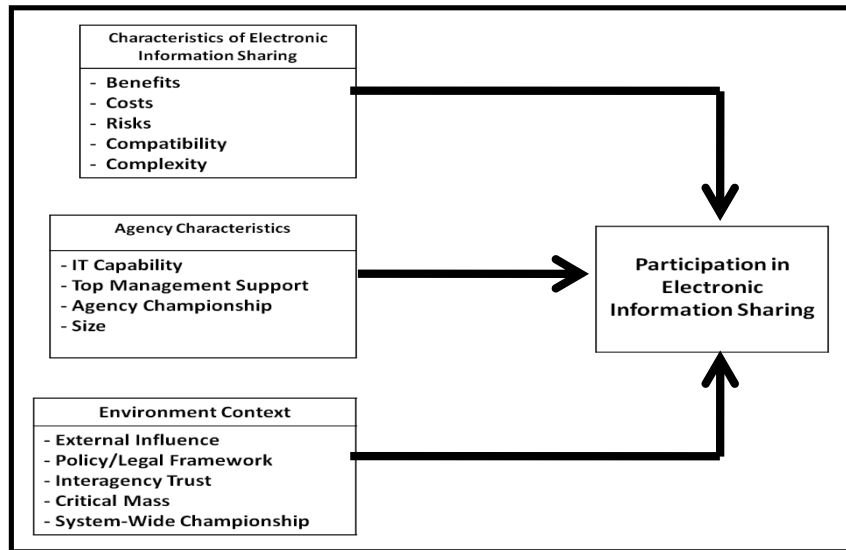
Figure 2.7. Research Framework: Factors that Influence Local Agency Participation in Electronic Information Sharing with State Agencies
(Akbulut, 2003: p.24)

Based on the drawback in Akbulut's framework, Joia conducted the fourth study. The aim of this study was to propose a heuristic framework to successfully implement G2G endeavors in Brazil. The study is detailed in Table 2.8.

Table 2.8

Summary of study by Joia (2004)

Area	Author (s)	Country	Government levels involved	Objectives	Research Approach	Results
2G	Joia (2004)	Brazil	Federal – Federal + Federal-other Agents	To determine the key success factors in the importance of G2G processes in Public Administration (PA) agencies in Brazil. To determine barriers, causes, and solution of electronic cooperation among federal agencies in Brazil.	Case studies Action Research	List of three key factors to implement G2G. List of nine barriers that can arise during G2G project, organized in three categories: structural, human, and technical.

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	To propose a heuristic framework to implement G2G endeavors	Heuristic model for the implementation of G2G

Two case studies involved in accomplishing the aims: (1) a G2G project between the Brazilian Central Bank and the Brazilian Federal Senate, and (2) a G2G project between the Brazilian Central Bank and the Brazilian Justice Department. Those are agencies that have economic impact to the country. In the end, three success factors (security, organizational culture, and personnel training-Figure 2.8) were identified as the key to the implementation of G2G in public administration agencies.
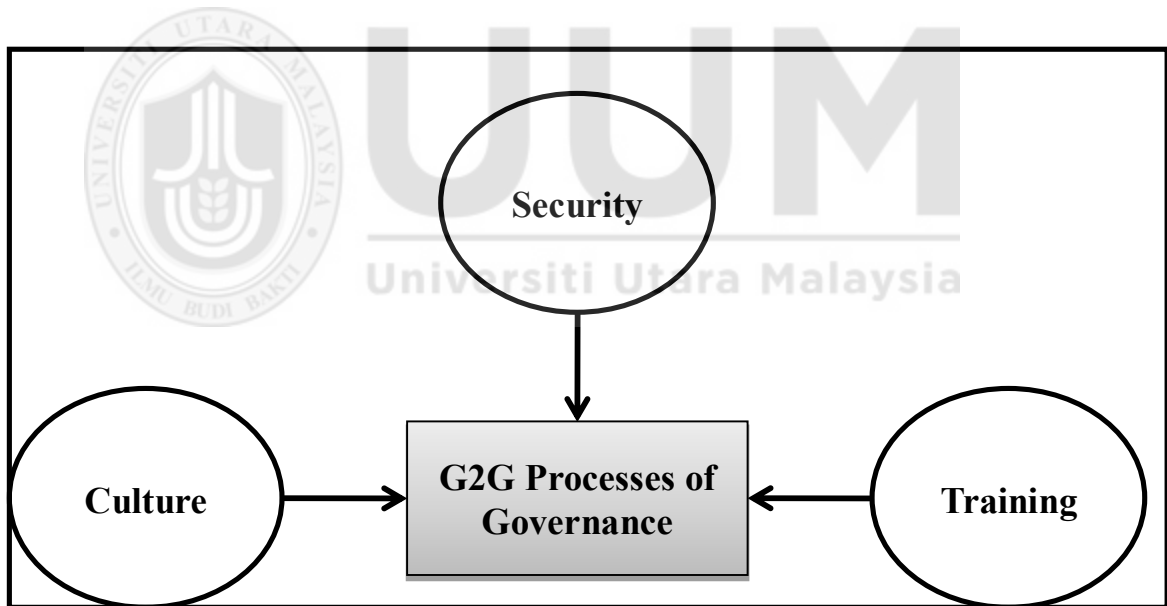
Figure 2.8. Key success factors in G2G endeavors
       (Joia, 2004: p.161)

Joia also found that these key factors dictate the success or failure of G2G. When examining the cases, in equal environment and context, the first case was doomed to failure while the second case was augured to succeed. These factors are insufficient to

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evaluate the success of G2G, and other factors that may affect the G2G application in entirely different environments. Additionally, the study managed to identify three different types of problems that can take place at the time of G2G project implementation, namely structural, human, and technical barriers as outlined in Table 2.9. With reference to the table, there are very few technical barriers and they were easily resolved. However, there are numerous barriers related to the organization as a whole and the existing staff specifically, and they were not so easily resolved.

Table 2.9

Barriers to G2G projects implementation

Structural	Human	Technical
Focus only on direct manpower and indices.	Unwillingness to take risk.	Incompatibility of systems.
Failure to perceive the actual benefits.	Resistance.	
High risk for the managers.	Unplanned decisions and fear of being made redundant.	
Lack of coordination and cooperation.		
High expectation and hidden costs.		

Besides that, Gil-Garcia, Schneider, Pardo, and Cresswell (2005) also studied similar domain. Their study focused on the factors that had influenced the success of selected criminal-justice information integration initiatives, as detailed in Table 2.10. Integrating criminal-justice information concerns the whole criminal justice enterprise, but the

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process as made more challenging because these enterprises vary among states and localities. In this context, being involved in criminal-justice integration initiatives means being aware of the differences and the implications of those differences while seeking guidance from colleagues. In regards to that, the study presents insights into some integration objectives, strategies, barriers, and current practices. Along with those insights is case information so that this information can be taken into account in its original context, and eventually explored by potential adopters, in terms of their respective environments.

Table 2.10

Summary of study by Gil-Garcia et al., (2005)

Area	Author (s)	Country	Government levels involved	Objectives	Research Approach	Results
Info. integration	Gil-Garcia, Schneider, Pardo, & Cresswell (2005)	USA	State –State + County-County	To examine the factors those influencing the success of selected criminal-justice integration initiatives.	Case study Literature review	List of barriers to the integration of information between agencies. Set of seven strategies for the integration of information among agencies.

In the end, the researchers said that there were a range of barriers that hindered the integration process or the exchange of information between the institutions or organizations. These barriers include:

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(1) Turf and Resistance to Change

One barrier to information sharing at the organizational level is protecting turf, in a form of resistance to change, integration experience, and technology acceptance. A majority of these barriers can be recognized at the organizational level and in many cases, represent either the interests of the decision-makers or the characteristics of the organizational culture and structure. Turf, as a form of resistance, appears to be a strong barrier to information integration initiatives. It involves at least three major reasons that organizations perform defensively: (a) to avoid the cost of change, (b) to reduce or control risk, and (3) to preserve autonomy or protect the position of the organization in a competitive or adversarial environment. Nevertheless, turf pertains to the defense of status, power, or other resources that maybe at stake for individuals in any specific integration initiative, and it can be considered as either a personal or organizational problem.
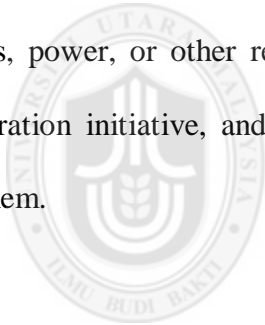
(2) IT and Data Incompatibility

IT and data incompatibility are among the barriers that can hinder information integration from bringing forth its full potential positive effects. To achieve the objectives of integration, minimal uniformity and consensus on date, infrastructure, procedures, and shared decision making are necessary.

(3) Organizational Diversity and Multiple Goals

Agencies can have very diverse, and in some cases, competing goals. Thus, building trust and collaboration among agencies is one of the challenges that many integration

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initiatives face. Undoubtedly, the formation of the justice community is complex. It is not only formed by multiple agencies, but also by multiple governments. In addition, it is formed by complex interactions between various branches and levels of government. As a result of this particular situation, integration projects become more difficult. However, professionals from various organizations might perceive the same problem in various ways given that these various perspectives are sought after and used to inform decision making in integration. Eventually, the culture of an organization shapes how people deal with challenges and the way they make certain decisions. Generally, each of the states and countries has developed its own way to get past organizational diversity and differences among the organizations that participate in their integration initiatives.

(4) Environmental and Institutional Complexity

These barriers relate to the political complexities of every governmental system. Among others, examples of these barriers include (a) external influences over the decision-making process, such as legislative committees, civil servants, interest groups, and other governmental jurisdictions, such as local governments; (b) the power of agency discretion, in which high level bureaucrats have the capacity to influence the programs and policies; and (c) the dominance of programs that reinforce vertical connections and disincentive collaboration among agencies.

Besides, there are seven strategies for the implementation of inter-organizational information integration initiatives, specifically: (a) retaining autonomy of the agencies; (b) establishing and exercising a governance structure; (c) securing strategic partnerships;

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(d) building on long-range and comprehensive planning; (e) building understanding of the business process; (f) securing adequate financial resources; and (g) obtaining and nurture executive leadership and legislative support.

The researcher realized that the inter-organizational information integration is a serious challenge to the justice community (Gil-Garcia, Schneider, Pardo & Cresswell, 2005). In the study, public managers with a wide range of opportunities and barriers were involved. To better understand this type of initiative, how these barriers and benefits are interrelated were understood. While the study presented evidence of how complex inter-organization information integration in the criminal justice enterprise is, it also highlighted useful strategies that contribute to the improvement of probability of success in complex integration initiatives. Besides that, the study stressed the importance of studying more research to better understand some of the factors that help in the integration process or the exchange of information between organizations.

Then, Bekkers (2005) conducted another study. The results of his comparative study involving four back office integration projects in the Netherlands are exhibited in Table 2.11. The researcher's goal was to identify critical factors, which account for the success of ICT-driven back-office integration projects. In the studies, stakeholders were asked on the reason for integrating or sharing the information in back-office and the reasons made it successful. It looked also into the complex mixture of cooperation and conflict between them.

In the end, the study stresses the importance of exchanging information between back-offices because of its benefits to governments and institutions. Besides, the study also stresses that the success of such projects depends on the application of a stable environment. Eventually, Bekkers (2005) concludes that interoperability problems have a significant effect on the exchange of information between back-offices, in which the exchange of information is between the management of interdependent organizations.

Table 2.11

Summary of study Bekkers by (2005)

Area	Author (s)	Country	Government levels involved	Objectives	Research Approach	Results
G2G	Bekkers (2005)	Holland	Central – Local	To determine the success factors to back-office integration projects. To determine if back-office integration should be seen as a top down project management problem or a government problem.	Case studies	The researcher found out that back-office integration should be seen as a government problem. List of six lessons learned about back-office integration projects.

With reference to the descriptions in the previous paragraphs, the study has shown that it is essential to look for new arguments that could legitimise the necessity of back-office integration, which could also imply the emergence of new coalitions. Besides, it is noted that the benefits and costs could hinder inter-organizational exchange of information.

Further, Ezz and Themistocleous (2005) carried out another study. They argued that the

G2G subjects are not clear. In addition, Ezz and Themistocleous (2005) mentioned that

there are few studies that have reported G2G experiences. They pointed out that G2G e-

Government must be perceived as a coalition of various aspects, including those from

strategy to organization and from security to the change in culture. Hence, the G2G is

challenged to completely redesign how government works and how employees cooperate.

In addition, the details in Table 2.12 reveal that G2G projects need to deal with many

technological and organizational problems.

Table 2.12

Summary of study by Ezz and Themistocleous (2005)

Area	Author (s)	Country	Government levels involved	Objectives	Research Approach	Results
G2G	Ezz, Themistocleous (2005)	UK	Intra-organization	The aim of this study is to investigate the barriers to G2G adoption.	Literature review Case study	List of barriers in the adoption of G2G. Set of recommendations that have an impact on future G2G research in general and G2G adoption frameworks in particular.

In conjunction, a framework to study the multiple barriers that influence the decision

making process for G2G adoption has been proposed by Ezz and Themistocleans (2005).

Figure 2.9 illustrates the conceptual framework.
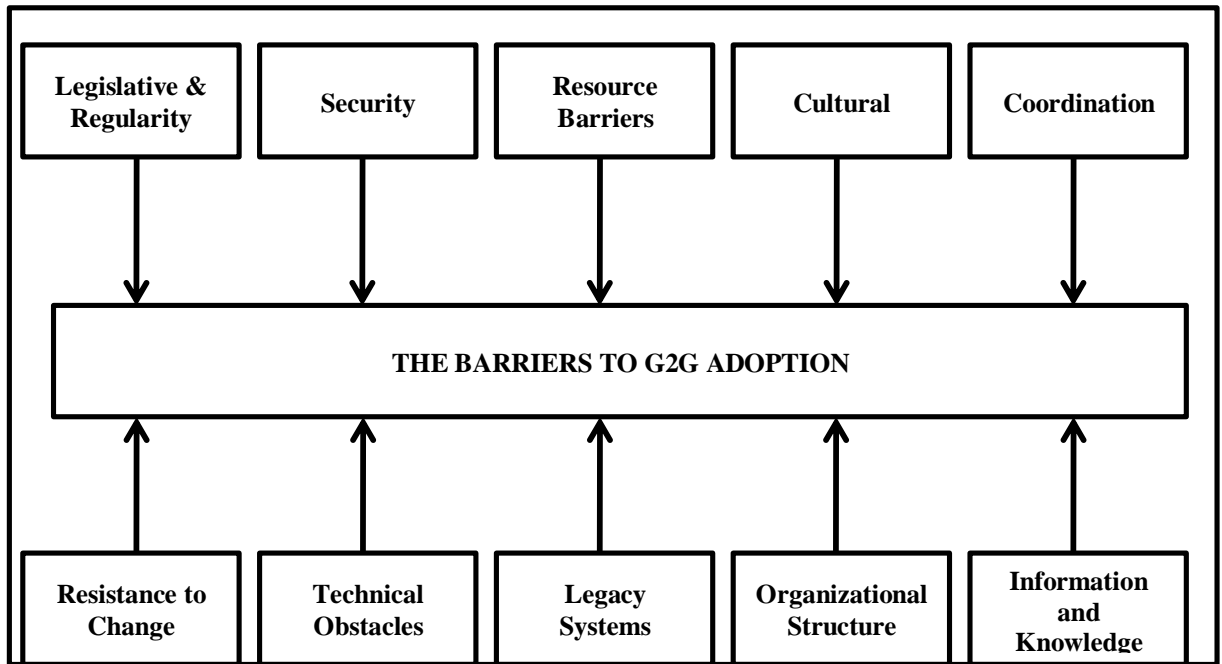
Figure 2.9. Conceptual Framework for the Barriers to G2G Adoption
  (*Ezz and Themistocleans*, 2005: p. 9)

The study by Fan and Zhang (2009) is detailed in Table 2.13. They found that despite its

importance in government operations, G2G information sharing remained a great

challenge worldwide. In Figure 2.10, Fan and Zhang (2009) divide the factors that have

effects over G2G adoption into layers, specifically (1) external environment layer, (2)

upper-level managerial agencies layer, (3) inter-agency partnership layer, (4)

organizational readiness layer, and (5) individual expectation layer.

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Table 2.13

Summary of study by Fan and Zhang (2009)

Area	Author (s)	Country	Government levels involved	Objectives	Research Approach	Results
G2G	Fan, and Zhang (2009)	China	State-Local	Better understand the G2G information sharing in Chinese context. Understand the challenges of G2G information sharing in Chinese context among horizontal functional agencies.	Literature review Case study Interview	Uncover the factors that challenge G2G information sharing activities from several layers. Understand the influencing factors, challenges and needs, and better able to identify critical characteristics and elements of G2G information sharing among government agencies in Chinese context. Extend the Layered Behavior Model of G2G information sharing which will be taken as the conceptual model for survey study in the future.
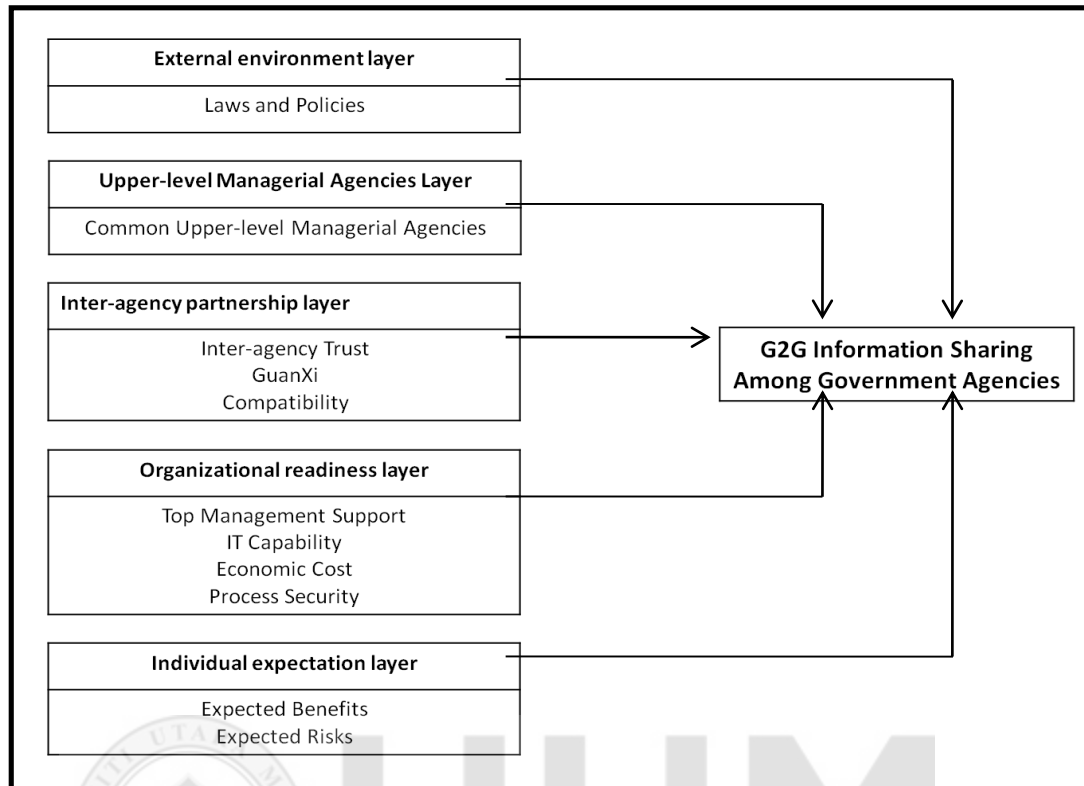
Figure 2.10. Layered Behavior Model of G2G Information Sharing
(Fan & Zhang 2009: p.11)

However, all the interviews were carried out during the same period. It is quite inappropriate, because it is anticipated that interviews carried out along the whole process will picture differently. Hence, it is necessary for such studies to probe into one or more G2G information sharing activities from the beginning to the end of their whole process.

Consequently, Klischewski and Abubakr (2010) carried out another study, which is summarized in Table 2.14. They found out that e-Government has made some efforts to gather insights concerning the way governments manage to enhance their interoperability among governmental institutions and with external partners and other peers. In short, their

study revealed that back-office cooperation was a serious e-Government bottleneck due to interoperability problems.

Table 2.14

Summary of study by Klischewski and Abubakr (2010)

Area	Author (s)	Country	Government levels involved	Objectives	Research Approach	Results
G2G	Klische wski, Abubakr (2010)	Egypt	State	The contribution focuses on the challenges of developing services for the purpose of implementing G2G interoperability.	Literature Review Case Study	List of challenges in developing services for the purpose of implementing G2G interoperability. Proposing success factors of developing G2G services :(1) Problem perception, (2) Action plan, (3) Commitment, and (4) Future options.

On the other hand, there is a single study conducted by Bigdeli, Kamal and de Cesare (2013), the purpose of this study was to identify the barriers of information sharing in local level in order to clarify why sharing information in local level differs from the central/federal level. Table below depicts the summary for Bigdeil *et al*, study:

Table 2.15

Summary of study by Bigdeli, Kamal and de Cesare (2013)

Area	Author (s)	Country	Government levels involved	Objectives	Research Approach	Results
Information Sharing	Bigdeli and de Cesare (2013)	UK	Local	Why sharing information in local level differs from the central/ federal level. To discover the barriers of information sharing in local level.	Literature Review	Conceptual framework.

As illustrated above (Table 2.15), Bigdeli *et al*., concentrates just on the literature review. While in our research the main object to explore the factor that effect on sharing information among local agencies through empirical study. Interestingly, Klischewski and Abubakr (2010) said that all the factors that affect the G2G projects in developing countries are not mentioned. They asserted that factors that have not yet been studied may affect the G2G projects. In fact, G2G projects in developing countries received a little support only. As a comparison, Table 2.16 shows the studies conducted in developing and developed countries.

Table 2.16

Applied G2G and sharing information in developing countries and developed countries

Author (s)	Developing Countries	Developed Countries
Dawes		X
Landsbergen and Wolken		X
Akbulut		X
Joia		X
Gil-Garcia, Schneider, Pardo and Cresswell		X
Bekkers		X
Ezz and Themistocleous		X
Bigdeli *et al.*		X
Fan and Zhang	X	
Klischewski and Abubakr	X	

Table 2.16 summarizes previous studies that are closely related with this study. The table clearly shows that there are a few studies on the exchange of information between agencies, especially in the e-Government in developing countries. Unfortunately, few studies have investigated the exchange of information among local agencies (Bigdeli, Kamal & de Cesare, 2013).

Woods (2006) revealed that researchers tend to make as few assumptions as possible in anticipating upon possible problems and issues. In response to that, Table 2.16 identifies

all the factors that have been used in the previous studies discussed in the previous

paragraphs, which could be considered for this study.

Table 2.17

The factors used in previous studies

Author (s)	Year	Factor (s)
Dawes	1996	Benefits, Risks.
Landsbergen and Wolken	2001	Compatibility**,** Interoperability**,** Lack of Resources**,** Lack of experience**,** Trust**,** Lack of awareness of opportunities to share information.
Akbulut	2003	Benefits, Costs, Risks, Compatibility, Complexity, IT Capability, Top management Support, Agency Championship, Size, External Influence, Policy/legal Framework, Interagency Trust, Critical Mass, System-Wide Championship, and Costs.
Joia	2004	Security, Training, Culture Turf and Resistance to Change, IT and Data.
Gil-Garcia, Schneider, Pardo and Cresswell	2005	Incompatibility, Organizational Diversity and Multiple Goals, Environmental and Institutional Complexity.
Bekkers	2005	Interoperability, Benefits, Top management Support, Costs, Culture, Policy/legal Framework, IT Capability.
Ezz and Themistocleous	2005	Legislative and Regularity, Security, Resource Barriers, Cultural, Coordination, Resistance to Change, Technical Obstacles, Legacy Systems, Organizational Structure, Information Knowledge Interchange.

Fan and Zhang	2009	Interoperability, Interagency Trust, legislations, Compatibility, IT Capability, Cost, Information Security, Benefits.
Klischewski and Abubakr	2010	Interoperability, Complexity, Policy/legal Framework.
Bigdeli, Kamal and de Cesare	2013	Political pressure, economic pressures, legalization and policy principals, community pressures, inter-organisational leadership, return on investment, network collaboration culture, organization size, IT capabilities, data security and privacy, information quality, interoperability framework, Cost, benefits, risk, compatibility, trust, critical mass.

In the previous studies, only two studies focused on developing countries (Table 2.17). However, these studies did not focus on the physical security factor, which is especially important in studying these countries. Meanwhile in the developed countries, while only three previous studies focused on the security factor (include Bigdeli et al, 2013), the focus was in terms of information security and not in physical security. In the matter of facts, physical security is considered important for countries that face challenges, either natural disasters or wars (Åhlfeldt, Spagnoletti & Sindre, 2007; Graves, 2010). Besides, it is very interesting that few studies have focused on the exchange of information within the local government in developing countries. In developing countries, there is only a little awareness on the use of electronic devices in addition to a state of resistance to change that may affect the exchange of information between agencies (Ezz, Papazafeiropoulou & Serrano, 2009; Fan, Zhang & Yen, 2014). The situation urges for another study because most of those studies addressed the external environments of G2G e-Government from the view of laws and policies, which urge or promote the development of G2G information sharing.

2.12 Theoretical Foundations for Information Sharing

This section sheds light on the related theories that can be used in the process of building the conceptual model for this study. According to Richard and Morse (2013), theories guide the researchers into identifying important issues to examine and the people who need to be studied. Additionally, Creswell (2009) pointed out that the theory may appear at the beginning and be modified or adjusted based on participant views. Earlier, Hagan (1999) believed that theory might also represent attempts to develop explanations about reality or ways to classify and organize events, describe events, or even to predict future occurrences of events. Hence, the function of theories is to inform the rest of research design to help the researcher to assess and refine the goals (Maxwell, 2013). As well as, Walsham (1993) suggested that, empirical research without theory produces a series of anecdotes, and the research aimed to avoid this by using theory both to guide the field work carried out and to provide ways of synthesizing the results.

In this study, theories like Diffusion of Innovations Theory and Social Exchange Theory can provide important insights into the factors that influence G2G interaction in local agencies. According to Maxwell (2013), to be a genuine qualitative research, it must take the theories and participants' perspectives into account. As a consequence, in addition to the previous studies, in the following subsections, related theories are briefly discussed. Further, a description of the conceptual model based on the theories used in this study follows. Based on the research propositions developed earlier and the two theoretical foundations of Diffusion of Innovations (DOI) and Social Exchange theory (SET), this

study discovers the factors that either facilitate or hinder the G2G interaction in local government.

2.12.1 Diffusion of Innovations (DOI) Theory

In qualitative research, both existing theory and grounded theory are legitimate and valuable (Maxwell, 2013). Diffusion of Innovations (DOI) theory has been used by many IS researchers to explain the adoption and diffusion of IT. Generally, an innovation is an idea, practice, or an object that is perceived as new by an individual or another unit of adoption (Rogers 1995, Zaltman, Duncan & Holbek, 1973). Further, Daft (1978) defines an organizational innovation as "*the adoption of an idea or behavior that is new to the organization adopting it*" (p.195). Similarly, Thong (1999) agrees that an innovation does not necessarily pertain to a technology. In fact, it may also pertain to a renewal in terms of thought and action. In addition, Rogers (1995) pointed out that the limitations of an innovation might not be very distinct. As an illustration, potential adopters may perceive an innovation being highly related to another new idea or a bundle of new ideas. Potential adopters may view an innovation to be highly related to another new idea or a set of ideas. Hence, it is possible to determine the factors that influence G2G interaction within local agencies through the lens of DOI theory, as the participation in such initiatives typically requires the introduction of new technologies, as well as new ways of thought and action.

In detail, Rogers (1984: 1995) earlier recommended five attributes of innovation (see Figure 2.11) that determine the adoption of innovation, which includes relative advantage, compatibility, complexity, observability, and triability. These attributes have

been widely used by many researchers to explain the adoption and diffusion of IT innovations. Further, Kwon and Zmud (1987) found that among those attributes, only relative advantage, compatibility, and complexity have been consistently revealed as critical adoption factors. Similarly, many researchers pointed out that not all of the attributes were consistent, especially, observability and trialability. Relative advantage and compatibility, on the other hand, were found by most studies to be consistently and positively correlated to adoption of innovations. On top of that, complexity is found to be consistently but negatively related to adoption (Tomatzky& Klein, 1982; Rogers, 2003).
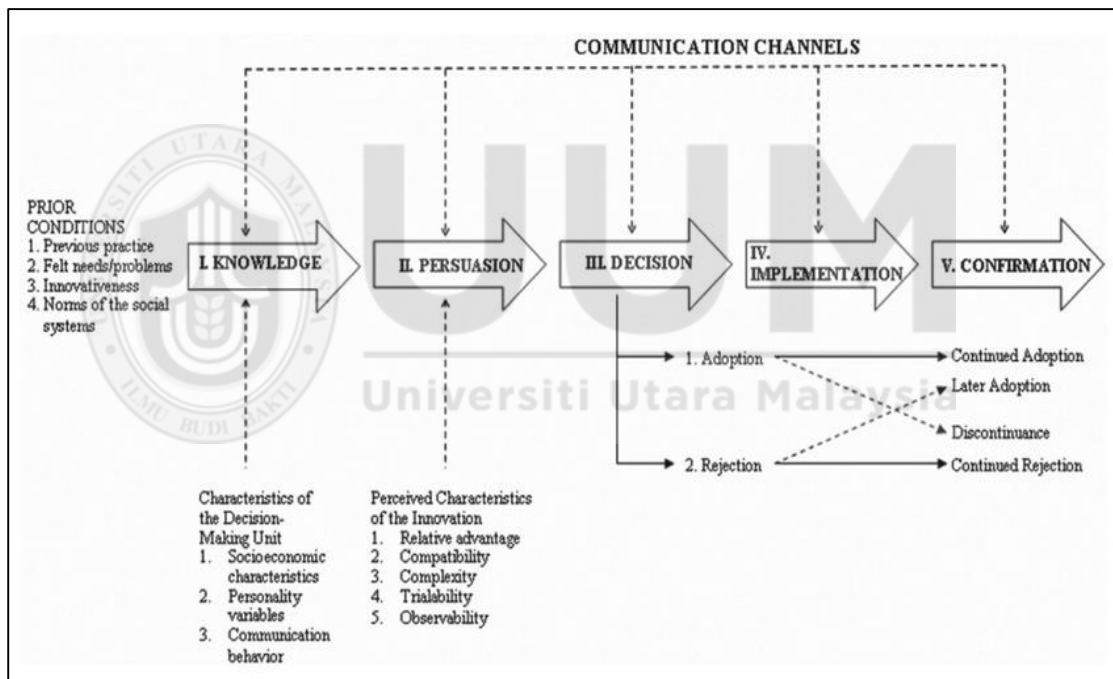
Figure 2.11. Diffusion of innovations
        (Roger, 1995:p.163)

In contrast, studies have revealed that perception of compatibility, complexity, and relative advantage were found to have played the most significant roles regarding adoption of innovation across a broad range of areas (Tomatzky & Klein, 1982; Kwon

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& Zmud 1987; Karahanna, Straub, & Chervany, 1999; Perez *et al*. 2004). Nevertheless, Thong (1999) said that when conceptualizing the determinants of organizational innovation adoption, research suggests that it is necessary to look at different contexts. Consequently, technological innovation research has determined several variables for studying organizational adoption in addition to innovation characteristics that Rogers suggested. In regards to that, Table 2.18 lists a group of researchers who have studied in different contexts.

Table 2.18

Innovations factors in various contexts

Author(s)	Year	Items
Bingham	1976	Organizational characteristics, demand for computing, community environment, and organizational environment.
Perry and Kramer	1979	Extra-organizational characteristics, Intra-organizational characteristics, and Innovation attributes as the key determinants of the adoption of computer technologies by local government agencies.
Kwon and Zmud	1987	User community characteristics, Organizational characteristics, Technology characteristics, Task characteristics and Environmental factors.
Tornatzky and Fleischer	1990	
Zhu, Kraemer and Xu Lee	2006 1998	Technological context, organizational context, and environmental context
Fellow and Crito	2004	
Lin	2008	
Zhu, Kraemer and Dedrick	2004	
Teo, Lin and Lai	2009	

Damanpour	1991	Individual factors, Organizational factors and Environmental factors
Grover	1993	Organizational factors, policy factors, environmental factors, support factors, and system-related factors
Rogers	1995	Individual leader characteristics , internal characteristics of the organizational structure and external characteristics
Thong	1999	Characteristics of the organizational decision makers, characteristics of the technological innovation, characteristics of the organization, and characteristics of the environment
Akbulut	2003	Characteristics of electronic information sharing, agency characteristics and environmental characteristics

Besides that, Pudjianto and Hangjung (2010) and Fan, Zhang and Yen (2014) indicate that the environmental context plays an important role in the application of e-Government and sharing information among agencies, followed by organization and technological factors. As well as, Diffusion of Innovation is used to frame the challenges facing e-government diffusion and influencing the factors of e-government diffusion (Al-Hadidi & Rezgui, 2010; Choudrie, Umeoji, & Forson, 2010; Zhang, Xu & Xiao, 2014). This is agreed by Pudjianto and Hangjung (2009) and Pudjianto, Zo, Ciganek and Rho (2011), which makes this study focuses on environment context, organizational context, and technology context. Then, Kwon and Zmud (1987), Rogers (1995), Hall (2004) and Joo and Kim (2004) and Rokhman (2011) further determined that one of the most consistent determinants of technology adoption is relative advantage, which encompasses several

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different types of benefits such as economic gains and social prestige, as well as different types of costs. Based on the study conducted by Robey, Im and Wareham (2008), who found that, DOI is used more in the relationship among organizations, confirmed by Bigdeli (2012). Moreover, Akbulut (2003) utilized DOI to investigate the factors that effect on the information sharing among state and local agencies. Therefore based on the evidences above, DOI is more suited to discover the factors as well as in the coding section, due to the electronic information sharing among agencies regard a new practice in Dhi-Qar. Additionally, the local agencies require new technologies, as well as new ways to exchange the information.

2.12.2 Social Exchange Theory

Social exchange theory (SET) is among the most influential conceptual paradigms for understanding workplace behaviour (Cropanzano & Mitchell, 2005). The theory's fundamental principle is that humans in social situations choose behaviors that maximize their likelihood of meeting self-interests in those situations. According to Thomas, Leite and Weis (2005) social exchange theory assumes social exchanges between or among two or more individuals are efforts by participants to fulfil basic needs. Wu, Chuang and Hsu (2014) pointed that, it is important to determine information sharing and collaboration. Actually, the heart of the Social Exchange Theory is the concepts of equity and reciprocity. Therefore, the social exchange requires trust (Liao, 2008), where Luo (2002) confirmed, trust is one of the central constructs in the social exchange theory. The Table below shows the previous studies which used Social Exchange Theory in various disciplines.

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Table 2.19

Social exchange theory related studies

Author(s)	Area	Objectives of the study	Theory (s)	Summary description about the study
Salam, Rao and Pegels (1998)	e-commerce	To use social exchange framework to understand how trust economic incentive play roles in facilitation of electronic commerce over the Internet.	The social exchange theory and previous studies	Afterwards the data collection through the questionnaires, this study found that: the trust significantly decreases Consumer-Perceived Risk of transactions over the Online environment.
Young-Ybarra and Wiersema (1999)	Information technology alliances	To examine two elements of strategic flexibility in strategic alliances.	Transaction cost economics and social exchange theory.	From social exchange theory, trust was found to be positively related to both types of flexibility.
Janssen, Joha and Weerakkody (2007).	The local government	The key objective for this study is to investigate the critical decisions and design choices regarding the design of a shared service center (SSC), as we the relationship with its users.	In order to build the theoretical foundation for this research, researcher depend on the two theories: social exchange theory (SET) to shed light on the trust factor, whereas relational contract theory (RCT) argues that exchanges should be looked at as activities, whether these activities tangible or intangible.	Based on the objective of this study. The researcher employed the qualitative method, in particular semi-structured interview for gathering data from the participants. This study carried out in Municipality of Amsterdam, Netherlands. The authors found that, in practice the level of the trust, cooperation and satisfaction increased between collaborating parties in a shared service arrangement when strategic choices are made in a systematic, collaborative and structured way during decision-making process leading to the initiation of a shared service center.

The survey was the main instrument for collecting data from the staff of these agencies. The result of |

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Lee and Rao (2007).	Among the agencies	This study strive to understand the effects of using information sharing practice among anti/counter-terrorism and disaster management agencies.	This study concentrates on the traditional IT acceptance theory and Social exchange theory.	the findings revealed that the current inter-agency information sharing systems use does not reflect social and operational environments of the emergency management organizations.
Dwyer, Hiltz, and Passerini (2007).	Social media tools	To understand how privacy concern and trust influence social interactions within social media tools	Social exchange theory and privacy	Based on the findings of this study, in the online interaction, trust is not as necessary in the building of new relationship as it is in face to face encounters.
Dashti, Benbasat and Burton-Jones (2009)	This study focus on the e-government and users	The aim of this study was to examine the impact of the felt trust on the e-Government, or even on e-business in general.	The social exchange theory was the main theoretical foundation for this study.	The findings for this study was the importance of the felt trust as another way to build trust in e-government.
Fu, Bolander and Jones (2009)	Marketing	Utilizing a three-component organizational commitment measure to identify ways for managers to drive salesperson effort.	Social exchange theory and survey data from industrial salespeople.	With Regard to the social exchange theory, the researchers found that, trust in supervisor was significantly related to affective commitment. Moreover, they also found, that trust in supervisor was significantly related to job satisfaction.
Shiau and Luo (2012)	e-business	To determine the factors that affect consumer continuous use intention toward online group buying and the degree that reciprocity and reputation of social exchange, trust and vender creativity affect consumer satisfaction and intention toward online purchasing.	Social exchange theory and the literature review was the based sources for determined the factors in this study.	After collected data from 215 online consumers, the researcher suggest that, reciprocity, trust, satisfaction and seller creativity provide considerable explanatory power for intention to engage in online group buying behaviour.
Chao, Yu, Cheng and Chuang (2013)	Supply chain management	The objective for this study, to identify the factors in supply chain relationships.	The transaction cost theory and social exchange theory applied in this study.	The finding for this study was, managerial decision variables had a positive effect on trust.

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				And the trust had a significant positive effect on commitment.
Zaheer and Trkman (2014)	Supply Chains	The purpose of this study was to understand the effect of willingness to share information by social exchange theory in supply chains.	Social exchange theory	The research showed when willingness is low, reciprocity plays a major role in information sharing quality. Whilst, when willingness is high, strengthens the relationship of reciprocal relationship for information sharing quality.
Wu, Chuang and Hsu (2014)	Supply Chains	This study propose model to examine information sharing and collaboration and supply chin performance.	Social exchange theory	The empirical findings for this research show that social exchange theory important to determine information sharing and collaboration.

Bensaou and Venkatraman (1994) found that several fundamental theories (transaction-cost theory, organizational theory, and political economy theory) have been used in the literatures to explain inter-organizational cooperation. Later, Kumar (1996) criticized the literatures in the field of inter-organizational information systems because of the emphasis placed on technological and rational/economical perspectives. They argued that in addition to these perspectives, a socio-political view should also be incorporated into the analysis. This theory suggested that human exchanges are formed and sustained by a subjective cost benefit approach. In that scenario, the more valuable the information received in the exchange, the greater the frequency of interaction (Simmons, Simmons & Ammeter, 2010).

Premkumar and Ramamurthy (1995, p.306) says that "*social exchange theory provides the foundation for the study of relationships between organizations*". The main emphasis of this perspective is that the relationship between organizations does not necessarily need to be directly related to any economic outcomes (Hallen, Johanson & Seyed-Mohamed 1991; Humphreys, Lai & Sculli 2001). In addition, according to Blau (1964), social exchange is a process that is greatly significant in social life, and it underlies the relationships between groups and between individuals, making it very harmonious. As a result, numerous studies use social exchange theory (SET) to explain knowledge sharing (Hsu, 2008; Cabrera & Cabrera, 2002; Kwok & Gao, 2004).

Besides, it has also been found that this theory has been used by researchers in the field of IS as the theoretical background to investigate different antecedents of inter-

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organizational relationships through a lens of non-economic aspects that affect the formation of relationships such as power, trust, interdependency (Prekumar & Ramamurthy, 1995). On the other hand, Akbulut et al., (2009) argue that "Trust" and "Power" can be considered as two important social factors that play significant roles in the decision-making process of participation in electronic information sharing. Regarding this, Son, Narasimhan, and Riggins (1999) discovered that the SET is well suited to analyzing inter-organizational exchange relationships. The e-government projects adopt on build trust among government agencies (Al-Taie & Kadry, 2013). In addition, Bigdeli (2012) pointed out that, in sharing information the social exchange theory should be taken into consideration. Particularly, SET that was developed by Blau (1964) presumes that people look for balance in their exchanges with each other, which results in the elimination dissonance or stress that is a result of balanced relationships (Dashti, Benbasat & Burton-Jones, 2009), in which trust and power are its two most commonly studied aspects (Hart & Saunders, 1997; Ray,2010).

Studies also suggest that trust leads to communication openness, information sharing, and commitment between organizations, which therefore increase cooperation (Bakos & Brynjolfson 1993; Kumar 1996; Ratnasingham & Kumar, 2000). Moreover, Zaheer et al., (1998) talked about that, interagency trust reduces negotiation cost and conflicts and improves performance in networked collaboration. Earlier, Emerson (1962) emphasized the role of power in exchange relationships. It was stressed that the relative powers of the parties in a relationship are determined by their relative dependence to each other (Hallen, Johanson & Seyed-Mohamed, 1991). According to Hart and Saunders (1997) power is

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defined as the capability of an organization to exert influence on another organization to act in a prescribed manner. Therefore, it is possible that the powerful actor in a relationship can influence the other party to comply with its own needs (Hallen *et al.*, 1991). This approach assumes that the weaker party's actions will be influenced by the fact that the stronger party can control its rewards and sanctions (Saunders & Clark, 1992).

Also, the role of power in inter-organizational relationships has been studied based on interdependencies between organizations. Generally, the dependency of one party on the other party in an exchange relationship is related to the needs to maintain the relationship to achieve the desired goals (Ganesan, 1994). Most of the works in this area have investigated the dependencies between organizations, and the relationships of powers are based on inter-organizational resource acquisitions (Saunders & Clark, 1992). However, Saunders and Clark (1992) criticize studies on power, because they do not address the extent to which power can force an organization to engage in a certain activity in which it would not otherwise do so. Particularly, they claim that, "*if an organization would have taken a certain activity anyway, power was not the cause for the action's occurrence. For instance the action may have taken because of perceived benefits to the organization*" *(p. 10-11)*. As an alternative, the authors strongly suggest that research in the field of inter-organizational systems should take issues such as benefits/costs into account.

Social exchange theory can provide essential foundation of identifying some of the factors that influence on information sharing among government agencies. Humphreys, Lai and Sculli (2001) argued that social exchange theory forms a theoretical background in order

to study and examine non-profit inter-organizational transactions. Moreover, participation in information sharing among government agencies is also strongly dependent on trust among different departments and entities in the agencies (Pardo & Tayi, 2007; Gil-Garcia, et al, 2010). Based on this argument, this theory can be utilized when the information sharing among local agencies need not necessarily result in any economic outcome.

There are many theories used in e-government studies to look particularly into people issues from different perspectives like adoption, continuos use and others in an organization, but in this study the two theories are selected to look at the factors that are highlighted in the lessons learnt from the employees in the implementation of information systems in between the local government agencies that extends further examination into organization, and environment in SET, not just technology perspectives. This study will combine SET with the technology perspectives from DOI.

2.13 Theoretical Framework

While the previous section reviews the works related to e-Government, this section discusses about the theoretical framework, an analytical tool to identify and categorize factors. Al-Sebie (2014), Akbulut *et al* (2009), Bigdeli *el at.,* (2011) and Orlikowski and Iacono (2001) recommend that the electronic exchange of information should be seen as a socio-technical issue in which a range of technological, organizational, and environmental factors would affect the outcome. Moreover, Mahmoud (2010) and Othman and Ramasamy (2013) pointed that, the application of any technology in Iraq, the organizational, technological and environmental factors, must be addresses to bring

Iraq out of the debilitating situation brought by the war. Investigation based on this socio-technical perspective on e-government issues, in developing countries, has been carried out (Cette & Lopez, 2012; Khan, Moon, Park, Swar & Rho, 2011; Seri & Zanfei, 2013), especially in local level (Arduini, Denni, Lucchese, Nurra & Zanfei, 2013). And Hamza et al., (2011) asserted that, there are need to identify the socio-technical barriers that effect on G2G in developing countries.

Since the study focus on information sharing, the theoretical foundation is based on the Social Exchange Theory to incorporate the factors from DOI. These factors from the technological, organizational, and environment perspectives will be used to explore and extract empirical data on the issues and challenges in local government agencies. The way agencies at local government share information and the issues they faced will be viewed in depth from the employees' viewpoints.

Miles and Huberman (1994) define a conceptual model as a visual or written product. Meanwhile Mills (2010) believes that conceptual model uses deductive research to produce general information about relevant issues of a study (literature review). Thus, an inductive research is often carried out, and focusing on an in-depth analysis of these relevant research topics (interviews). Current trend shows that most researchers work for the conceptual model of e-government (Warkentin, Gefen, Pavlou & Rose, 2002; Gilbert, Balestrini & Littleboy, 2004; Al-Adawi, Yousafzai & Pallister, 2005; Kumar, Mukerji, Butt & Persaud, 2007; Alsaghier, Ford, Nguyen & Hexel, 2009; Alryalat, Dwivedi& Williams, 2012; Stanimirovic & Vintar, 2013.).

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Figure 2.11 illustrates the conceptual model or Electronic Interaction Model (EIM) for this study:
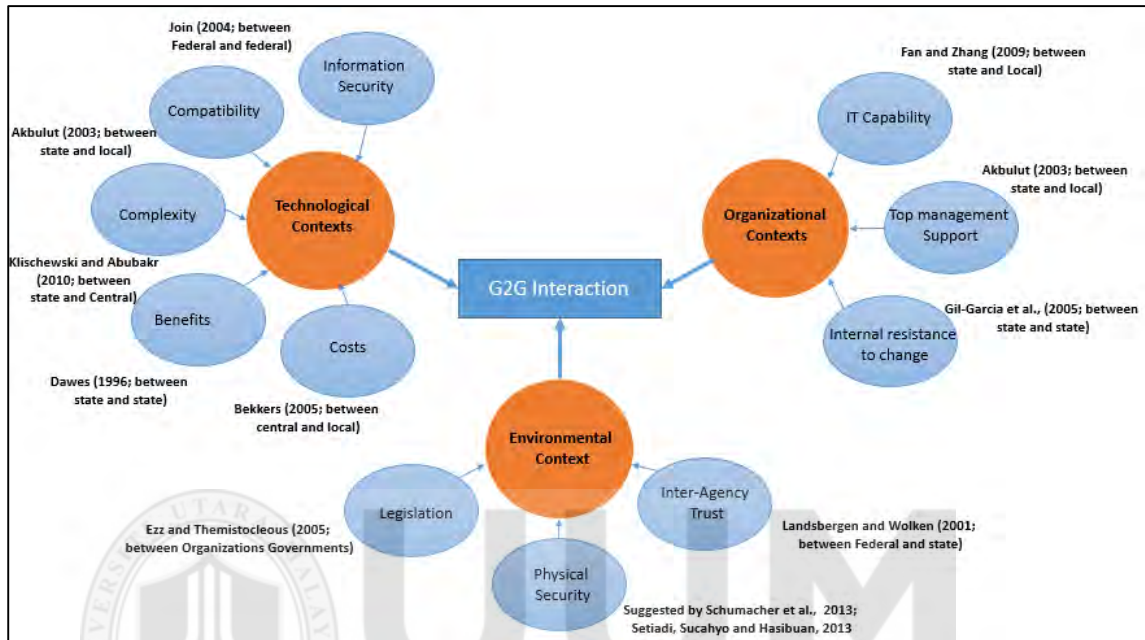
Figure 2.12. Conceptual Model of G2G Information Sharing or Electronic Interaction Model

Thus, based on previous studies, this model (refer to Figure 2.13) for information sharing in local government is conceptualised to extend the Social Exchange Theory with the external factors from DOI based on the technological, organizational and environmental perspectives. This will help the researcher to do coding based on the themes derived from the model in chapter three.

2.13.1 Technological Contexts

The earlier section states that one of the most consistent determinants of technology adoption is relative advantage, which encompasses several different types of benefits, such as economic gains and social prestige, as well as different types of costs associated with the adoption (Rogers 1995; Kwon & Zmud 1987; Hall, 2004). In this study, the Technological context is divided into five factors (information security, compatibility, complexity, benefits, and cost), and each factor is treated separately.

2.13.1.1 Costs

Cost refers to the perceived potential costs of G2G interaction to share information within local agencies. While benefits of G2G interaction to share information within local agencies may be significant, costs of interaction might be related to the costs of acquiring the necessary technology for interaction, including setting-up costs, running costs, integrating/interfacing costs, as well as training costs. The skill set of the available personnel is also an important factor that constrains the introduction of innovations. So, when new innovations are in place, organizations that hire experienced and highly skilled people have the tendency to incur lesser costs in terms of training and equipment (Akbulut, 2003). Also, it is a challenge to encourage people to involve in change if the benefits are not well-defined and costs are uncertain (Landsbergen & Wolken, 2001).

2.13.1.2 Benefits

Benefits refer to the perceived potential gains of interaction between agencies. It also refers to the anticipated advantages that local agencies can obtain by electronic interaction

between agencies (Chwelos *et al*., 2001). Many researchers (such as Robinson, 1990; Mansfield, 1993; Frambach, 2002) found that perceived benefits play an important role in organizational adoption of innovations. In fact, the interaction between agencies can help the local agencies to achieve benefits such as increased accuracy and timeliness of information, reduced paperwork, freed up resources, expedited data management, and improved decision-making (Akbulut *el at*., 2009). In contrast, non-sharing agencies perceived the initiative as detrimental or were unaware of the potential benefits.

Similarly, inter-agency information has various benefits such as reduced costs and increased productivity as a result of streamlined data management, improved accuracy and timeliness of the information gathered, centralized source and support for current information, more accurate and comprehensive data for problem solving, widened professional networks, enhanced public image, and greater integration and coordination of government services (Dawes, 1996; Gengeswari, Hamid & Bakar, 2010). These illustrates that the benefits impact the interaction between agencies.

2.13.1.3 Information Security

Webopedia (2002) refers security to techniques for ensuring that data stored in a computer cannot be read or compromised by any individual without authorization. It refers to the capability to make sure the information flow securely during G2G information sharing processes (Fan & Zhang, 2009). In short, it is a key factor in a G2G interaction, as the harm caused by flaws in the interaction processes can damage not only the public agencies involved, but also the society as a whole (Joia, 2004). In current advancement, all public

administration officers receive an exchange and collect the personal information of many citizens, public organizations, and other offices. As soon as the information is shared with other agencies, the security of the information is beyond the control of one agency, which is a challenge in every process of information sharing.

In that scenario, information disclosure in any process may cause problems for citizens' privacy and business secrets. Hence, Ezz and Themistocleous (2005) determined that information sharing among various agencies increases the significance of data protection and security. Although a G2G process must require a high level of security, this security should not significantly impede the use of the system. Thus, how security is established must allow the process to be flexible (Joia, 2004). In fact, Joia (2003) earlier reminded that security is a crucial factor because breakdowns that arise from it can result to losses not only for public agencies, but also for the society in general.

2.13.1.4 Compatibility

Compatibility, comes in different types, is the degree to which an innovation is perceived as being consistent with the existing technologies and past experiences of potential adopters (Moore & Benbasat 1991; Ray, 2010). Technological compatibility refers to the compatibility of the IT required for participation in electronic information sharing with the existing applications and information systems (Akbulut, 2003). Caudle, Gorr, and Newcomer (1991) found that the most important issue was the integration of technologies. Besides, participation in inter-agency information sharing was also affected negatively by incompatibility of the hardware, software, and telecommunication networks (Dawes,

1996; Dawes, Pardo, Connelly, Green & McInerney, 1997; Landsbergen & Wolken, 2001).

2.13.1.5 Complexity

Complexity refers to the degree to which participation in electronic information sharing between the organizations is perceived as a relatively difficult process (Moore & Benbasat, 1991; Ray, 2010). Zaltman, Duncan, and Holbek (1973) classify complexity into two levels; first, electronic information sharing may contain complex ideas; second, the implementation of electronic information sharing may be complex. Research has shown that the complexity of a technology is a major factor that affects the decision for adoption (Realini & Riedl, 2004), in which users prefer easy to use systems (Newcomer & Caudle, 1991).

2.13.2 Organizational Contexts

According to Bigdeli (2012) the organisational context seems important category that may influence the effort of sharing information among agencies. In addition, Arduini *et al,* (2013) referred that, organizational factors playing a critical role in facilitating technological innovation in local administration, in the following the organizational factors:

2.13.2.1 IT Capability

IT capability (an important factor in G2G information sharing) pertains to the availability of technological resources as well as expertise within local agencies, which allow them to

interact with each other (Jing & Pengzhu, 2009). Premkumar and Ramamurthy (1995) explain that information systems are complex, which comprise database, hardware, and technology; thus, in participating in such systems, a certain level of IT expertise is required. In fact, Perry and Danziger (1980) found that competency was one of the most significant factors in the local government's adoption of computer applications.

2.13.2.2 Top management Support

The top management's commitment to allow for a positive environment in which G2G interaction within local government is encouraged is the concerns of the top management's support. It is one of the three best predictors for IT innovation adoption at the organizational level (Jeyaraj *et al.*, 2006). Besides, management support is also a key factor of diffusion or implementation (Chen, 1997; Thiagarajan & Zairi, 1998; Higgins & Hogan, 1999; Agus, 2001; Sharma & Gadenne, 2001; Sureshchandar *et al.*, 2001; Antony *et al.*, 2002; Sohail & Teo, 2003; Nagi *et al.*, 2004; Lee *et al.*, 2006; Al-Qirim 2007; Seyal *et al.*, 2007; Mosbeh & Soliman, 2008). They also found that lack of support by the top management leads to resistance in innovation adoption. So, the support of the top management is really significant (Grover, 1993; Premkumar & Ramamurthy, 1995; Ray, 2010).

2.13.2.3 Internal resistance to change

Not only must a change deal with external difficulties, but also it must deal with the internal resistance to change, which can be a hindrance to the modernization of public offices (Ezz *el at.,* 2009). In fact, a number of employees, particularly the older ones, do

not perceive the e-Government revolution as an opportunity (Beenebroek & Gravenhorst, 2003; Coch & French, 1948). Rather, they see it as a threat to their future as they are anxious about losing their jobs. They feel that a shift from a common organizational structure to an unfamiliar structure may result in resistance to change (Bovey & Hede, 2001).

The risk of such resistance is the collapse of the new organization Akbulut (2003), which eventually requires raining for moderating the imbalance. The employees have the option to either adapt the new working methodologies or continue to work in a way that they are used to behind the backs of the administrators. Thus, what needs to be established is an organized management of change. It is also necessary to discuss the organizational change with the people involved and educate them with what is going on (Realini & Riedl, 2004). In this context, Pudjianto and Hangjung (2010) substantial reform in public organizations is necessary in the implementation of e-Government. It is due to the fact that the typical form of bureaucratic organization where a conservative culture prevails makes it resistant to change from new innovation. Moreover, Alomari, Sandhu and Woods (2014) asserted that, resistance to change is one of the factors that should be considered when addressing the topic of e-government.

2.13.3 Environmental Context

Information sharing among organizations government is directly affected by the environment aspect in which the authority operates (Akbulut *et al.*, 2009; Ryan *et al.*, 2008; Pardo & Tayi, 2007).

2.13.3.1 Trust

Trust has been identified as a fundamental element for successful inter-organizational systems (Hart & Saunders, 1997; Williams, 1997; Karahannas & Jones, 1999). According to Pavlou and Fygenson (2006), trust pertains to the belief that the trustee will act cooperatively to satisfy the expectations of the trustor, and while doing so, the trustee should not exploit the trustor's vulnerabilities. Meanwhile, a trusted social network is a set of collaborations between actors who are a part of inter-organizational information sharing, and more importantly, they trust each other when they are at the fundamental stage of information exchange (Bigdeli *el at.*, 2011). Trust has many facets and involves several aspects, including competence, benevolence, and integrity (Mayer, Davis & Schoorman, 1995; Gefen, Karahanna& Straub, 2003). Also, trust is considered to be crucial in social exchange relationships (Blau, 1964). It is usually used to minimize uncertainty or vulnerability in exchanges, especially when people have insufficient knowledge or prior experiences (Bradach& Eccles, 1989). It leads to communication openness and information sharing, commitment between organizations, and therefore increases cooperation (Bakos & Brynjolfson, 1993, Kumar, 1996, Ratnasingham & Kumar, 2000). Further, inter-agency trust refers to the belief that an agency will perform actions that will result in positive outcomes for other agencies, and the agency will not perform actions that would result in negative outcomes (Anderson & Narus 1984, 1990).

On the other hand, the main outcome of trust is to provide an agency with an optimistic anticipation of the behavior of other agencies in an inter-organizational relationship (Hart & Saunders, 1997), as the participants are expected to recognize and protect the rights

and interests of all others engaged in the joint endeavor (Hosmer,1995). In fact, Rocheleau (1997) noticed that organizational actors are often biased when it comes to the information produced by other actors that they have no control over. Furthermore, mutual inter-agency trust has been identified as a precondition to information sharing (Dawes 1996; Thorelli, 1896; Williams 1997; Landsbergen & Wolken, 2001). As a result, inadequate mutual trust among agencies results in each agency ending up gathering its own information about the same subject (Landesbergen & Wolken, 2001) because they are anxious about the validity and accuracy of the date gathered by other agencies.

2.13.3.2 Legislation

Bigdeli (2012) asserted that, should create an environment in which sharing information among departments become effective and legitimate. A number of researchers referred that that any process of exchange of information among agencies it not complete without legislation that facilitate and clarify the role of each agency in the process of integration (Akbulut, 2003; Landsbergen & Wolken, 2001). Peel and Rowley (2010) pointed out that, the legislative context very important in information sharing among government agencies. It can be argued that public agencies can only gather and store information regarding to the task delegated to them and, in many cases, they are unaware under what law, policy or framework they can share information they have gathered with others. Electronic Interaction across and between local agencies is a complex task since there is no single source of law that can govern and regulate gathering, using and sharing information. Therefore, local agencies departments face with a blurred answer to the question "whether or not we should share information". Bigdeli, Kamal and deCesare (2011) referred that,

legislation that can guide information integration and sharing activities in the authorities. Also Jing and Pengzhu (2009) stressed, the absence of formal legislation may affect the G2G interaction among agencies. Legislation is considered important in the process of exchange of information. Pardo and Tayi (2007) stated that, legislation is have strong institutional influences on inter-departmental information sharing. By and large, lack of legislations may force the agencies to focus on their own activities rather than cooperation and sharing information.

2.13.3.3 Physical Security

Security, as addressed by SANS Institute (1988), is a condition that takes place when protective measures are established and maintained, which ensures that a state is free from hostile acts or influences. In the broadest sense, security is the totality of all services and mechanisms that protect an organization (Schumacher, Fernandez-Buglioni, Hybertson, Buschmann, & Sommerlad, 2013; Karokola, Kowalski & Yngstrom, 2011). According to Setiadi, Sucahyo and Hasibuan (2013) Physical security is those controls that protect the physical environment or systems place, or where the e-government application, data, network and infrastructure are established. Meanwhile, physical security is the protection of personnel, hardware, programs, and networks from physical circumstances and events that could cause serious losses or damage to an enterprise, agency, or institution (Setiadi, Sucahyo & Hasibuan, 2013; Zissis & Lekkas, 2011). This includes protection from fire, natural disasters, burglary, theft, vandalism, harassment, and workplace violence (Åhlfeldt, Spagnoletti & Sindre, 2007; Graves, 2010; Michael, 2012). Similarly, the function of physical security is to protect physical computer systems and related

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infrastructure and equipment from intrusion, fire, and other natural and environmental dangers (DHS-NCSD, 2008). Frost and Sullivan (2009) and Cole (2011) stated that the significance of physical security is often underestimated and overlooked in favor of high-tech and software issues, such as hacking, viruses, Trojans, and spyware. What should be taken into account is that accidents and natural disasters cannot be avoided because they are a part of everyday life. Consequently, physical security is another significant aspect of information security (Warjanto, 2008).

The security sector is absolutely necessary due to the high price of failure. Nevertheless, it helps boosting-up the self-confidence of an individual and eventually, his ability to productively participate in a process of reflective experiments in living (Laister & Koubek, 2001), and has emerged as a pressing social concern and is applied to computer security as well (Graves, 2006). In addition, Weingart (2008) found that due to the fact that computing systems, to a great extent, have moved out of computer rooms that are environmentally secure and to offices that are less environmentally secure, physical security is turning out to be more important.

However, it is often overlooked in an organization (Poffenberger, 2004). Some organizations even consider physical security to be too complicated for them to handle properly (Garfinkel & Spafford, 2002). Lake and Rothchild (1996) earlier found that collective fears take place when states no longer have the ability to decide between groups or when states fail to provide convincing guarantees of protection for groups, which implies that physical security is a serious concern.

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The researcher will add physical security in this study as suggested from other research (Karokola & Yngström, 2009; Karokola, 2012; Waziri & Yonah, 2014; Michael, 2012; Setiadi, Sucahyo & Hasibuan, 2013) to the model as Iraq is in the middle of wars between sectarian groups as well as external threats like ISIS and hostile countries. AS far as the researcher knows there are few studies that examine this factor in e-government information sharing model.

2.14 Summary Chapter Two

In this chapter, the explanations and details on e-Government are elaborated. It includes nine studies, in which they are reviewed in terms of their objectives, contributions, factors of change that they identified, and their limitations. The significant theories that set the foundation of the conceptual model proposed in this study are also discussed.
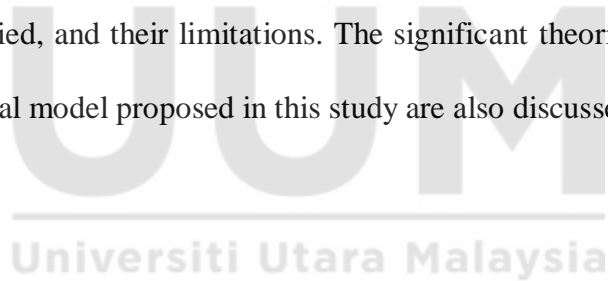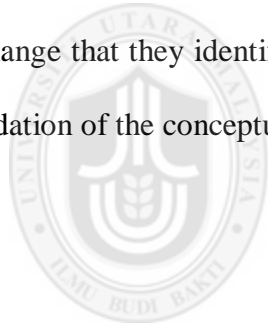
CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter focuses on the research methodology and design that are used in this study. Research Methodology is a *"structured set of guidelines or activities to assist in generating a valid and reliable research results"* (Mingers, 2001, p.242). It generally means the way of achieving the research objectives. The purpose of this chapter is to explain the rationale of the methods used and to explain how the whole research was conducted. It further outlines and justifies the steps that were taken to ensure responsible data gathering and analysis, trustworthiness of the study, and compliance with various ethical considerations are neat and appropriate.

This chapter first clarifies the meaning of research, followed with the research approach adopted in this study. It explains the activities carried out in achieving the objectives, the data collection techniques, and the data analysis. Finally, this chapter explains the research quality assurance assessment through data authenticity and ethical considerations in the end.

3.2 Research Definition

Creswell (2012, p.2) defined research as "*Research is a process in which you engage in a small set of logical steps*". However, there is no single, widely accepted definition of research *"because there is more than one kind of research"* (McMillan & Wengin, 1994;

Powel, 1997:2; McBurney & White, 2007; Willig & Rogers, 2008). Nevertheless, Goldhor's (1972) defines research as *"... any conscious premeditated inquiry any investigation which seeks to increase one's knowledge of a given situation"*. It is agreed by Hernon (1991, p.4) who says; *" it is an inquiry process that has clearly defined parameters and has its aim either to discover and create knowledge, or to test, confirm or refute knowledge and or to investigate a problem for local decision making"*. Besides, Hockey (1984, p.4) defines research as *"an attempt to increase the sum of what is known, usually referred to as 'a body of knowledge', by the discovery of new facts or relationships through a process of systematic inquiry, the research process"*. Meanwhile, Sekaran and Bougie (2009) define it as "*a simple the process of finding solutions to a problem after a thorough study and analysis of the situational factors*".

Based on the definitions, research may involve an application of a structured process in order to answer questions or challenges certain hypotheses. In attempting to answer research questions or discover whether a research hypothesis can be supported, this study employs appropriate research design and research method. In the matter of fact, the field of information system is very diverse in terms of problems addressed, theoretical foundations and reference disciplines, and methods to analyze, collect and interpret data (Chiru, 2005). That is the reason why either of the qualitative or quantitative research method can be used in investigating or collecting data.

3.3 Research Design

The research design differs depending on the methodology. According to Creswell (2013), there is no definite structure to design a qualitative study. Generally, the research design encompasses tasks such as sample design, data collection design, and methodology tests. The type of problem can influence the choice of the methodology. According to Creswell (2009, p.3), "*research designs are plans and the procedures for research that span the decisions from broad assumptions to detailed methods of data collection and analysis*". Hence, it implies the plan for conducting the study (Creswell, 2013).

This study attempts to discover the factors that affect the G2G interaction within Dhi-Qar in Iraq. Basically, there are two methods of data analysis: qualitative and quantitative analysis (Sekaran & Bougie, 2010; Zikmund, 2003), in which most to researchers prefer utilize either quantitative or qualitative (Ragin, 1987; Kaplan & Duchon, 1988; Lee & Fielding 1991; Gable, 1994; Mingers, 2001). Previous studies also show that qualitative methods are very famous for IS studies. Puvenesvary, Rahim, Naidu, Badzis, Nayan, and Aziz (2008, p.1) said that: "*An extensive literature review in your area of study will help you determine the most appropriate method to use in your research*". Similarly, Saunders and Lewis (2012) stated that, the previous studies will give the researchers ideas about how might collect data. In addition, if a concept or phenomenon needs to be understood because little research has been done on it, then it merits a qualitative approach (Creswell, 2009). Hence, in this study, in order to discover the factors that affect G2G interaction between local agencies, the qualitative approach is used.

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This qualitative study seeks to develop a deep understanding on the factors that affect the G2G interaction in e-Government. The researcher collected extensive data from employees who work in each agency participating in this initiative, because the individuals with more experience in the central phenomenon enable the researcher to obtain more in-depth data (Creswell & Clark, 2007).

Further, research design expresses a plan for the study, providing the overall framework for collecting data, outlining the detailed steps of the investigation, and providing guidelines for systematic data collection (Lankshear & Knobel, 2004; Creswell, 2006). The research design can also be described as the specific procedures involved in the last three steps of the research process: data collection, data analysis, and report writing (Alison, 2000; Creswell, 2005). In regards to the research design as defined by those authors, the research design for this study is summarized in Table 3.1.

Table 3.1

Overview of research design and methodological processes

ASSUMED PARADIGMS	
Methodological paradigm	Qualitative research
Approaches	Phenomenological Approach
SELECTION OF PARTICIPANTS	
Purposeful sampling	The assistance of the Director of communications. Has selected two e-Government employees from each agency (seven agencies), one employee from one agency and three employees from another agency who have experienced this Initiative. Total: 18 employees from nine agencies. Figure 4.1 details further.

DATA COLLECTION

Data collection instruments   Individual interviews

DATA ANALYSIS AND INTERPRETATION

Transcription, data coding, free quotations and links; Thematic and content interpretation.

VALIDITY AND RELIABILITY

Triangulation and Member checking

ETHICAL CONSIDERATIONS

Anonymity, confidentiality, informed consent

3.4 Research Approaches

While the qualitative approach is utilized in this study, this section addresses precise definitions of both 'quantitative' and 'qualitative' terms. Further, Figure 3.1 illustrates the research framework for this study.
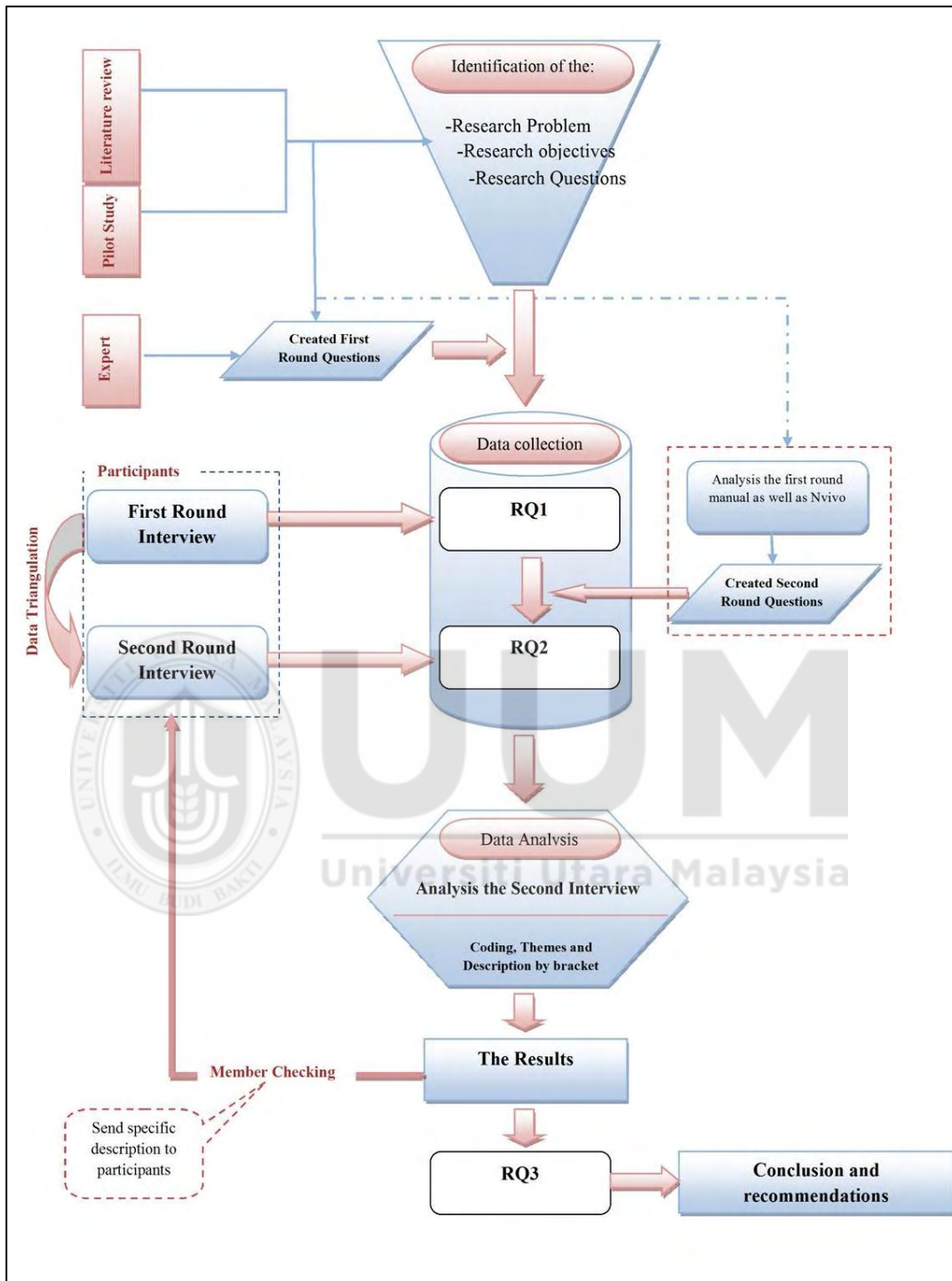
Figure 3.1. Research Framework

3.4.1 Quantitative Research

Quantitative research is a formal, objective, and systematic process in which numerical data are utilized to obtain information about the world (Mishra, 2009). According to Burns and Grove (2003), quantitative research is inclined to be deductive. Further, quantitative research is generally acceptably categorized into three types; descriptive, quasi-experimental, and experimental, while there is disagreement either correlational study can be considered as quantitative or not. Also, quantitative research deals with numbers, uses statistical models to explain the data, and is considered 'hard' research (Bauer & Gaskell, 2000).

3.4.2 Qualitative Research

Enthusiasm for qualitative method is reaching an all-time high these days (Padgett, 2004), for many disciplines (Marshall & Rossman, 2010). It begins with assumptions and the use of interpretive/theoretical frameworks that inform the study of research problems addressing the meaning individuals or groups ascribe to a social or human problem (Creswell, 2013). Cook (2007), a leading research methodologist in fact believes that "*qualitative researchers have won the qualitative-quantitative debate*".

Qualitative research explores the broader context within which change takes place and so can capture the full set of factors that participants perceive as contributing to change or outcome (Bauer & Gaskell, 2000). It is best used for depth, rather than breadth of information (Chisaka & Vakalisa, 2000). It is a way of knowing and learning about different experiences from the perspective of the individuals who are involved,

themselves. Further, Creswell (2009) stated that in qualitative research, the intent is to explore the complex set of factors surrounding the central phenomenon and present the varied perspectives or meanings that participants hold. Thus, qualitative research allows researchers to explore social phenomenon and its meaning in everyday life (Speziale & Carpenter, 2003; Burns & Grove, 2003) as compared to the quantitative approach as described in Table 3.2.

Table 3.2

Differences between quantitative and qualitative research (Bauer and Gaskell, 2000)

| | Strategy | |
	Quantitative	**Qualitative**
Data	Numbers	Texts
Analysis	Statistics	Interpretation
Prototype	Opinion polling	Depth interviewing
Quality	Hard	Soft

According to Creswell (2013), there are popular techniques for qualitative approach and also appear consistently over the years namely ethnography, ground theory, phenomenology, and case study. Particularly, different qualitative technique is aimed at developing different kinds of knowledge (Morse & Field, 1995) as outlined in Table 3.3.

Table 3.3

Main Types of Qualitative Research (Creswell, 2013)

Approach	Descriptions
Narrative Research	This research consist of focusing on study one or two individuals, gathering data through the collection of their stories, reporting individuals experiences, and chronologically ordering the meaning of those experiences (or using life course stages).
Phenomenology	Describes the common meaning for several individuals of their lived experiences of a concept or a phenomenon.
Grounded Theory	Study is to move beyond description and to generate or discover a theory.
Ethnography	This study focuses on an entire culture-sharing group.
Case Study	This research involves the study of a case within a real-life, contemporary context or setting.

Many researchers, particularly in applied contexts, use a priori coding frame embodying a clear set of objectives which to govern and inform thinking at the outset (i.e. a deductive approach) (Lewins & Silver, 2007). Qualitative analysis is about working intensively with rich data (Bazeley & Jackson, 2013). It typically involves both inductive and deductive reasoning, given that researchers generate findings through close examination of data and consider multiple theoretical explanations in search of *"the most plausible explanation"* (Roulston, 2010: p. 150). Nevertheless, Creswell (2013) recommends that deductive and inductive reasoning in qualitative approach can help in collecting and analyzing data.

3.4.3 Justification for Adopting Qualitative Research

Qualitative research is a situated activity that locates the observer in the real context of study. It is exploratory and is useful when a study does not know the important variables to examine (Creswell, 2009). In other words, qualitative research helps us make sense of

the world in a particular way (Richard & Morse, 2013) that consists of a set of interpretive, material practices that make the world visible (Creswell, 2013) and increases a wide range of academic and professional areas (Holliday, 2007; Richard & Morse, 2013). Besides that, Creswell (2008) notes "*if a concept or phenomenon needs to be understood because little research has been done on it, then it merits a qualitative approach*".

The characteristic of qualitative research is to present multiple perspectives of individuals to represent the complexity of our world (Creswell, 2012; Maxwell, 2013). As mentioned previously, this study is primarily motivated by the lack of studies on the interaction in e-Government. Particularly, it attempts to close the gap in the G2G interaction. Regarding this, Richard and Morse (2013) recommend to utilize the qualitative approach by stating "*if the purpose is to understand an area where little is known or where previously offered understanding appears inadequate, you need qualitative method that will help you see the subject anew and will offer surprises*". In fact, this is agreed by many other studies (Layne & Lee, 2001; Realini & Riedl, 2004; Ezz & Themistocleous, 2005; Torres, Pina & Acerete, 2005; Wimmer, Codagnone, & Janssen, 2008; Puvanesvary *et al,* 2008; Yimbo, 2011; Maxwell, 2013). Nevertheless, it is needed when the topic is new, or has never been addressed with the particular sample or group under study (Morse, 1991).

Qualitative research focuses on a single phenomenon or concept. During the research works, factors will emerge and influence this single phenomenon (Creswell, 2009). As factors might influence the process of interaction between local agencies in developing countries (like Iraq) have not been well researched, this study attempts to fill the gap by

discovering the major factors that might influence G2G interaction within the local government in Iraq.

With regards to that, Creswell (2009) recommends that qualitative approach is able to explore the complex set of factors surrounding the central phenomenon and present the varied perspectives or meanings that participants hold. It is very much supporting this study that needs a complex, detailed understanding of the factors that affect the G2G interaction between agencies in local government. These factors can only be established by talking directly with employees, going to their places of work, and allowing them to identify the factors which, for its part, may affect this initiative. This is also supported greatly by Obi and Hai (2010) and Richard and Morse (2013).

3.4.4 Phenomenological Approach and Justification

Creswell (2013) discovered a couple of scenarios in qualitative approach. On the one hand, the researchers do not identify any specific technique for the qualitative research they carry out. On the other hand, the researchers adopt certain specific approach into their qualitative research. In this, the researchers need to identify the qualitative research approach in order to present it as a sophisticated study, to offer it as a specific type so that reviewers can properly assess (Creswell, 2009, 2013). The latter is more appropriate for a phenomenological study.

In phenomenological study, the researcher collects data from persons who have experienced with phenomenon (Denscombe, 2010), and develops a composite description

of the essence of the experience for all of the individuals. It has been popular in many disciplines (Oiler, 1986; Tesch, 1988; Polkinghorne, 1989; van Manen, 1990; Swingewood, 1991; Borgatta&Borgatta, 1992; Nieswiadomy, 1993; Giorgi, 1985, 2009), and varies in many forms (Richard & Morse, 2013). Russell (2013) used phenomenological method in e-Government, by describing the barriers and benefits of e-Government services through the lived experiences to the participants. Often data collection in phenomenological studies consists of in-depth and multiple interview with participants (Creswell, 2006; Roulston, 2010).

In contrast, as a result of depending on both deductive and inductive data, the ground theory is not suitable for this study. This is because the ground theory depends on the inductive data, which may not have the flexibility desired by some qualitative expectations (Creswell, 2013). On the other hand, ethnography is interesting in examining the unit of analysis involving typically more than 20 individuals. It focuses on an entire culture-sharing group, "*ethnography is good to understand the study of groups*" and "*there is possibility that the researcher will 'go native' and be unable to complete or be compromised in the study*" (Creswell, 2013: p.91 and p.96). Further, in ethnography the key instrument for collecting data is observations (Agar, 1980).

Additionally, the focus of narrative research is to explore the life experiences of typically one individual (Creswell, 2007). In this study, one research participant would not have been adequate in determining the factors that affect the G2G interaction among local agencies. Specifically, each employee has different perceptions or varying factors that

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affect the process of interaction, and therefore, it is important to interview more than one research participant.

On the other hand, the focus of the case study approach is to develop an in-depth description and analysis by studying an event, program, or activity of typically one or sometimes more than one individual (Creswell, 2007). In response to that, this study focuses on staff expertise (participant's perspectives) rather than an event or evaluation of a program. In conjunction, the focus of the phenomenological approach (as described in the previous paragraphs) is to understand the essence of an experience and to describe the essence of a lived phenomenon. Therefore, of the five common qualitative research approaches, the qualitative phenomenological method appears was the most logical research approach for this study.

According to Creswell (2007), phenomenological studies describe the meaning of lived experiences for multiple individuals of a concept or phenomenon. In this study, the phenomenon was the factors that affect on electronic information sharing among local agencies. Creswell also adds, the researchers conducting qualitative phenomenological studies typically interview participants who have all experienced the phenomenon and or share a common quality. Thus, the participants in this research have good experiences with information sharing among local agencies in Dhi-Qar. Dhi-Qar was selected to be the first province that completed the implement e-Government in Iraq (Network News of Nasiriyah, 2014). Moreover, Khan et al., (2011) referred that, still case study approach is the most frequently used method in e-government literature in developing countries; the

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researchers in developing countries must shift their focus to more robust research methods. In addition, according to Das, DiRienzo and Burbridge (2009), many e-government research studies are narrowly defined qualitative case studies. Wahid (2011) referred that, Phenomenology approach is more suitable for exploring the factors that cause a failure e-government implementation, especially, when need explore new findings (Ilharco, 2008). More specifically, Devinder (2011) stated that, the phenomenology approach can better explain the complex social-technical interaction process.

This is why the researcher chose to use a phenomenological qualitative method with in-depth interviews instead, which specifically explained research participants' points of views. For this study, together with a phenomenological approach an in-depth interview technique is done to gain a better understanding of the factors that may affect information sharing among local agencies in unstable environment through employees' perspective.

Hence, having analyzed the advantages and drawbacks of the techniques (in the previous paragraphs), and based on the recommendation by Creswell (2007), A phenomenological approach using interviews was the most appropriate method for this study because the experiences of study participants allow researchers to gain in-depth information and to understand the employees' perspectives. This study also deals with the understanding of the phenomenon of "information sharing" and explores the experience and the impact of information sharing on the success of e-government. The key step is to compare the particular finding with other related work (Ormrod & Leedy, 2005). This is further explained in the later parts and chapters in this thesis.

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3.5 Computer Assisted Qualitative Data Analysis Software (CAQDAS)

With the popularity of computers, researchers have a choice about whether to manually analyze the collected data or to use a computer (Creswell, 2012). While tools for analyzing qualitative data have been developed rapidly (Richard & Morse, 2013), they have started been available since the late 1980. Since then, they have become more refined and helpful in computerizing the process of analyzing text and image data (Creswell, 2013). In fact, the computer's capacity for recording, sorting, matching, and linking can be harnessed by researchers to assist in answering their research questions from the data, without losing access to the source data or contexts from which the data have come (Bazeley & Jackson, 2013).

CAQDAS, unlike the human mind, can maintain and permit the researchers to organize evolving and potentially complex coding systems into such formats as hierarchies and networks for "at a glance" user reference (Saldana, 2013)for managing documents more effectively (Sinkovics & Alfoldi, 2012). Besides, Lewins and Silver (2007, p.59) earlier found that "*CAQDAS packages are generally useful in the management of multiple qualitative data files*". In fact, moving from pen and paper to computer did not change qualitative research practice significantly, but move to CAQDAS can significantly alter the practice once users move beyond the elementary stages of store and retrieve (Di Gregorio & Davidson, 2009).

Obviously, coding with software is much faster and more efficient than coding on paper (Woods, 2005; Creswell, 2012; Richard & Morse, 2013) because computers bring

enormous benefits to writers. Creswell (2013) further list the following as the advantages of using CAQDAS: (1) the computer program simply provides a means for storing the data and easily accessing the codes provided by the researcher; (2) a computer program helps a researcher locate materials easily, whether this material is an idea, a statement, a phrase, or a word; (3) a computer program provides an organized storage file system so that researcher can quickly and easily locate material and store it in one place; (4) a computer program encourages a researcher to look closely at the data, even line by line, and think about the meaning of each sentence and idea; (5) the concept-mapping feature of computer programs enables the researcher to visualize the relationship among codes and themes by drawing a visual model; and (6) a computer program allows the researcher to easily retrieve memos associated with codes, themes, or documents. Hence, CAQDAS is important and able to handle documents saved in rich text format, enabling the researcher to employ supplemental 'cosmetic' coding devices such as colored fonts, bolding, and italicizing in data (Lewins & Silver, 2007).

Actually, qualitative computer programs do not analyze the data for researchers (Creswell, 2012; Richard & Morse, 2013). On the other hand, the researcher must keep in his mind that CAQDAS itself does not actually code the data; that task is still the responsibility of the researcher (Saldaña, 2013). There are many computer programs available for analysis. Some have been developed by individuals on campuses, and some are available for commercial purchase. In accordance, a brief summary of major programs follows (Creswell, 2012; 2013):

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- *Atlas.ti:* This Windows PC program enables the researcher to organize text, graphic, audio, and visual data files, along with the coding, memos, and findings, into a project. Further, one can code, annotate, and compare segments of information. Also, one can rapidly search, retrieve, and browse all data segments and notes relevant to an idea and, more importantly, build unique networks that allow one to connect visually selected passages, memos, and codes in a concept map.

- *QSR Nvivo:* This software program is also for Windows PC. It combines efficient management of non-numerical, unstructured data with powerful processes of indexing, searching, and theorizing. Designed for researchers making sense of complex data, NVivo offers a complete toolkit for rapid coding, thorough exploration, and rigorous management and analysis. Especially valuable is the ability of the program to create text data matrixes for comparisons. It also provides for visual mapping categories identified in the analysis.

- *HyperRESEARCH*: This program runs on both Windows PC and Mac. It is an easy-to-use qualitative software package that enables one to code and retrieve, build theories, and conduct analyses of obtained data. Now with advanced multimedia capabilities, HyperRESEARCH allows one to work with text, graphics, audio, and video sources, making it a valuable research analysis tool. HyperRESEARCH is a solid code-and-retrieve data analysis program, with additional theory-building features provided by the Hypothesis Tester.

- *MAXQDA*: This Windows PC program is a powerful tool for text analysis that one can use for grounded theory-oriented "code and retrieve" analysis as well as for

more sophisticated text analysis. It enables one to combine both qualitative and quantitative procedures. The program has a simple, easy-to-use interface of the main windows showing imported texts, codes, the coded text segments, and the text itself. A unique feature in it is that one can value the codes for a piece of coding. One can easily copy, merge, split, or delete codes. Data matrices can be imported and exported between SPSS, SAS, and other statistical packages. MAXQDA also has mixed methods quantitative and qualitative applications.

3.5.1 QSR-Nvivo

The advancement in computer technology has led to the development of a range of software packages that assist in analyzing qualitative data. Nvivo is the latest version of software by QSR International, which helps analyze, manage, shape, and analyze qualitative data (Creswell, 2013, Lewins & Silver, 2007). It provides security by storing the database and files together in a single file. It enables a researcher to use multiple languages, has a merge function for team research, and enables researchers to easily manipulate the data and searching (Lewins & Silver, 2007). It can be used to support the analysis processes involved in a literature review (Di Gregorio, 2000; Creswell, 2013; Paulus, Lester & Dempster, 2014). Besides, Bazeley and Jackson (2013) found that, Nvivo is programmed with a high degree of flexibility, allowing visuals, figures, or tables to be analyzed too (Creswell, 2009).

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Based on those aspects, this study uses Nvivo 10 (Figure 3.2) for analyzing data. This is also influenced by the fact that Nvivo can facilitate the qualitative research process by making all investigation phases open to public inspection (Sinkovics & Alfoldi, 2012).
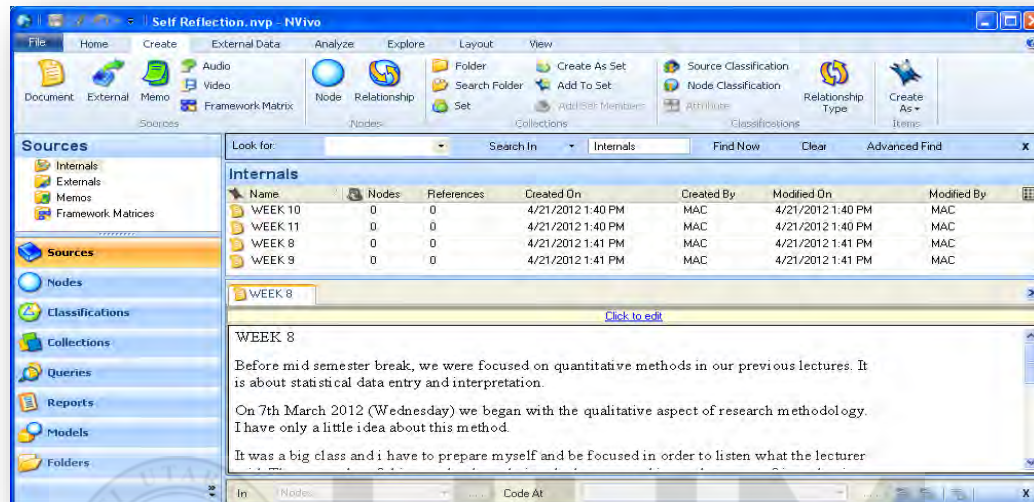
Figure 3.2. The main page for Nvivo 10

3.6 Pilot Study

Pilot study in qualitative research is carried out to develop an understanding of the concepts and theories held by the people being studied (Maxwell, 2013). It involves the test of reliability. Hancock (1998) believes that reliability can be increased through organizing interview training for the interviewers and by checking the interview guides or generative questions in test interviews or after the first interview (Sampson, 2004). Yin (2009) also recommends a pilot test to refine data collection plans and develop relevant lines of questions. In addition, the pilot test is appropriate to gain some initial experiences (Sampson, 2004), in which initial interviews will be very beneficial (Acroyed & Hughes, 1992).

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However, before this study pilot tested the instrument, the interview schedules were distributed for moderation as a way of ensuring trustworthiness and authenticity of the procedures and data to be collected. After the moderation, the researcher sent the interview questions to an expert in qualitative research *(Assoc. Prof. Dr. Nurahimah Bt. Mohd Yusoff)*. Then, the interviews were pilot tested with two employees (Participant 3-1 and participant 6-1 in Table 3.5) as suggested by Creswell (2013). All the participants who take part in this research have good experiences and high qualifications. Most of the participants were trained in many courses about e-Government in a number of countries, such as, Jordan, Italy and Turkey. These participants were purposively and conveniently sampled from the population. According to Gray (2004) interview questions must be accurate, simple and unambiguous because it is a 'one-shot' attempt to gather data. Hence, the research questions were also pilot tested.

On the other hand, Acroyed and Hughes (1992) differentiate the pilot study between qualitative and quantitative research. The pilot study in qualitative research does not need to be excluded from the data set unless a very radical change of direction or overage occurs. Regarding this, this study first asked questions to explore the general factors that affect the G2G interaction.

In this study, every respondent was interviewed personally in December 2012 to discover the factors affecting the interaction. The results of the pilot test enabled this study to determine whether the: interview schedules would indeed succeed in generating the information required; and the information that would be generated would lead to

acceptable and trustworthy conclusions about the research questions. Finally, the pilot study improved the effectiveness of the interview schedules. Generally, good interviews require practice, before undertaking the real interview, during conduct pilot interview (Bailey, 2007).

3.7 Data Collection

Qualitative data collection is more than simply deciding on whether observing or interviewing people (Creswell, 2012). There are some basic differences between quantitative and qualitative data collection. Based on the general characteristics of qualitative research, qualitative data collection consists of collecting data using forms with general, emerging questions to allow the participants to generate responses; gathering word (text) or image (picture) data; and collecting information from a small number of individuals or sites (Creswell, 2012). They are detailed in Table 3.4.

Table 3.4

Difference and similarities between qualitative and quantitative in data collection procedures

Qualitative	Quantitative
The researchers identified participants and sites on purposeful sampling, based on places and people that can best help to understand the central phenomenon.	The researchers systematically identify our participants and sites through random sampling
In qualitative research need permissions to begin study, Where it needs greater access to the site. Because the researcher will typically go to the site and interview people or observe them.	In quantitative research also need permission to begin study. But in quantitative approach, access to the site lower than does the qualitative research process.

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Collect data in qualitative approach, This approach relies on general interviews or observations so that the researchers do not restrict the views of participants.	While, in quantitative research, is the use someone else's instrument as well as the gather closed-ended information.
The researcher needs to record the information supplied by the participants, where, in qualitative research the researcher will record information on self-designed protocols that help to organize information reported by participants to each question.	In quantitative research, the researcher also needs to record the information supplied by the participants. But using predesigned instruments from someone else or instruments that the re-design.
The researcher will administer procedures of qualitative data collection with sensitivity to the challenges and ethical issues of gathering information face-to-face and often in people's homes or workplaces. Studying people in their own environment creates challenges for the qualitative researcher.	may not be there any challenges in quantitative research like in qualitative research

Generally, quantitative approach could be used for this study, but it would be less effective for two primary reasons as noted by O'Sullivan, Rassel, and Berner (2008). First, it is not useful because this study would like to obtain detailed information about the first experiences of e-Govovernment in Iraq and particularly, electronic information sharing among local agencies. Second, in order to generate explanations from in-depth information, quantitative methods are not able to technically help. In contrast, qualitative inquiry focuses deeply for small samples, sometimes even a single case that is selected purposefully, but quantitative research usually depends on larger samples (Patton, 2002). Moreover this study encompasses the phenomenon of electronic interaction among agencies in local government and sought to understand and describe the factors that affect the G2G interaction between local agencies. This type of detailed information cannot be described or explained effectively or efficiently using a quantitative framework.

Having decided on that, Creswell (2009, 2012) proposes five interrelated steps in collecting qualitative data. These steps should not be seen as linear approaches, but often one step in the process does follow another. The five steps are: (1) this study needs to identify participants in current study, (2) gains access, (3) determines the types of data to collect, (4) develops data collection forms, and (5) administers the process in an ethical manner.

3.7.1 Sampling Approach

In qualitative inquiry, the intent is not to generalize the results to a population, but to develop an in-depth exploration of a central phenomenon (Creswell, 2012; Baker & Edwards, 2012; Maxwell, 2013). As an illustration, Guest, Bunce, and Johnson (2006) found that their study involving 60 interviewees achieved the objectives after 12 interviews. They found no consensus existed on the sample size in their qualitative research. They further understood that the central idea is that if participants are purposefully chosen to be different in the first place, then their views reflect the difference and provide a good qualitative study (Creswell & Clark, 2007). Roulston (2010, p.81) said that "*researchers includes participants in studies on the basis of ease of access or ready availability are using 'convenience sampling'*". Further, in qualitative research, the researchers intentionally select participants who have experience with the central phenomenon or key concept being explored (Creswell & Clark, 2007; Creswell, 2012, 2013).

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The characteristic of qualitative research is to present multiple perspectives of individuals to represent the complexity of our world. In this study, purposeful sampling was used, based on places and people that can best help discover the factors that affect the G2G interaction among local agencies. As mentioned beforehand, in qualitative research, the intent is not to generalize to a population, but to develop an in-depth exploration of a central phenomenon. Thus, to best understand this phenomenon, this study purposefully or intentionally selects the individuals and sites as suggested by previous works (such as Berg (2011) and Laquinta and Larrabee (2004)). The distinctions between quantitative 'random sampling' and qualitative 'purposeful sampling' are illustrated in Figure 3.3.
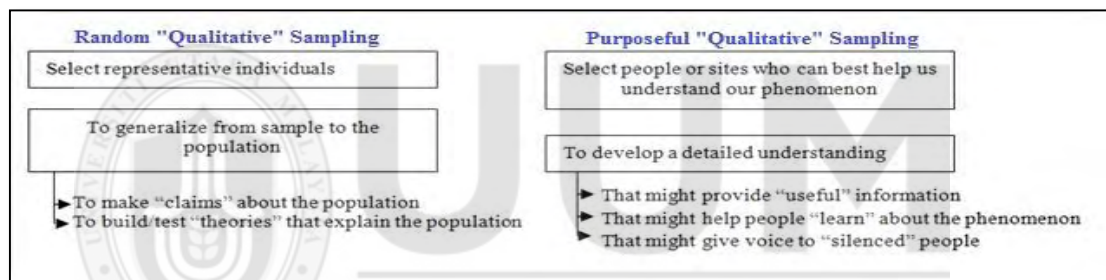
Figure 3.3. Differences between Random Sampling and Purposeful Sampling (Creswell, 2012)

To meet the suggestions that people who have experienced the phenomenon should be interviewed, this study sampled (employees) the subjects among those who have experienced working with this initiative (G2G interaction among local agencies). Where, most of these employees have experiences with e-government more than 5 years (see Table 3.5). Altogether, nine agencies that interact together were involved, and this is called *critical sampling* (Creswell, 2012). In critical sampling, this study can learn much about phenomenon (Creswell, 2012).

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Regarding this study, there are 25 employees working in e-government office (some agencies called it "Computer center") in all these agencies. However, only 18 accepted to be interviewed. With reference to their homogeneity, they were able to give detailed pictures of a phenomenon (Hollpway & Wheeler, 1996; Patton, 2002; Robson, 2002). With that sample, this study conducted two interviews, at different times. This approach is referred to as *Data Triangulation* (Gratton & Jones, 2010). This was done to moderate the understandings of participants' view and compare (Roulston, 2010).

Table 3.5

The sampling Information

No.	Nvivo's Name and Thesis	Real Name	Education Level	Gander	Experience-years	by	Position	Agency' Name
1	Participant 1-1	<Omit Real Participant Name>	Bachelor of Business Administration	Male	10		Administrative assistant to Dhi-Qar governor and E-government Supervisor	Dhi-Qar Province
2	Participant 1-2	<Omit Real Participant Name>	Bachelor of Computer Engineering	Male	7		A Computer Center Employee at E-government Department	Dhi-Qar Province
3	Participant 1-3	<Omit Real Participant Name>	Bachelor of Business Administration and Diploma in Computer Engineering	Male	13		Head of the E-government in Dhi-Qar province	Dhi-Qar Province
4	Participant 2-1	<Omit Real Participant Name>	Master of Computer Science	Male	10		Head of the E-government at the Directorate Education	The Directorate Education
5	Participant 2-2	<Omit Real Participant Name>	Master of Computer Science	Male	11		Computer Manager (CM) at the Directorate of Education	The Directorate Education
6	Participant 3-1	<Omit Real Participant Name>	Master of Information Technology	Male	9		E-government official in Dhi-Qar University	Dhi-Qar University

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7	Participant 3-2	<Omit Real Participant Name>	Master of Information Technology	Male	10	Head of Computer Center in Dhi-Qar University	Dhi Qar University
8	Participant 4-1	<Omit Real Participant Name>	Bachelor of Information Technology management	Male	9	Employee at E-government Center	Dhi-Qar Directorate of Health
9	participant 4-2	<Omit Real Participant Name>	Bachelor of Computer Science	Male	9	Manager of E-government Center at Directorate of Health	Dhi-Qar Directorate of Health
10	participant 5-1	<Omit Real Participant Name>	Bachelor of Computer Science - College of Police	Male	15	E-government Official at Dhi-Qar General Directorate of Nationality	Dhi-Qar General Directorate of Nationality
11	Participant 6-1	<Omit Real Participant Name>	Bachelor of Communication Engineering	Male	19	Manager of Directorate of Communication and E-government Supervisor at the Directorate of Communication	Directorate of Communication
12	Participant 6-2	<Omit Real Participant Name>	Master of Software Engineering	Male	13	Engineer of the E-government at the Directorate of communication	Directorate of Communication

13	Participant 7-1	<Omit Real Participant Name>	Bachelor of Software Engineering	Male	15	Head of Engineers	The Directorate of Distribution oil Products
14	Participant 7-2	<Omit Real Participant Name>	Bachelor of Petroleum Engineering and Bachelor of Computer Engineering	Male	13	Manager Assistant	The Directorate of Distribution oil Products
15	Participant 8-1	<Omit Real Participant Name>	Bachelor of Information Technology management	Male	9	E-government Official	Dhi Qar Province Council
16	Participant 8-2	<Omit Real Participant Name>	Master of Computer Science	Male	9	Manager of Dhi-Qar Province Council Website and a Member of the E-government in Dhi-Qar Province	Dhi Qar Province Council
17	Participant 9-1	<Omit Real Participant Name>	Master of Information Technology	Male	7	E-government Member and a Lecturer at Dhi-Qar Technical Institute	Technical institute in Nasiriah
18	Participant 9-2	<Omit Real Participant Name>	Master of Information Technology	Male	14	Manager of the Information Center at the Technical Institute and Director of the E-government at Nasiriah Technical Institute	Technical institute in Nasiriah

Further, Creswell (2012) states that *"if you conduct you own study and use purposeful sampling you need to identify your sampling strategy"*. Therefore, in this study the assistance of the communications manager in identifying the employees who have experienced the e-Government was very beneficial. On top of that, Creswell (2012, p.211) adds *"in qualitative research, you often need to seek and obtain permissions from individuals and sites at many levels. Because of the in-depth nature of extensive and multiple interviews with participants, it might be helpful for you to identify and make use of a gatekeeper"*. The gatekeeper in that sense is an individual who has an official or unofficial role at the site, provides entrance to a site, helps researchers locate people, and assists in the identification of places to study (Martyn & Paul, 1995; Maxwell, 2013). Also, Hammersley and Atkinson (1995) define gatekeeper as *"the initial contact for the researcher and leads the researcher to other participants"*.

The key idea behind qualitative research is to learn about the problem or issue from participants and engage in the best practices to obtain that information (Cresswell, 2013). According to Creswell (2012), in different cases, the number of individuals involve in qualitative approach varies, ranging from 1 or 2 or 30 or 40. Usually, the larger number of people can become unwieldy and result in superficial perspectives.

Consequently, as recommended by Polkinghorn (1989) (for phenomenological approach) and supported by Hill (2012), this study interviewed between 5 and 25 individuals who have all experienced the phenomenon. This study selected employees in e-Government

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because they understand the factors that affect the G2G interaction among agencies in local government. Overall, the sampling for this study is summarized in Table 3.6.

Table 3.6

The sampling size and strategy

Sampling Strategy	Sample Size
Critical Sampling	18 Employees [14 from 7 agencies (2 from each agency), 3 from one agency and 1 from last agency] (detailed further in Figure 4.1).

3.7.2 The Permissions to Gain Access to Participants and the Permissions to Record

Usually, many ethical issues arise during data collection stage (Creswell, 2009) if the session is not well-planned and well-prepared. Further, Atkins and Wallace (2012) asserted that informed consent is a much more significant issue that it appears on the surface. So, in this study, firstly, the researcher provided for each agency an introductory letter from Universiti Utara Malaysia (UUM) (see Appendix A), stamped by the Iraqi embassy in Malaysia.

Nevertheless, this study obtained the permission to carry out the study in all agencies that participate in this initiative from the Communications Directorate in Thi-Qar. After obtaining the permission letters from all the relevant authorities, this study visited the agency and the individuals to negotiate the access to the interviewing process. This study, with the help of a gatekeeper was solely responsible for interviewing the participants. The Communications Directorate was explained about the study very clearly. Also, a list of

all the agencies and employees who work in the electronic government in Dhi-Qar Province was obtained. All sampled agencies were visited. The Directors of the Departments were met and clarified about the nature and purpose of the study. It was important to seek for permission to carry out interviews with their employees. The consent form (see Appendix B: Consent Form) was signed upon. The meetings helped in developing rapport between the researcher and the employees.

Then, appointments with the employees were made. Further, on the agreed dates, the researcher visited them and interviews took place. The individual interviews were carried out as planned with transcript during four and half months. The participants (employees) were informed about their right to give or withhold consent to participate in the study. The participants' privacy was respected and, in all cases, employees were informed that they were voluntarily invited to participate and the anonymity and confidentiality of their responses were assured. They were also notified that they will be interviewed twice. This study also prepared an interview protocol. Creswell and Clark (2007) and Creswell (2009) recommend that because not only it lists the questions and provides space in which to record answers, but also has a place for essential data about the time, day, and place of the interview. In addition, the interview protocol will help keep the researcher be systematic.

In addition, a hand-phone and digital audio recorder were used (with agreement of the participants) to record the respondents' voices. The recorded interviews have many advantages: they enable the interviewer to capture the actual words of the interviewee,

thus increasing the accuracy of data collection. In addition, this approach also allows the interviewer to be more attentive to the interviewer because recording frees the interviewer from writing down everything that is said (Puvenesvary *et al.*, 2008). In overall, the process is illustrated in Figure 3.4.
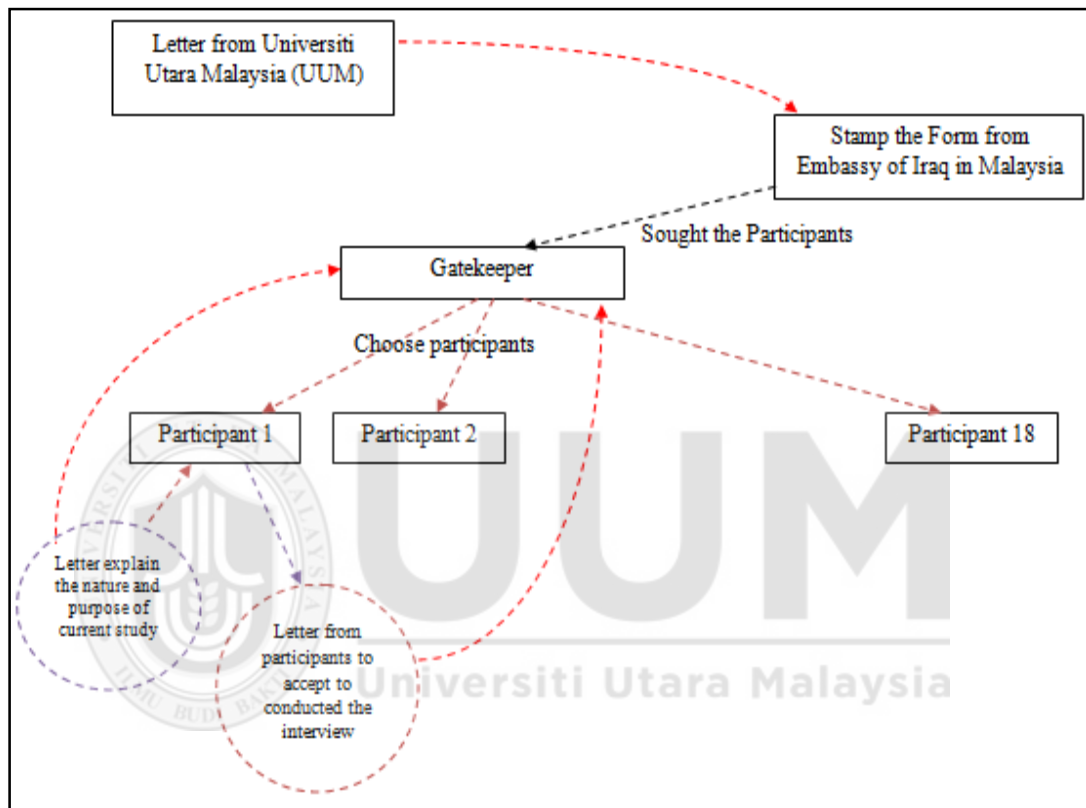
Figure 3.4. The consent form process and Gatekeeper

3.7.3 Research Instrument

Many common qualitative research instruments can be used to collect qualitative data, including participant observation, in-depth interviews, and focus group interviews (Tsvara, 2013). Among all, this study adopted the distinct instrument, particularly the in-depth interviews. This type is particularly suited for obtaining specific data. In-depth interviews are operational for collecting data on individuals' personal perspectives,

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perceptions, and experiences, particularly when sensitive topics are explored. In this study, the appropriateness of this data collection instrument lies in its affordance. This implicates that the participants do not have to read questions and then state their answers; instead they were asked questions orally to which they respond openly with minimum restrictions of their opinions (Babbie, 2010) in face-to-face mode (Patton, 1989; McMillan & Schumacher, 2001).

3.7.3.1 Individual Interviews

The collection procedures in qualitative research can be categorized into four basic types (Cresswell, 2009; 2012) of data collection as shown in Table 3.6.

Table 3.7

Forms of Qualitative Data Collection

Forms of Data Collection	Type of Data	Definition of Type of Data
Observations	Field notes and drawings	Unstructured text data and pictures taken during observations by the researcher.
Interviews	Transcriptions of open-ended interviews	Unstructured text data obtained from transcribing audiotapes of interviews.
Documents	Hand-recorded notes about documents or optically scanned documents	Public (e.g., notes from meetings) and private (e.g., journals) records available to the researcher.
Audiovisual Materials	Pictures, photographs, videotapes, objects, sounds	Audiovisual materials consisting of images or sounds of people or places recorded by the researcher or someone else.

In this study, interviews were used to gather data from the employees as suggested by a number of previous studies (Marshall & Rossman, 1999; Fontana & Frey, 2005; Chism, Douglas & Wayne, 2008). Technically, Acroyed and Hughes (1992: p.100) state "*interview encounters between a researcher and a respondent in which an individual is*

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asked a series of questions relevant to the subject of the research". In other words, a qualitative interview occurs when researchers ask one or more participants general, open-ended questions and record their answers (Creswell, 2012). It is one of the most powerful and widely used tools of qualitative researcher (Willig & Stainton-Rogers, 2007). Further, in interview, the interviewer also has better control over the types of information received, because the interviewer can ask specific questions to elicit specific information (Creswell, 2012).

Besides, Roulston (2010) reveal that the interview has been used extensively by researchers as a method for generating data concerning research problems. This interviewing may be regarded simply as a conversation with the purpose of gathering information (Berg, 2004; Seale, Gubrium & Silverman, 2004) about both factual and meaning (Kvale, 1996). In this sense, interview data may be more a reflection of social encounter between the interviewer and the interviewee than it is about the actual topic itself. This has been noted by Dingwall (1997: 56):

> *"The interview is an artifact, a joint accomplishment of interviewer and respondent. As such, it relationship to any real experience is not merely unknown but in some senses unknowable".*

In phenomenological, the interviews with same individuals (Creswell, 2013; Seidman, 2012), are repeated. This approach is appropriate for this study. Multiple interviews allow this study to trace the changes in views and perspectives reported by the participants over time (Roulston, 2010). In addition, most of questions for interviews in this study were

developed based on the literature review (e.g. Akbulut, 2003; Ezz and Themistocleous, 2005), a very good approach recommended by Marshall and Rossman (2010).

3.7.3.2 Semi-Structured Interviews

Many methodological texts advise that qualitative interviewers to ask open, rather than closed questions because closed questions have the possibility of generating short one word answer corresponding with Yes/No or factual information implied by the question (Roulston, 2010).According to Roulston (2010), open question "is *those that provide broad parameters within interviewees to formulate answers in their own words concerning topics specified by the interviewer*" *(p.12)*. Besides, as mentioned in earlier sections, interview technique is one of most powerful tools available for qualitative researcher (Willig & Stainton-Rogers, 2007). In conjunction, Easterby-Smith, Thorpe, and Jackson (2008) classified interview method into level of structure and type of interview as detailed in Table 3.7.

Table 3.8

Types of Interview (Easterby-Smith et al., 2008)

Level of Structure	Types of Interview
Highly Structured	Market research interview
Semi-Structured	Guided open interview
Unstructured	Ethnography

Questions used in a Semi-structuralized interview can reflect the awareness that individuals understand the world in varying ways (Gubrium & Holstein, 2003). In conjunction, Silverman (2000) realized that the use of interview method, particularly

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semi-structured interview in various fields of qualitative research is widespread. Additionally, Silverman found that seventy-one per cent (71%) of the researchers have used open-ended qualitative interviews indicating its preference over other methods.

In this study, data were collected via semi-structured interviews, which Fontana and Frey (2000:645) described as "*one of the most powerful ways in which we try to understand our fellow human beings*". The semi-structured interview allows participants to share, in their own words, their perceptions and understandings of their experiences to explain and discover the factors that may affect the G2G interaction in local government (Roulston, 2010) (see Appendix C). In conjunction, Gillham (2005) argued that the semi-structured interview is the most important way of conducting a research interview because of its flexibility balanced by structure, and the quality of the data obtained. According to Hancock (1998), the different types of questions allows this study to deal more explicitly with the presuppositions the participants bring in to the interview, in relation to aspects of the interviewee.

3.7.4 Design of an Interview Protocol

Creswell (2012) proposes that those new to qualitative research could ask more questions, to help elicit more discussions for the interviewees. To avoid that, certain protocol is required (Asmussen & Creswell, 1995), which is composed of:

- a header to record essential information about the interview, statements about the purpose of the study, the organization or work affiliation of the

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interviewees; their educational background and position; the number of years they have been in the position; and the date, time, and location of the interview.

- several open-ended questions that open for participants maximum flexibility for responding to the questions.

- closing comments, in which thanking addressed is conveyed to the participants and assure them of the confidentiality and anonymity. This section include a note to ask the interviewees if they have any questions, and a reminder to discuss the use of the data and the dissemination of information from the study.

3.7.5 Ethical Issues

Several measures were taken to ensure that participants were protected in their participation in the study. This was so because ethics is very important (Strydom, 2002; De Vos, Strydom, Fouche & Delport, 2005; Maree, 2011). In conjunction, Creswell (2012) addressed that when collecting data, researchers who engage in qualitative studies typically face issues that they need to resolve. Additionally, because qualitative research involves field study, staying a considerable time, and asking detailed questions, ethical issues are likely to arise that need to be anticipated (Chambliss & Schutt, 2012). According to Terre-Blanche and Durrheim (1999), Brink (2000), and Pillay (2006) ethical consideration requires a study to carry out the research competently, manage resources honestly, acknowledge fairly those who contributes in the research, and communicate research findings accurately. In order to achieve this, the following measures are considered important: voluntary participation, anonymity, informed consent and confidentiality.

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Hence, in conducting the research, this study did the following with regard to ethics: (1) to ensure anonymity and confidentiality, all notes and audio files were kept neatly at all times or in a locked vehicle or room; (2) participants and non-participants were not allowed to view the notes at any time and content of the interview was not revealed to anyone. All the information included in the research report could not be used to identify any participant and voluntary consent was upheld at all times. Further, the names of the research participants were to be kept secret and not to be identified in the presentation of the research findings. In this study, the names of participants were neither used even during the interview sessions nor linked to a particular response in the process of analyzing and reporting data (Babbie, 2010).

3.8 Data Analysis and Interpretation

Qualitative research is "interpretive" (Dey, 1993; Creswell, 2012) research, in which a personal assessment to a description that fits the situation or themes that capture the major categories of information is made. This implies that data analysis in qualitative research consists of preparing and organizing the data for analysis, then reducing the data into themes through a process of coding and condensing the codes, and finally representing the data in figures, tables, or a discussion (Creswell, 2007; 2013).

During or immediately after data collection, we need to make sense of the information supplied by individuals in the study. Analyzing qualitative data requires a deep understanding on how to make sense of text and images so that the answers to the research questions could be formed. Qualitative data analysis is a range of processes and

procedures whereby we move from the qualitative data that have been collected into some forms of explanation, understanding, or interpretation of the people and situations we are investigating (Creswell, 2005; Lewins, Taylor & Gibbs, 2005).

There is no single, accepted approach to analyzing qualitative data, although several guidelines exist for this process (Dey, 1993; Miles & Huberman, 1994). It is an eclectic process, because each qualitative study is unique, the analytical approach used will be unique (Saldaña, 2012). On the other hand, according to Creswell (2009), despite these analytic differences depending on the type of strategy used, qualitative inquirers often use a general procedure.

With reference to the discussions in the previous paragraphs, this study adopts the six steps in analyzing and interpreting qualitative data by Creswell (2009; 2012). As seen in Figure 3.5, this study first collected data and then prepared them for data analysis. This analysis initially consists of developing a general sense of the data, and then coding description and themes about the central phenomenon.
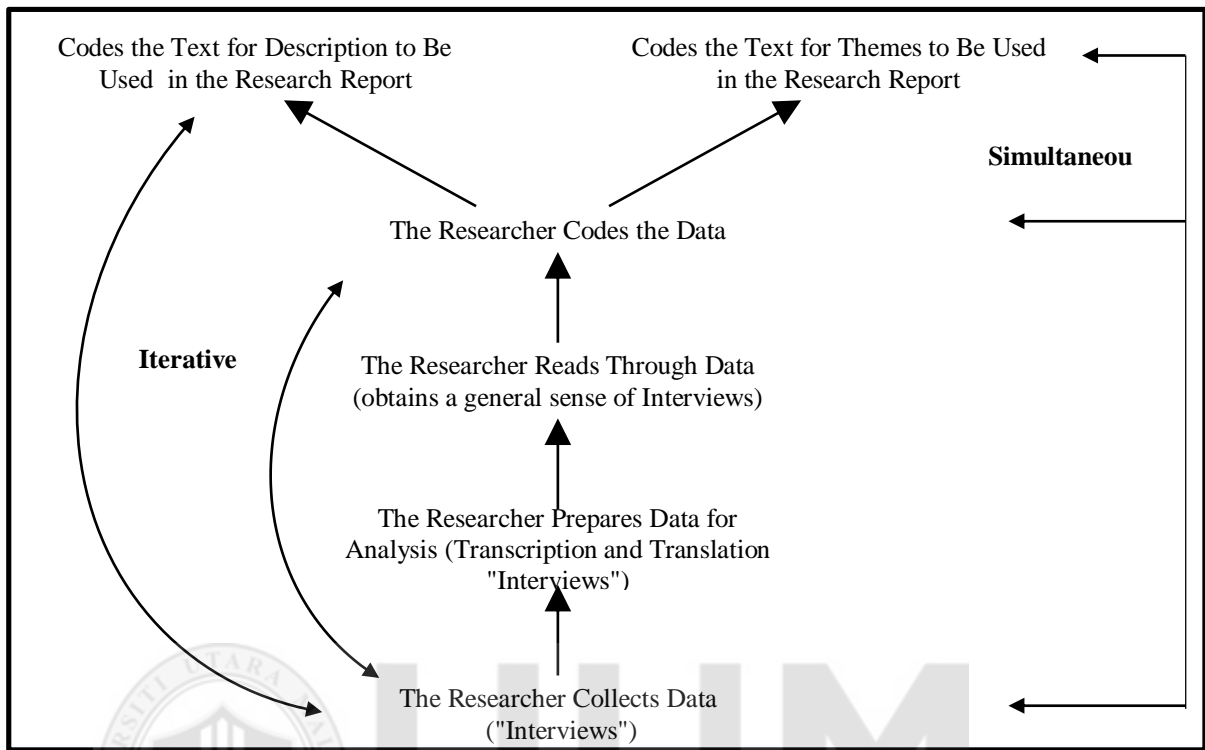
Figure 3.5. The qualitative process of data analysis
(Creswell, 2012)

3.8.1 Prepare and Organize the Data for Analysis

Preparing data for analysis is a transformation process (Richard & Morse, 2013). According to Creswell (2012) initial preparation of the data for analysis requires organizing a vast amount of information, transferring it from spoken or written words to a typed file and making decisions about whether to analyze the data manually or by computer. In conjunction, this section discusses the transcribed data from the interviews.

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3.8.1.1 Transcribing Data

The first stage of data management is transcribing data collected through the interviews (Creswell, 2009). It involves translating from an oral language, with its own set of rules, into a written language with another set of rules (Bazeley & Jackson, 2013). In this stage, the files were translated into appropriate text unit for analysis both manually and by computer (Creswell, 2013). Technically, after completing an interview, all audio data were translated into text data, for handling purposes. In other words, each interview was audio-taped and transcribed verbatim into Arabic because all the interviews were in Arabic. Data for each interview took approximately six hours to be converted into Arabic text. In addition, the body language was also noted for information enrichment.

3.8.1.2 Translating the data from the interviews

As the interviews were carried out in Arabic (different from the language for representation), this study needs to explain the decision-making in relation to translation (Roulston, 2010). Therefore, after each interview, the collected data were translated into English. Particularly, the data were translated from Arabic into English by the Institute of Specialist Translation. In the end, the researcher of this study obtained a letter confirming the translation process by the Institute (see Appendix D). Eventually, all data were entered into NVivo10 for storing, analyzing, sorting, and representing or visualizing the data.

3.8.2 Explore and Code the Data

This section consists of exploring the data and developing codes as the first steps in analyzing data.

3.8.2.1 Explore the General Sense of the Data

First, the whole data was sensed comprehensively by digesting them several times as suggested by Agar (1980). This ensured that the understanding got better and better over time. The understanding was coined with those in the literatures (Creswell, 2009). In this sense, common sense was also used. Usually, the end was already in mind before setting-up the understanding (Richard & Morse, 2013).

3.8.2.2 Code the Data

The transcribed interview data were coded in Nvivo. Coding is one of several methods in working with building knowledge about data (Bazeley& Jackson, 2013) in a form of word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data (Saldaña, 2013).It could be a way of identifying themes in a text (Bernard & Ryan, 2010) and the "critical link" between data collection and their explanation of meaning (Charmaz, 2001).

Also, Rossman and Rallis (1998: p.171) define coding as "*the process of organizing the material into chunks or segments of text before bringing meaning to information*". Technically, Creswell (2007) and Tesch (1990) argue that there is no specific guideline for coding data besides some general procedures. In short, it is an analysis (Miles &

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Huberman, 1994), which can be applied to a word, phrase, sentence, paragraph, long passage, or a whole document (Bazeley & Jackson, 2013, p. 89). There are various approaches for coding that requires this study to decide about what and how to code (Bailey, 2007). Among all the approaches, this study makes use of several kinds of coding. The first one is Simultaneous Coding. About this coding, Saldaña (2013) addresses:

> *"Simultaneous Coding is the application of two or more different codes to single qualitative datum, or overlapped occurrence of two or more codes applied to sequential units of qualitative data" (p.80).*

Besides that, Provisional Coding was also used. Provisional Coding is appropriate for qualitative studies that are built on or corroborate previous research and investigations (Saldaña, 2009). Additionally, in the second-round interviews, *Focused Coding* and *Theoretical Coding* were used. Focused coding was used to categorize the data, whereas, theoretical coding specified the possible relationships between categories and moved the analytic story in a theoretical direction (Charmaz, 2006). Also in the second round, the participants were asked answer several questions about factors (codes) from the first round to capture the analytic leads toward a "*supercode*" (Richards & Morse, 2007, p. 237), stored in a node (Bazeley & Jackson, 2013).

3.8.3 Use Codes to Build Description and Themes

Describing and developing themes from the data leading to answering the major research questions and forming an in-depth understanding of the central phenomenon through description and thematic development. This is significant because this study focuses on

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the participant's perspective and not focusing on the people and place. So, this study explains only the themes, because Creswell (2012) argue that "*not all qualitative projects include both description and themes, but all studies include at least themes*" (p. 247).

3.8.3.1 Themes

Creswell (2012) recommends that themes can also be used to analyze qualitative data. There are several types of themes, in which in qualitative research (also called categories) they are broad units of information that consist of several codes aggregated to form common ideas(Creswell, 2013). In this study, two kinds of themes are used:

- *Ordinary themes:* themes that this study expects to find. In this case, Roulston (2010) proposes that analytic codes could be derived through reviews of literatures on the topic; and
- *Unexpected themes:* themes that are beyond the anticipation.

3.8.4 Represent and Report Findings

In this stage, the findings were formulated in tables and figures. An explanatory narration was also equipped with, in addressing the relationship with the research questions.

3.8.4.1 Representing Findings

Qualitative studies often display their findings visually (Miles & Huberman, 1994) by using figures or pictures that augment the discussion. Similarly, this study displays the codes and categories graphically (Bazeley & Jackson, 2013) based on the codes in Nvivo. This study strongly believes that visual is very significant in analysis. Therefore, charts,

graphs, and diagrams are used to summarize the data. With that, patterns and relationships are well understood.

3.8.4.2 Reporting Findings

Creswell (2012) proposes that the primary form for representing and reporting findings in qualitative research is narrative discussion. A narrative discussion is a written passage, in which the findings from the data analysis are summarized in detail. This narrative can vary widely from one study to another (Creswell, 2013). In regards to that, this study includes report quotes from interview data of individuals.

3.8.5 Interpret Findings

Interpretation in qualitative research involves abstracting the codes and themes to a larger meaning of the data (Creswell, 2013). As an implication, this study stepped back and formed some larger meaning about the phenomenon based on personal views, or comparisons with past studies, or both (Creswell, 2012). The researcher has worked in a one of the local government agency for a year and was responsible to design the agncy website. The experiences gained while working gave the researcher the idea to do a study on this area due to the various issues that came up while working in a local government agency. He was actually given two letters of appreciation for his contributions. The researcher has also worked in a private telecentre for about a year after graduation that helped to give some insight to working with e-government services for the community. Technically, this study reviewed the literatures and the researcher interpreted the findings

from the knowledge gained from his personal experiences as well as from the other studies and the participant's viewpoints.

The previous studies play a significant role in interpreting the findings as Creswell stated where this thesis includes most of the studies concerning information sharing at all the governmental levels. In order to get more research skills, the researcher had also participated in many workshops about approaches and methods of qualitative interpretation. Moreover, to ensure the reliability of the interpreting process the researcher sends the final coding for the participants to check the results (Member checking). Last but not least, this study conducted two interviews with the same participants; this process gives the researcher more experiences to do the interpretation.

3.8.6 Validity, Reliability and Generalizability

Hancock (1998) and Maxwell (2005) describe the validity of qualitative research as *"correctness or credibility of a description, conclusion, explanation, interpretation or other sort of account"* (p.106). Further, Creswell (2009, p.190) extends that validity in qualitative analysis is the accuracy of the findings through certain procedures. This study seeks to discover factors that influence the interaction among local agencies in Iraq, which have not been well researched. This investigation requires in-depth information that can be obtained through interviews. According to Muthiah *et al.* (2008), interviews are valid if they are used carefully for a problem that is suitable for interview inquiry. Creswell (2009, p.191-192) suggested the following as some validation strategies that can be utilized:

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1. Triangulating different data sources of information by examining evidence from the sources and using it to build a coherent justification for themes;

2. Determining the accuracy of the qualitative findings by taking the final report or specific descriptions or themes back to the participants and determining whether the participants feel that they are accurate;

3. Using rich description to convey the findings;

4. Clarifying the bias in the study. This self-reflection creates an open and honest narrative that will resonate well with the readers;

5. Presenting negative or discrepant information that runs counter to the themes;

6. Spending prolonged time in the field.

7. Using peer debriefing to enhance the accuracy of the account; and

8. Using an external auditor to review the entire project.

Triangulation technique was used for validation in this study. It is useful in checking the validity of data (Ritchie & Lewis, 2003) and member checking (Creswell, 2012), which are agreed by Roulston (2010, p.83). Those strategies were used to minimize the amount of bias that may result from the interviewer, interviewee, and the questions posed. In addition, to reduce bias, this study posed the interview questions after being carefully and clearly formulated as well as being trained on how to conduct the interviews. Meanwhile, reliability indicates that the researcher's approach is consistent across different researchers and different projects (Gibbs, 2007). Also, it portrays the ability of the research to be replicated in a different setting with similar results (Baxter & Babbie, 2004). In order to increase the consistency and reliability of a project, all procedures should be

documented, and if possible, a detailed protocol should be established. Among reliability procedures include (Creswell, 2009, p.191):

1. Checking transcripts to make sure that they do not contain obvious mistakes made during transcription;

2. Making sure there is no drift in definitions of codes or applications of them during the coding process; and

3. Cross-checking codes with different researchers by comparing results that are independently derived.

3.8.6.1 Triangulation

The use of multiple lines of sight is frequently called triangulation (Berg, 2004; Roulston, 2010). Triangulation in its most common form refers to the use of multiple means of data collection to explore a single phenomenon, in which it corroborates evidences from different individuals (e.g., a principal and a student), types of data (e.g., observational fieldnotes and interviews), or methods of data collection (e.g., documents and interviews) in descriptions and themes in qualitative research (Creswell, 2012). Usually the informants are same but at different times (Gratton& Jones, 2010).

Based on that, this study conducted multiple interviews with same employees but at different times. In that sense, data triangulation presents in the form of multiple interviews over a period of time, which were used to check the understanding of participants' views. Further, the results of the interviews were compared as suggested by Roulston (2010).

3.8.6.2 **Member Checking**

This technique has been considered by Lincoln and Guba (1985, p.314) as "*the most critical technique for establishing credibility*". Member checking is a process in which one asks one or more participants to check the accuracy of the account (Creswell, 2012; Yin, 2011). This does not mean taking back the raw transcripts to check for accuracy; instead, parts of the polished product, such as the themes, the case analysis, the grounded theory, the cultural description, and so forth (Creswell, 2009) were re-analyzed. This benefits both the corrections and changes that increase the validity of a study (Locke & Velamuri, 2009). This strategy has been harnessed in this study, in which once an analysis was complete, the analysis (the themes with specific description) was returned to the participants for confirmation of accuracy Yin (2011). Five participants responded, by supporting the robustness of the results (as seen in Appendix E).

On the other hand, Creswell (2009, p.192) says that qualitative generalization "*is used in a limited way in qualitative research*", supported by Thorne (1997) who addresses "*generalizability, and external validity, is viewed as an evaluation criteria that is relevant only to quantitative work*" (p.195). However, there are a few discussions in qualitative literature about generalizability. Funk, Stajduhar, Toye, Aoun, Grande, and Todd (2010) and Creswell (2012) further clarifies that the intent in qualitative inquiry is not to generalize to a population, but to develop an in-depth exploration of a central phenomenon. Based on that, this study has no intention to generalize the findings.

3.8.6.3 Case Study to Validate Findings

E-government offers great opportunities for governments to enhance efficiency and increase productivity, but it also raises new challenges; including the re-engineering of processes and funding and management responsibilities. In this study, in an attempt to understand the issues that led to delay and stop to implement the information sharing project among local agencies, the researcher conducted series of interviews with employees who have good experience with this project to understand the main challenges and issues influness on Dhi-Qar project (Information sharing Initiative). However, G2G information sharing is considered as the backbone of the e-government. Thus, the elements that affect the G2G may lead to failure of the entire e-government. The findings highlighted the socio-technical barriers (Technological, Organizational, and Environmental) that led to the delay in completing the project since 2004, and the participation of a small number of local agencies.

These issues (Technological, Organizational, and Environmental) became as a benchmark to evaluate the new project in Iraq (called e-Iraq Portal) where since 2009 only five ministries participate in this project from 24 ministries. The articles, theses, reports and the official websites were core sources for the information about this project. Based on these sources, issues faced by e-Iraq project is similar to the findings of this study. This technique of using the fndings from the research with a case study was used by a number of scholars in IS and e-government intiatives such as Heeks. As a result, these issues and challenges can de used as lessons learnt before the implementation of any the information system initiative in the public sector in Iraq.

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3.9 Summary of Chapter Three

This chapter discusses the research design and methodology in preparation for the empirical investigation utilizing a qualitative method in the study of discovered the factors that have specific effects about the G2G Interaction between local agencies in Iraq. More specifically, the research design, research sample, and research methods are discussed in detail. It also describes the methods of data collection, individual interviews; data analysis techniques, research protocols, and ethical considerations used in this study. The findings from the study were tested against an e-government initiative as a validation process. The chapter discusses the strategies for validity and reliability, and finally reporting the finding.

CHAPTER FOUR
FINDINGS AND ANALYSIS

4.1 Introduction

The aims of this chapter are to present the findings of data for the study. It will highlight the technology, organizational and environmental context that influenced the interaction among local agencies in Dhi-Qar. Chapter 3 states that the primary method of data gathering is individual interviews, the majority of which were semi-structured. In total, there are 36 semi-structured interviews conducted with employees in the first interviews (first round questions) to gain the employee's viewpoints regarding the factors that might influence G2G interaction in Iraqi province Dhi-Qar. This will answer the first research objective. Then, the second round interviews (second round questions) were carried out to gain the employee's viewpoints regarding the issues that influence G2G interaction in Iraqi province Dhi-Qar. This will answer the second research objective. The second exercise proved to be more informative than the first session. Not many things in qualitative research are done only once (Richard & Morse, 2013). The data collected were fed into Nvivo 10 for analysis and presented in this chapter.

4.2 Findings and Analysis

Each semi-structured interview session was tape-recorded. This allowed interaction and careful concentration on what has been said, rather than focusing on trying to write down every detail mentioned. All sampled agencies were visited to discuss the nature and explain the purpose of the study with their directors, to seek permission to carry out

interviews with their employees, in which the consent form (Appendix B) was issued. Those meetings were held in their premises in Iraq, helped in developing rapport between this study and the employees. Regarding rapport, Glesne (1999) explains that it is "*tantamount to trust and trust is the foundation for facilitating full and detailed answers to your questions" (p.83)*. This study tried to make each interview similar to a conversation in a semi-structured format (mentioned in Chapter 3), as recommended by Strauss and Corbin (1998), because it is important for participants to feel comfortable in sharing information and describing about their understandings. During the interview, creating an informal atmosphere was a critical task.

The order of interview questions in the first and second cycles was varied, as interviews were tailored to each participant. The questions centered on eliciting factors, these comprised questions on benefits, challenges, and barriers in a way to try get as many different factors from different points of view. Although the sequence was different, all questions were asked to all participants (from nine agencies as shown in Figure 4.1) as planned.

Interviews were conducted in Arabic and were recorded using an MP3 recorder. The Arabic transcripts were then translated into English in Malaysia (see Appendix D). However, it was doubtful in terms of biasness (Yin, 1994). Hence, third party people were employed to verify the translation, specifically two Iraqi PhD students of a Malaysian university. Based on their feedbacks, corrective actions were taken, just as Kanaan, (2009) referred.
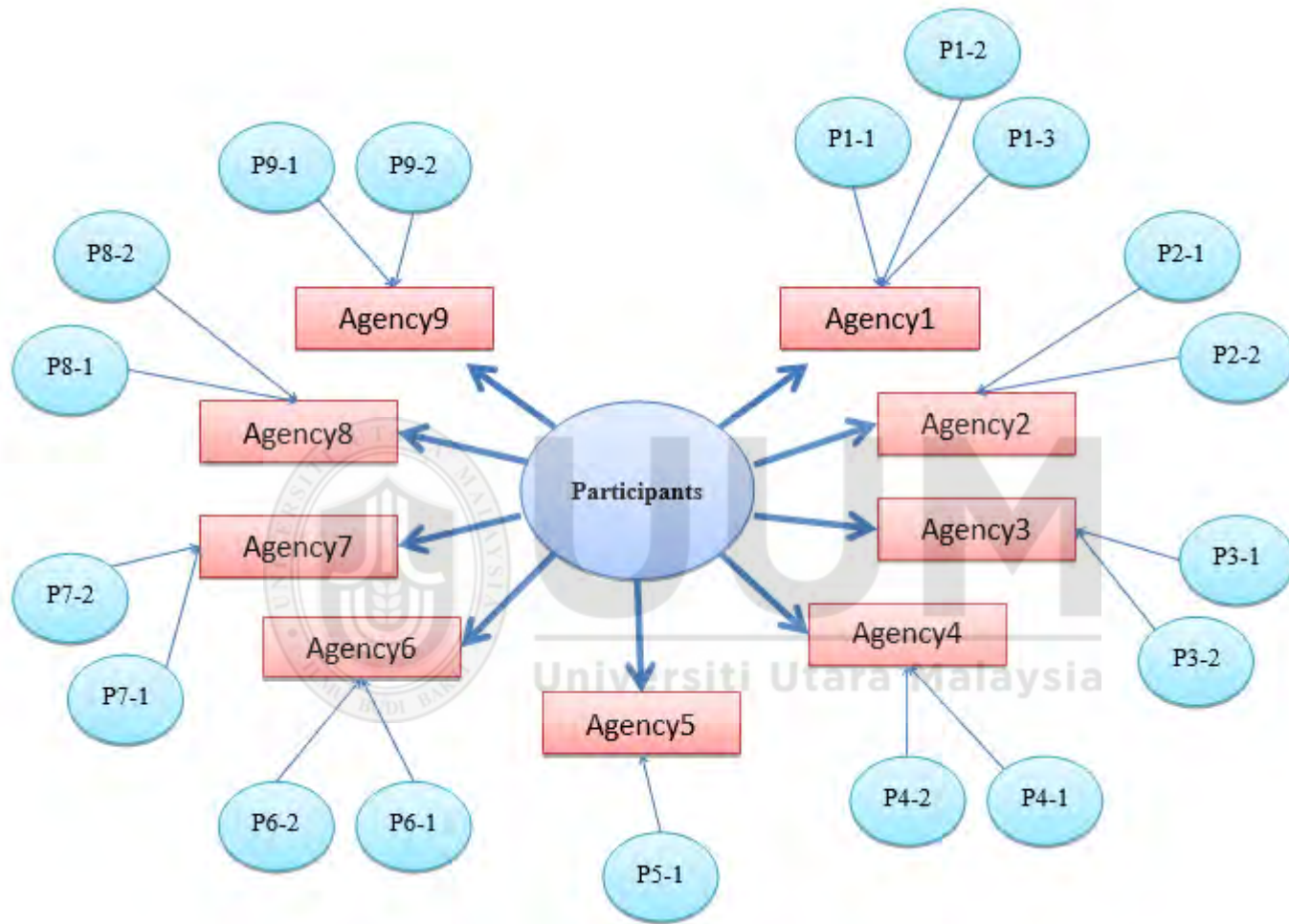
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Figure 4.1. Number of interviewees

Besides, this study realizes the importance of ensuring confidentiality when interviewing and writing. In regards to that, Corbin and Strauss (2008) and Lofland *et al.* (2006) state:

> *"...one central obligation that field researchers have with respect to those they study is the guarantee of anonymity via the 'assurance of confidentiality'- the promise that the real names of the persons, places, and so forth with not be used in the research report or will be substituted by pseudonyms".*

In order to protect the anonymity of the participants, this study assigned aliases to them to use while analyzing and reporting data. Altogether, 18 participants involved in this study to give detailed picture of a phenomenon (Hollpway & Wheeler, 1996; Patton, 2002; Robson, 2002). The backbone of this study (qualitative nature) is its extensive collection of data (Creswell, 2013), hence two interviews involving the same sample at different times were carried out (this is called data triangulation) (Gratton & Jones, 2010). This was decided after critically considering the suggestion by Roulston (2010) that data triangulation in the form of multiple interviews over a period of time can be used to check the understandings of participants' views. Consequently, for the purpose of easy referencing, P1-1, P1-2, P2-1, etc. is used to refer to Participant 1-1, Participant 1-2, etc. respectively. The length of the interviews ranged from one hour to one-and-a-half hour. At the beginning of each interview the interviewee was asked for his permission to tape-record the interview. All the interviewees granted permission to record the interviews. Also, the names of the participants were kept secret at all times.

In the first-round interview, the participants explained the factors that may affect the G2G interaction among the agencies in local government. The responses were coded with help

of the information in the literatures, together with the body language. This helped to achieve first specific research objective:

To discover the factors that might influence the G2G information sharing in Iraqi Province of Dhi-Qar.

Additionally, the second-round interviews were based on the first objective to achieve of the second specific objective:

To highlight the issues that influences the G2G information sharing in Iraqi Province Dhi-Qar.

Further, the findings were sent to the participants and the results of this phase lead to the main objective:

To propose the model that could support the G2G interaction in Iraqi Province Dhi-Qar.

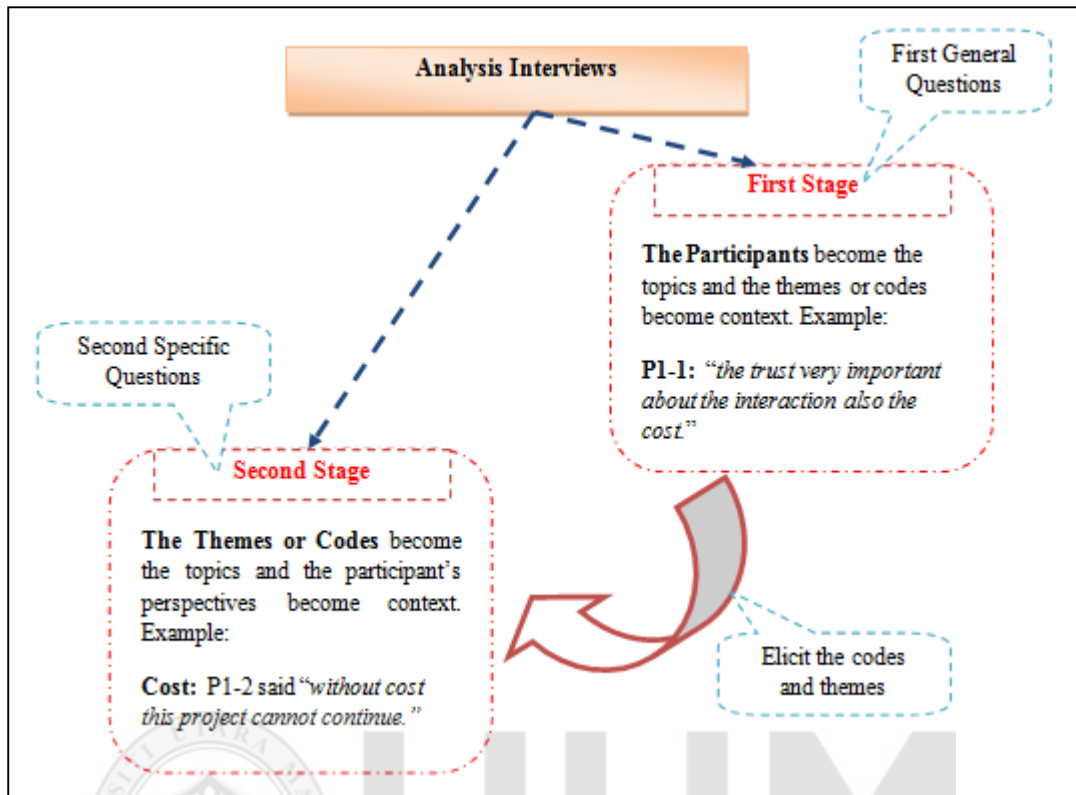This relationship could be seen in Figure 4.2 (more detail in Figure 3.1).
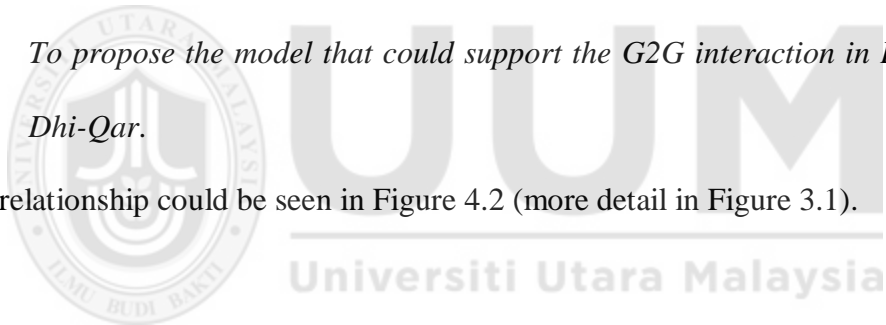
Figure 4.2. Data Analysis Process

4.2.1 Research objective 1: to discover the factors that might influence G2G interaction in Iraqi province Dhi-Qar.

4.2.1.1 First-round Interviews

In this round, the interviewer asked the interviewees several general questions to answer the specific research objective one: *to discover the factors that might influence G2G interaction in Iraqi province Dhi-Qar* (see Appendix C). Figure 4.3 illustrates the agencies that participated in G2G Interaction, in which their staff participate in this study.
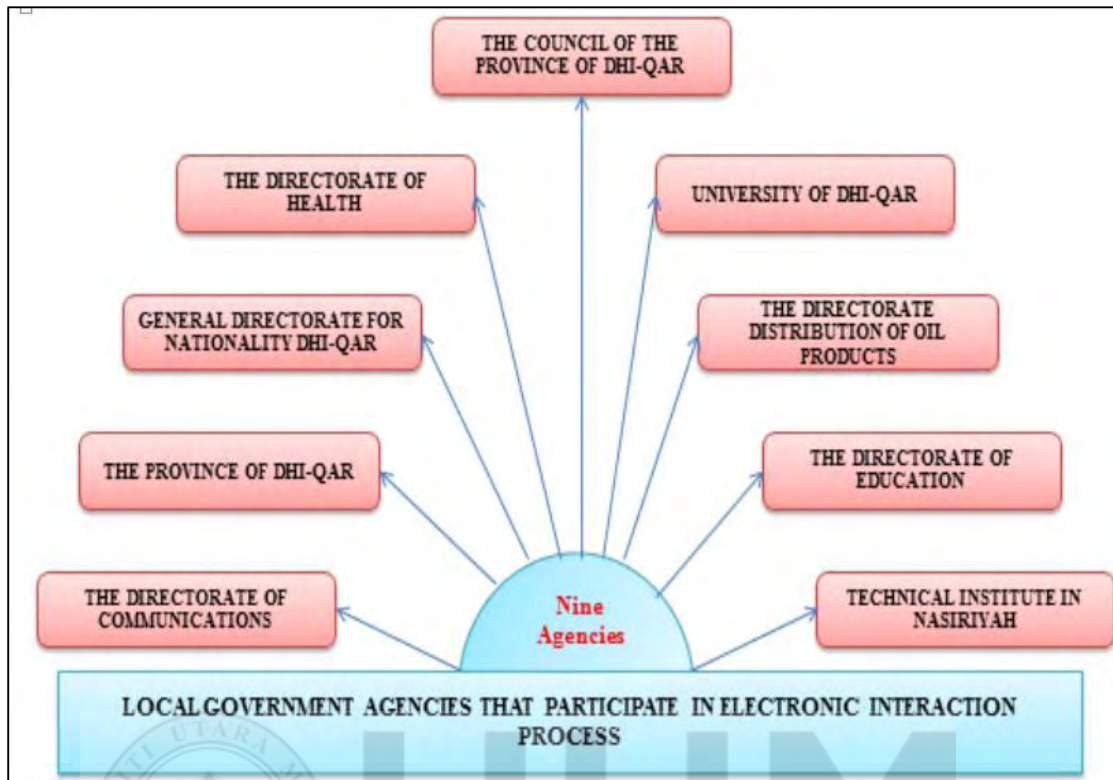
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Figure 4.3. Nine Agencies that Participated in Electronic Interaction

Each interview was audio-taped and transcribed verbatim, and then translated into English for subsequent data analysis. This is the first-stage analysis as mentioned in the previous chapter. The data were coded using hand copies of transcriptions before applying electronic means (Nvivo).

In transcribing, this study first transcribed the audio-taped data. Several pages of transcription for each interview were the arte facts. When reading the transcripts, this study wrote some notes in the margins, especially the first impression, such as "*Actually it continued only for a short of time because of the technical problems in sending the signals among the agencies*" or "*I think the information percentage among a few number*

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of the local agencies did not exceed 5%. This is because there are several managers who think that these information may lost or hacked or maybe because of their feeling that they will lose their positions". Then, those first impressions were coded using Nvivo10 for further analysis to provide answers for the research questions. Also, some analytical processes took place during analyzing.
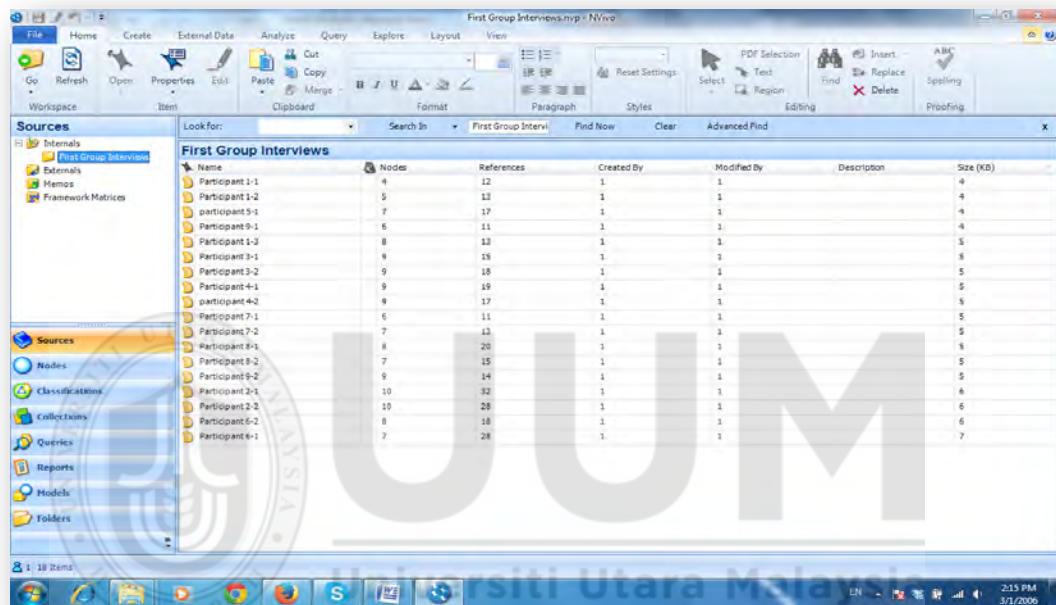

Figure 4.4. Code in Nvivo (First-round Interviews)

For this first-round interview, this study used *Provisional Coding* and *Simultaneous Coding*. As a result, several factors have been referred to by every participant, as seen in Figure 4.5. The participant1-1 identified legislation, IT capability, benefits, and trust as important factors in G2G interaction among the local agencies. Further, the referenced time of each factor was determined for induction. As an example, the reference for 'benefits' was six (as seen in Figure 4.6). Meanwhile, the *Trust* node referenced once (Figure 4.7).
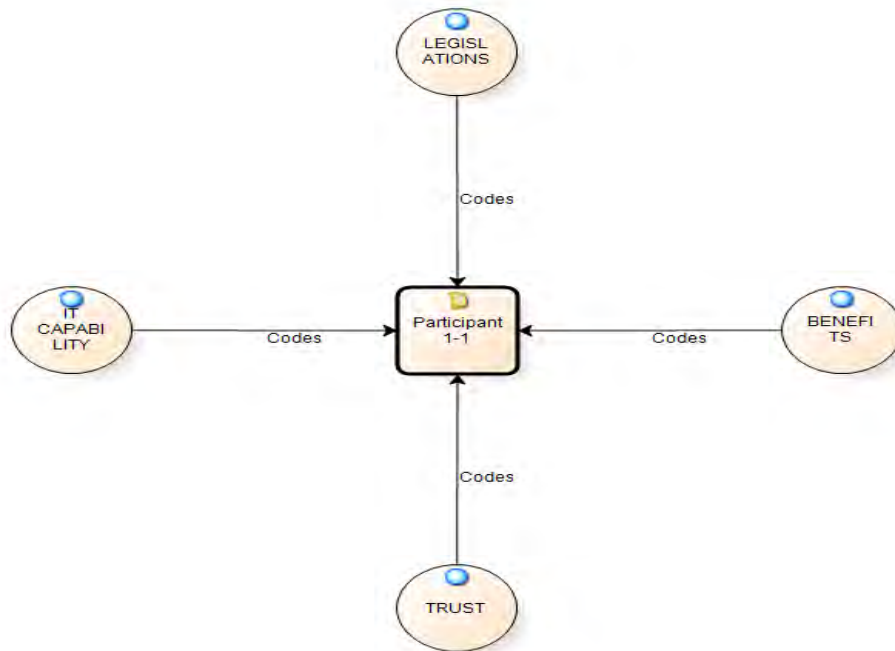
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Figure 4.5. Factors extracted from Participant 1-1

Figure 4.6. Number of reference code for Benefits-P1-1

Figure 4.7. Number of reference code for Trust-P1-1

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Additionally, P1-1 also stressed on the usefulness of the electronic interaction between agencies:

> *"Therefore, we are doing our best to overcome these obstacles by applying the modern exchange information and providing computers which will reduce efforts on the employees and will facilitate the citizens' interests and interactions, moreover, the idea of the e-government will compel the citizens themselves to use the modern technologies and as a result the society will progress. In addition, the project will help in making-decision process."*

P1-1 said about Trust that: *"...trust among the local agencies is another factor that will be strengthened is legislations are issued."* With regards to simultaneous coding, P1-1 was found speaking about 'trust' and 'legislations' together. In short, the number of references coded for 'legislations' node was three (referring to Figure 4.8). It was found in statements like*"...there must be a lawful legislation arranges the process of the exchange information among the local agencies..."*

Figure 4.8. Number of reference code for legislations-P1-1

The final factor P1-1 mentioned was 'IT capability', which includes the lack of IT equipment and trained IT personnel (number of references was two in Figure 4.9). The statements like "*...to my best knowledge, the number of the employees is not large...*" (refers to the employees who work in this Initiative (G2G Interaction)) help this study identify. More descriptions on this are available in Appendix J.

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Figure 4.9. Number of reference code for IT capability-P1-1

Almost similarly, participant1-2 identified 'legislation', 'benefits', 'trust', 'information security' and 'top management support' as important in G2G interaction between the local agencies, as seen in the Figure 4.10.
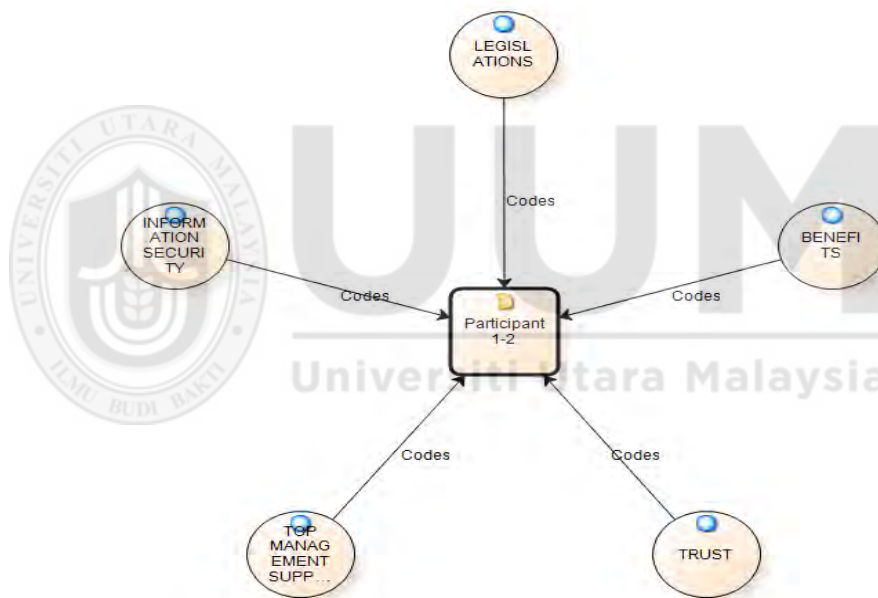
Figure 4.10. Factors extracted from Participant 1-2

For 'benefits' node, the number of references that P1-2 coded was Five. This can be seen in Figure 4.10. The participant mentioned about 'benefits' through statements like (further detailed in Appendix J)"*The electronic interaction is the essential application of the e-government. Actually this project aims to use the electronic interaction to facilitate the*

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interaction among the local agencies so that modern technologies replace the traditional means which in return will save time and efforts. This will contribute in the development of Iraq".

Meanwhile, the 'legislations' node was found in statements like "…*the most important factor is the absence of the lawful legislations through which local agencies will know their responsibilities towards the electronic interaction process among the governmental local agencies locally or internationally*".   Figure 4.12 shows that, the number of references was two for this node.   Meanwhile, the third factor was trust, with one reference (Figure 4.13).

Figure 4.11. Number of reference code for Benefits-P1-2

Figure 4.12. Number of reference code for Legislations -P1-2

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Figure 4.13. Number of reference code for Trust -P1-2

Besides 'information security' and 'top management support' were two factors added by the second participant (P1-2). While the number of references for 'information security' was one (in Figure 4.14), the 'top management support' was referred to twice (Figure 4.15). They could be found in statements like*"...the managers of these local agencies need to know that it is difficult to hack the information and that security is an important factor in this project"* and *"...there is lack of support from the province because some local agencies need qualified employees to computerize the information and to convert them into computers to exchange them with the other local agencies"* respectively.

Figure 4.14. Number of reference code for Information Security -P1-2

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Figure 4.15. Number of reference code for Top Management Support -P1-2

While similar to the factors addressed by Participants 1 and 2, some additional factors were also addressed by Participant 3.These include *legislations, cost, benefits, internal resistance change, top management support, information security, IT capability and complexity*.

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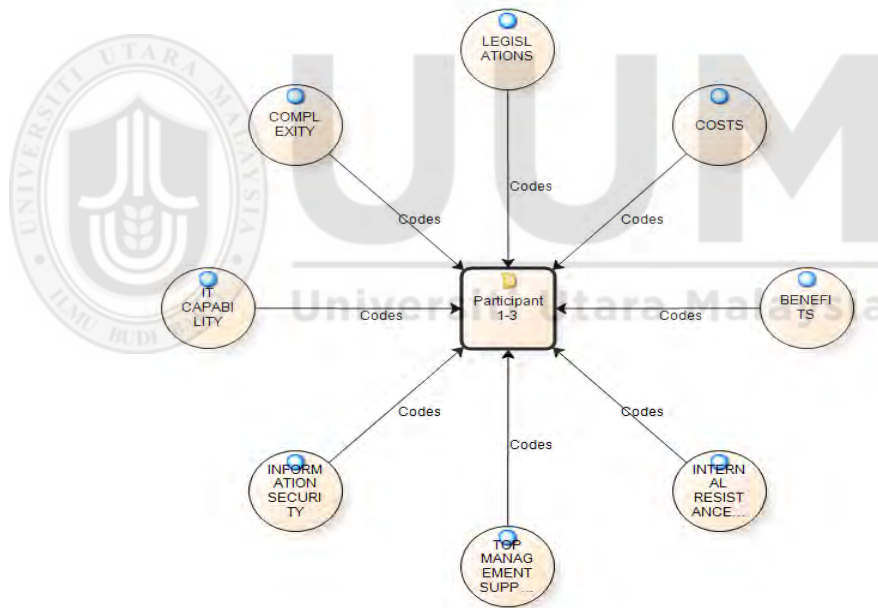
Figure 4.16. Factors extracted from Participant 1-3

P1-3 mentioned about 'benefits' in statement "*...unfortunately, some local agencies are not aware that this project will help them in accessing the information easily*". It was referenced four times (the full version is available in Appendix J). Meanwhile,

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'legislations' was referred twice, in statements like *"... actually, the availability of such laws and legislations will require all the local agencies to participate in the electronic interaction and sending their information with each other..."* (Appendix J provides full transcript).

The 'top management support' and 'costs' were coded simultaneously (simultaneous coding) through *"In fact, the project was slowed down and was stopped regularly because there were not enough funds from the local government"*. Besides, 'cost' also appeared in *"The province council had funded the project with amount of two billion Dinars to equip the local agencies and train their employees in pioneer countries on the e-government applications. After that a number of e-government employees were sent to have training-courses on the e-government applications in Jordan"*. Figure 4.17 depicts that 'cost' was referred to twice.

Figure 4.17. Number of reference codes for Cost -P1-3

The 'information security' was mentioned in *"Unfortunately, it cannot be possible to support all the local agencies through using the fiber optic; therefore, the WIFI system was used"*. Meanwhile the statement *"Several employees were sent in training-courses*

at CBI PROJECTIONS private institute to learn about the applications of the electronic interaction and LINUX system among the local agencies in Dhi-Qar province" reflects the 'IT capability'.

Further, P1-3 referred to the new factors: 'complexity' and 'internal resistance of change'. The number of references for 'complexity' was one (Appendix J), while two the 'internal resistance of change' as seen in Figure 4.18. The *"Iraqi employees are using the traditional means for a long time, so it is not easy to convince them to use the computers easily"* statement contains the 'internal resistance of change' factor.

Figure 4.18. Number of reference code for Internal Resistance of Change -P1-3

According to P2-1, several factors may be affecting the G2G interactions. He mentioned about 'legislations' through *"E-government application is not only a technical process, but it needs crucial political and administrative decisions in the process of information exchange as a result problems may occur after the completion of the information exchange project among agencies, so far there is no law legislates the types and level of the information exchange among the agencies"*. Particularly, Figure 4.20 depicts that it was referred to three times. Also, 'costs' was mentioned by P2-1 through *"...where one of the reasons for stopping the work is costs",* with five time reference.

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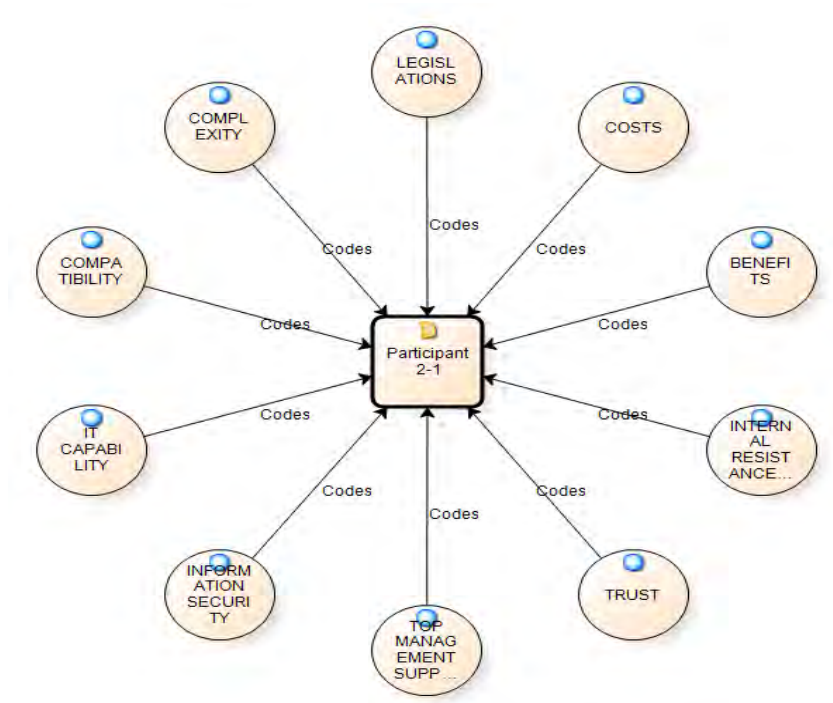
Figure 4.19. Factors extracted from Participant 2-1

Figure 4.20. Number of reference code for Legislations –P2-1

On top of that, he also mentioned other factors: 'internal resistance of change', 'top management', 'information security', 'IT capability', 'compatibility', 'trust and complexity'. He said *"From the beginning of the project and so far the project stopped several times for administrative reasons and the lack of expertise and, moreover, because of the small budgets of the project"*. Appendix J provides the full transcript. The 'top

management' was coded three times while 'IT capability' was referred to eight times (Appendix J details further).

Nevertheless, P2-1also mentioned the 'benefits' factor (four times – Figure 4.21) of the G2G interaction through *"we strive to educate the other agencies of the interaction benefits because of the importance it can bring to Dhi-Qar province agencies and their employees. (Agency name omitted) is considered one of the main service agencies that can benefit of the information exchange because other agencies of Dhi-Qar need to document the certificates and to certify the certificates for applicants who will work in their agencies"*.

'Internal resistance of change' was referred to in*"…there were a number of figures who refused the project as a whole…"* statement. Meanwhile, 'information security' was referred to in *"…because of the overlapping between the frequencies of this project and other private network companies…"*statement. Particularly, the 'internal resistance of change' was referenced three times, and once for the 'information security'.

Figure 4.21. Number of reference code for Benefits–P2-1

P2-1 also mentioned about 'compatibility' by saying *"At the present time, there is an improvement in the technical side. But there is an absence of the other features which affect the project. In fact, these features have greatly affected the project. Moreover, even the technical improvements are less than what we need"*. Figure 4.22 shows that 'compatibility' was referred to twice.

Figure 4.22. Number of reference code for Compatibility –P2-1

Besides, he also stressed the 'trust' factor when saying *"The most important factor is the lack of trust…"*and 'complexity' through *"Regarding the readiness of the agencies interaction in this process, I think it is difficult at the moment to decide, but in the future when the awareness of the project increases there will be requests to participate strongly"*.

The factors mentioned by P2-2 are illustrated in Figure 4.23. Particularly, he mentioned many factors: *legislations, cost, benefits, internal resistance of change, trust, top management support, information security, IT capability, compatibility, and complexity.* Regarding 'benefits', he said *"The project will provide a great contribution to (Agency name omitted) because it is the only directorate in Dhi-Qar province. Therefore, the*

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employees find difficulty to achieve the work because of the large number of the clients who come to the agency. Hence, this contributes in the delay of the completion of the citizens' interests. However, this project provides a good service for the citizens and will reduce overcrowded at the directorate and will also provide the best services for the other agencies". Also P2-2 used simultaneous coding when saying *"Actually, there are financial and administrative obstacles in addition to the lack of experience among the employees who deal with the applications."*
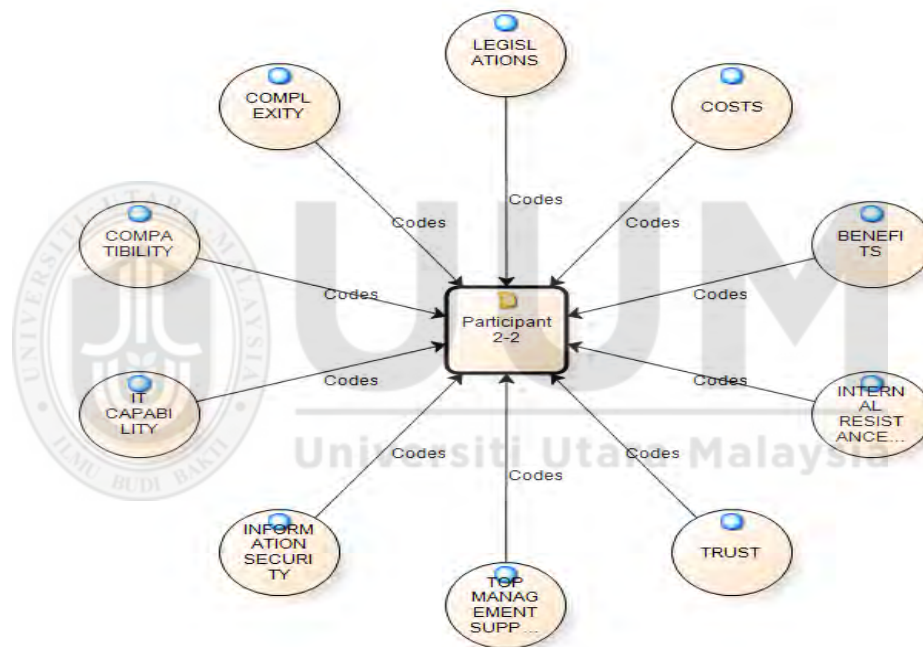
Figure 4.23. Factors extracted from Participant 2-2

In fact, same paragraphs contain three factors (discussed in detail in second-round interviews): c*osts, top management support, and IT capability.* Meanwhile, the 'legislation' factor was identified through*"... the percentage of the interaction does not exceed 2%. This is due to several factors such as..., moreover, the critical political situation and the absence of the legislations regarding the exchange information"* and

"Actually, the project inaugurated in 2005, but as you know, every single project may face several obstacles especially in Iraq where there are individuals who oppose modern means of communications". On the other hand, the 'internal resistance of change' (Figure 4.24) was referred to twice.

Figure 4.24. Number of reference code for Internal Resistance of Change –P2-2

P2-2 in the first-round interview, mentions 'information security' in *"There are different specific kinds of the information exchange. One is the confidential information service. Therefore, the security factor is definitely important to specify the type of the information. So far, this project is only provided by a program to protect it against hacking because it is not equipped with enough to protect it of any risks that may occur. This makes the managers in Dhi-Qar mistrust the project"* statement. Besides the 'information security', P2-2 also mentioned 'trust' (two times in Figure 4.25) by saying *"...Moreover, the mistrust factor among some agencies in the ability to use the applications available in the electronic interaction project".*

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Figure 4.25. Number of reference code for Trust –P2-2

P2-2 also mentioned about 'compatibility' and 'complexity'. Regarding 'compatibility', he addressed *"Recently, WIFI is used in the exchange information and LINUX system, but it is not sufficient to fulfill the needs of the directorate", w*hile, he addressed *"In fact, so far we do not have a clear idea, we are informed that the electronic interaction will be available, but the project is not clarified to us appropriately"* regarding 'complexity'.

The third set of participants was P3-1 and P3-2 as illustrated in Figure 4.26. P3-1 mentioned several factors: *legislations, IT capability, information security, internal resistance of change, trust, top management support, costs, benefits, compatibility and physical security*. He mentioned three factors ('cost', 'IT capability', and 'benefits') in a paragraph, which is *"the project has been politicized and has become an electoral benefit rather than to be a benefit for the local agencies because non-qualified individuals are employed in the e-government applications which led to the delay of the project due to factors such as the cost and lack of expertise and awareness of the benefits of the project".* Further, referring to Figure 4.27 (further in Appendix J), 'benefits' was referenced once, 'IT capability' was four, while 'cost' was three.

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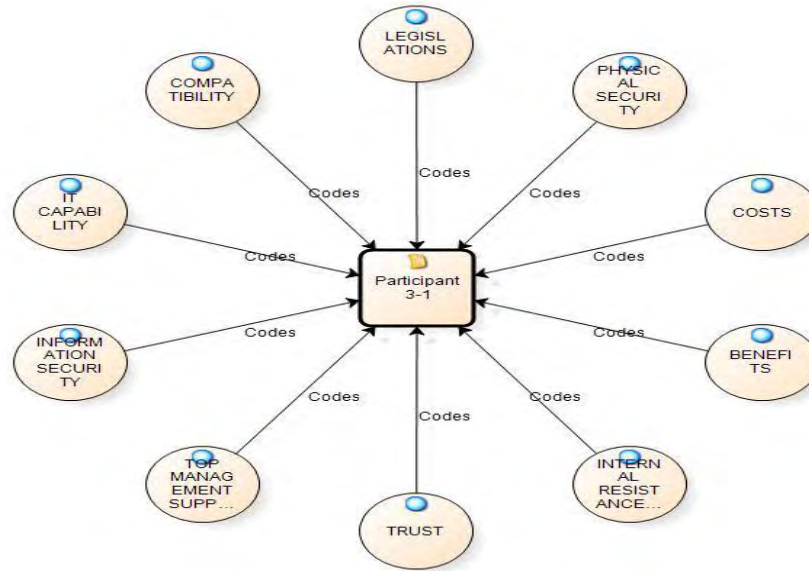
Figure 4.26. Factors extracted from Participant 3-1

Figure 4.27. Number of reference code for IT Capability –P3-1

Regarding 'information security', he mentioned *"In 2005 WIFI was used to send the information among the local agencies. But later on, the fiber optic cable was used because of the problems faced the WIFI networking".* While regarding 'compatibility', he said *"... as well as saving a large amounts of information in less spaces. For example at (Agency name omitted) there are three stores to save the documents, therefore, if modern electronic means are used the space will not be more than half a meter".*

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'Physical security' was also pointed out through his *"The security of the information is the main challenge that faces this project. There are serious questions from a number of managers, but they did not find any adequate answers about the physical precautions that (Agency name omitted) may provide"* statement, which is provided in full in Appendix J.

P3-2 also referred to many factors that may affect the electronic interaction among agencies in local government: *legislations, costs, benefits, internal resistance of change, trust, top management support, IT capability, compatibility, and complexity*. The 'legislations' factor was pointed out by saying *"Actually, a number of letters have been already sent to a number of local agencies at the beginning of the project. A few numbers of these local agencies responded reluctantly, but the others have not responded yet. These letters are about the participation in this project. However, there is no restriction compelling the managers to participate in this project"*.
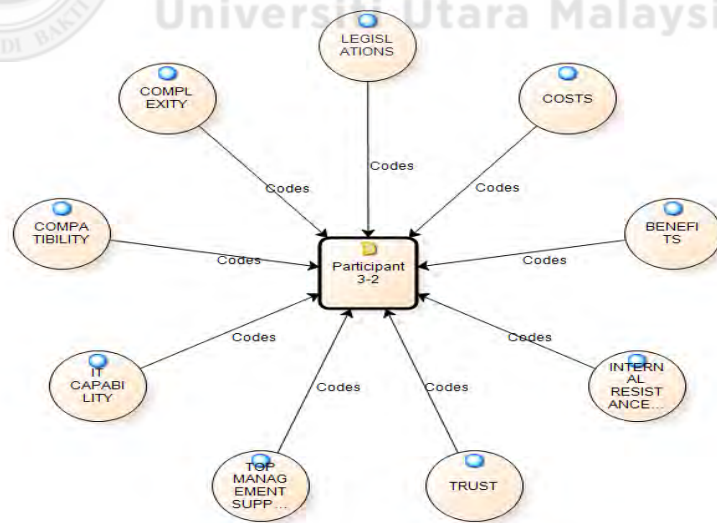
Figure 4.28. Factors extracted from Participant 3-2

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P3-2 also stressed that the importance of knowledge as the benefits of this initiative, he said this about 'benefits': *"...there should be a kind of education about the importance and the benefits of the e-government applications since this project is a part of it"*. Number of references for 'benefits' is five, as illustrated in Figure 4.29 (further detailed in Appendix J).

Figure 4.29. Number of reference code for Benefits –P3-2

Nevertheless, P3-2 mentioned about 'costs' in *"...several local agencies are able to apply the project such as (Agency name omitted) and (Agency name omitted), while others need the financial support".* Besides that, other factors include 'internal resistance of change', 'trust', and 'top management support'.

Regarding the 'top management support', he addressed *"...but the problem is that, the officials in the province have no clear vision of the project, and did not have sufficient background on the e-government applications",* in which further details could be found in Appendix J. Meanwhile regarding 'IT capability', 'compatibility', and 'complexity', he said *"...however, there is a problem which is that, <Name of Agency>'s branches are*

not connected with each other. Therefore, how the information will be exchanged while the information itself is incomplete", which is detailed in Appendix J.
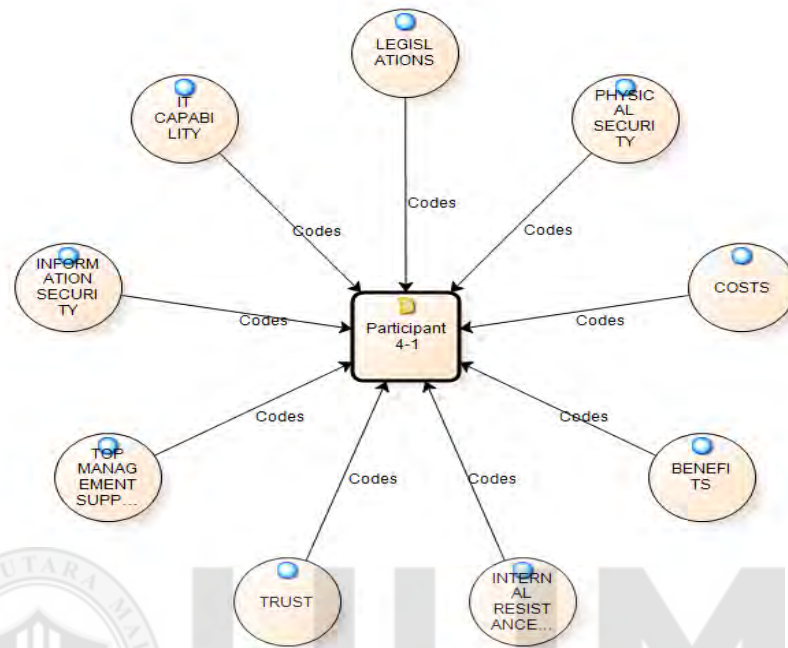
Figure 4.30. Factors extracted from Participant 4-1

Figure 4.30shows that P4-1 pointed out nine factors that may affect the electronic interaction among local agencies. He began by mentioning the 'benefits', through his statement *"think it is even difficult to force the current involved agencies to apply the applications because the benefits of this project are not identified clearly to most of the local agencies".* Figure 4.31depicts the number of references about 'benefits' was four, as pictured in Appendix J.

Figure 4.31. Number of reference code for Benefits –P4-1

Additionally, he also reacted about 'legislations' and 'internal resistance'. He said *"Actually, most of the managers of the service local agencies in Dhi-Qar province exceeded 60 years old in age and during their service time they did not use any kind of these technologies, therefore, a number of these managers are considered to be an obstacle against the project so they should be trained under the supervision of the top management because if these training-course are organized under the supervision of the province then most of the managers will not attend. That is why there should be legislations to force them to attend such trading-courses and to participate in the project."*

Another factors pointed out by P4-1 are *physical security, costs, trust, top management support, information security, and IT capability*. He said *"...the managers of the local agencies should put their disagreements aside because such disagreements will not increase the trust among them"* about 'trust'. While Appendix J displays the full transcript, Figure 4.32 illustrates that it has been referenced twice.

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Figure 4.32. Number of reference code for Trust –P4-1
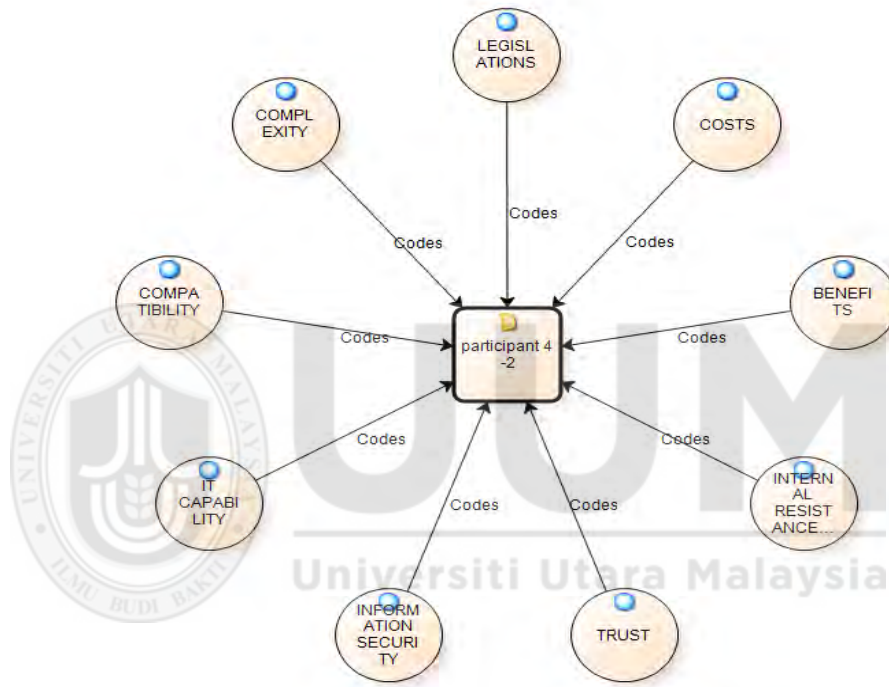
Figure 4.33. Factors extracted from Participant 4-2

Figure 4.33 depicts that eleven factors have been extracted from P4-2: *benefits, costs, complexity, IT capability, trust, legislations, internal resistance of change, information security, IT capability, compatibility,* and *complexity*. About 'benefits', he said: *"In fact, there are many factors. For example, some departments' managers do not accept the project because they are not aware of the benefits the project will bring for (Agency name*

omitted)." Number of references that were coded about 'benefits' of electronic interaction is three (Figure 4.34).

Figure 4.34. Number of reference code for Benefits –P4-1

Meanwhile, the 'legislations' was mentioned through *"…The absence of the legislations is the most important factor affects the process of the electronic interaction".* The purpose of this current stage is just for extracting all the factors from the interviewees to further facilitate in creating extended questions about these factors. The extended questions will be asked for a deeper understanding of the factors that affect the electronic interaction among local agencies in Thi-Qar in the second phase of interviews.

In addition, P4-2 adds that: *"…his will make most of the mangers to follow the traditional means because of their inexperience of the modern technologies".* In this paragraph he pointed out the 'internal resistance of change' factor. It was mentioned more than once. Besides, the 'trust' factor was mentioned through *"…Furthermore, the political conditions in Iraq have established a barrier among the local agencies resulted in distrust in exchanging the information".* It is provided in full in Appendix J.

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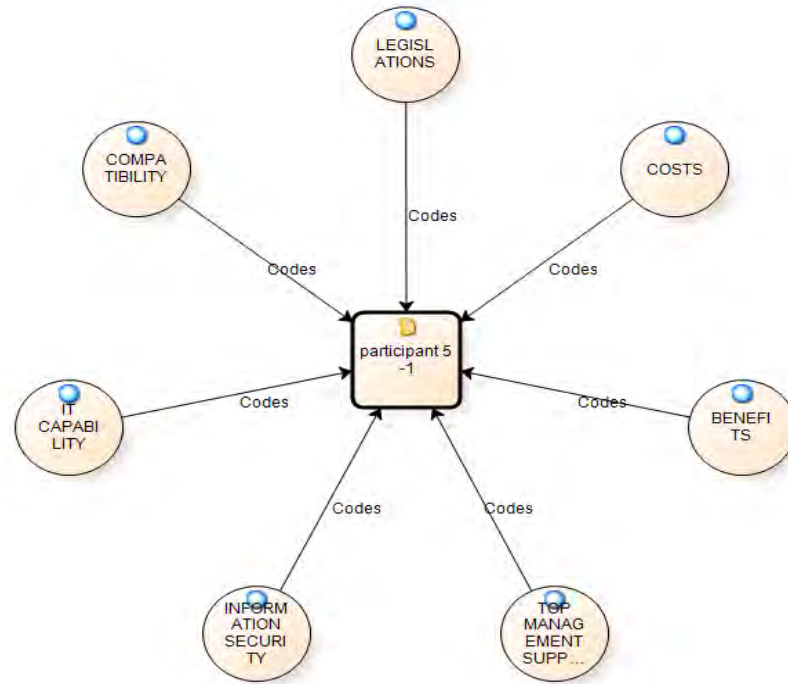
Figure 4.35. Factors extracted from Participant 5-1

By referring to Figure 4.35, it is noted that seven factors have been notified by P5-1: *costs, benefits, top management support, information security, IT capability, compatibility*, and *legislations*. The expression*"…As well as the absence of the legislations that force the involved local agencies to exchange their information through the electronic means"* refers to 'legislation'. Meanwhile, *"… Moreover, it is also due to the unknown benefits the project may offer to Dhi-Qar province"* refers to 'benefits' (referenced four times as seen Figure 4.36).

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Figure 4.36. Number of reference code for Benefits –P5-1

The 'costs' and lack of 'top management support' were expressed in an expression simultaneously: *"... So far, there is no improvement in the process of exchanging the information by the electronic means due to the lack of financial and administrative support".* Further, he referred to 'information security', IT capability', and 'compatibility'. He expressed *"...There are many factors may affect the project such as the lack of well-trained employees..."* about 'IT capability' (Appendix J details the expression), in which hit was referenced three times (Figure 4.37).

Figure 4.37. Number of reference code for IT Capability –P5-1
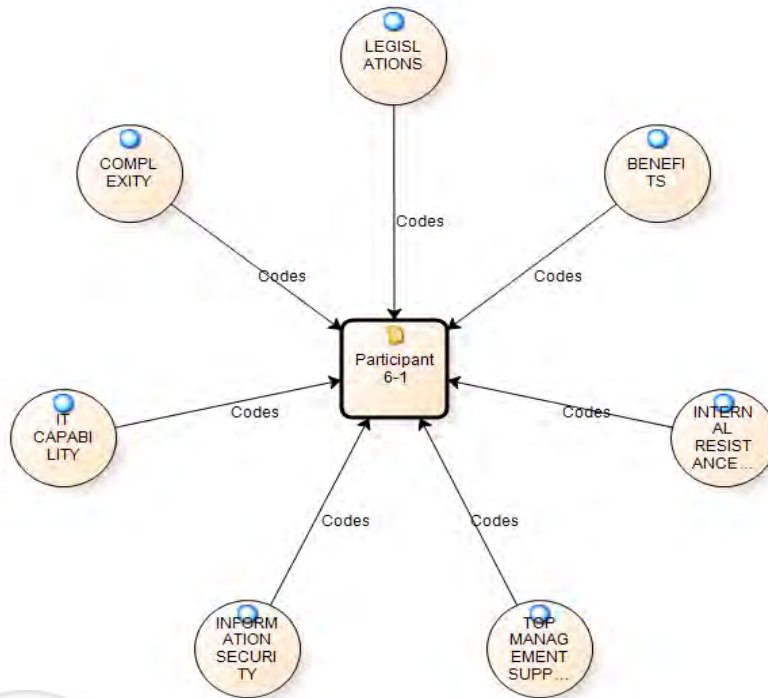
Figure 4.38. Factors extracted from Participant 6-1

Seven factors were identified through the first interview with P6-1 (Figure 4.38). The first

factor is 'benefits' through *"The main reason behind this project is to benefit the citizens*

through processing all of their procedures from one local agency rather than they visit

all of them" expression. Figure 4.39 shows that it was referenced five times, as detailed

in Appendix J.

Figure 4.39. Number of reference code for Benefits –P6-1

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In addition, he referred to 'internal resistance of change' by expressing *"... One factor is the stubborn mentality of some employees who are opposing the project or any other project that will apply the modern technologies fearing the loss of their positions and authorities, this actually the way they are thinking."* Nevertheless, 'legislations', 'top management support', 'information security', 'IT capability', and 'complexity' were also mentioned. Regarding the 'IT capability', he mentioned *"...The project stopped repeatedly that was due to the different political administrations and unqualified individuals who are controlling the project"*. It is further detailed in Appendix J. Meanwhile, Figure 4.40 depicts that it was referenced eight times.

Figure 4.40. Number of reference code for IT Capability –P6-1

On the other hand, Figure 4.41 illustrates the factors notified by P6-2.These factors are *legislations, trust, benefits, internal resistance of change, top management support, information security, IT capability, and complexity.* The 'benefits' was noted by expressing *"...Moreover, the project will reduce the traditional means among the local agencies where most of them are still using the traditional routine means. For example, they send a certain individual from one agency to another to certify a particular document or to pay the invoices".* It was referenced three times altogether as shown in Figure 4.42.

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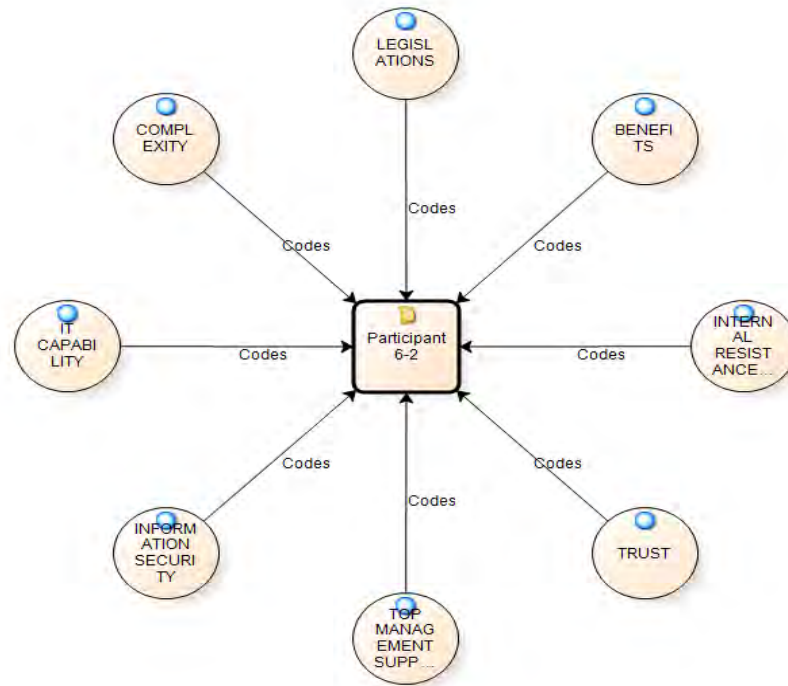
Figure 4.41. Factors extracted from Participant 6-2

Figure 4.42. Number of reference code for Benefits –P6-2

Another related factor referred to by P6-2 is 'trust'. He said *"I feel there is no trust among the local agencies".* Also, he referred to three factors in one expression: *"I joined this e-government project since it was inaugurated; therefore, I think the top management in the province and some other stubborn individuals are one of the main factors that obstacle the project, in addition to the lack of legislations".* It was coded that 'top management

support' expressed five times (Figure 4.43), 'legislations' three times, and 'internal resistance of change' three times. Appendix J details the expressions further.

Figure 4.43. Number of reference code for Top Management Support –P6-2
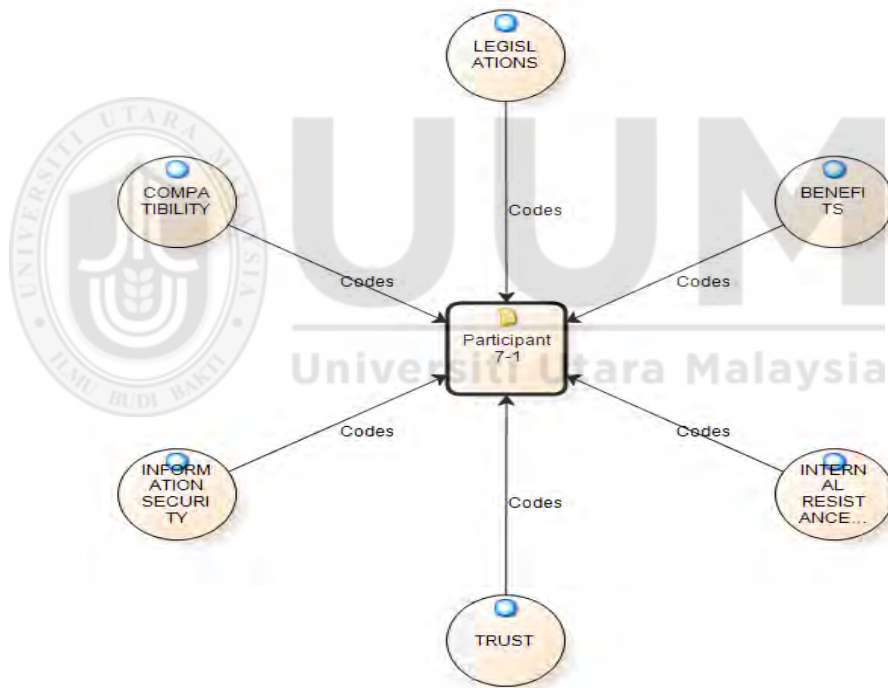
Figure 4.44. Factors extracted from Participant 7-1

The first factor noted by P7-1 was 'legislations' by expressing *"I think legislations are very important and they are the basis of any work"* (referenced twice in Figure 4.45). Meanwhile, 'benefits' was referred to by expressing *"... Anyhow, the interaction*

exchange, as a part of the e-government, is already applied but it is limited to several agencies because of the lack of education and awareness of the importance of the electronic interaction among the agencies". He also noted *internal resistance of change, trust, information security,* and *compatibility* factors. He said about 'trust' through *"...However, the traditional means may delay the work and (Agency name omitted) will be blamed".* The expressions are provided in detail in Appendix J.

Figure 4.45. Number of reference code for legislations –P7-1
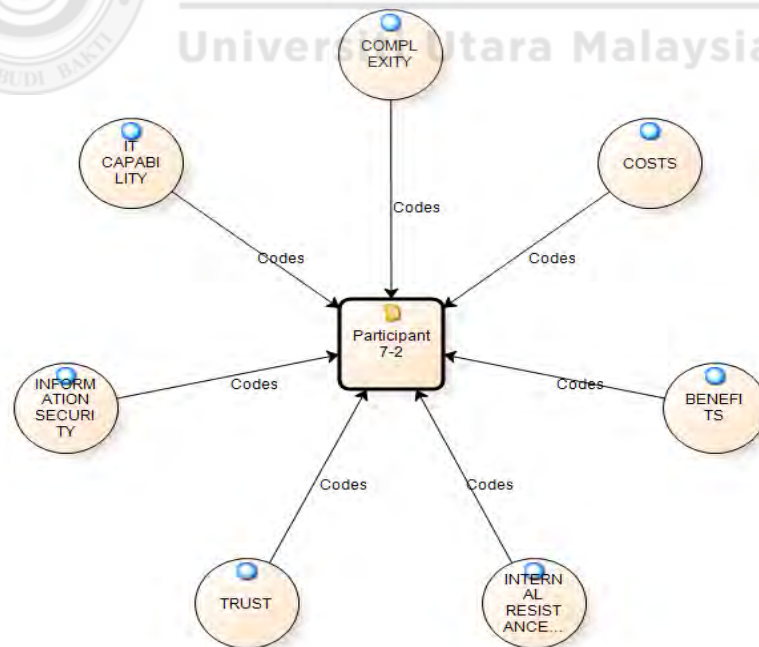
Figure 4.46. Factors extracted from Participant 7-2

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Referring to Figure 4.46, P7-2 noted seven factors that may affect the electronic interaction i.e. *complexity, costs, benefits, internal resistance of change, trust, information security*, and *IT capability*. In terms of 'costs', he expressed *"... the lack of the financial fund from the province for some of the local agencies which do not have as much funds that available at (Agency name omitted)"*. Overall, it was referred to twice (Figure 4.47).

Figure 4.47. Number of reference code for Costs –P7-2

Meanwhile, in terms of 'benefits', he expressed *"In fact, the real benefit behind the application is to convert all the available documents at the local agencies to computers and deal with it"*. Figure 4.48 illustrates that 'benefits' was noted five times. Besides, he expressed *"I think the information security is very important as long as we are talking about transparency and corruption..."* to note about 'information security'. Further, Appendix J provides the full expressions.

Figure 4.48. Number of reference code for Benefits –P7-2
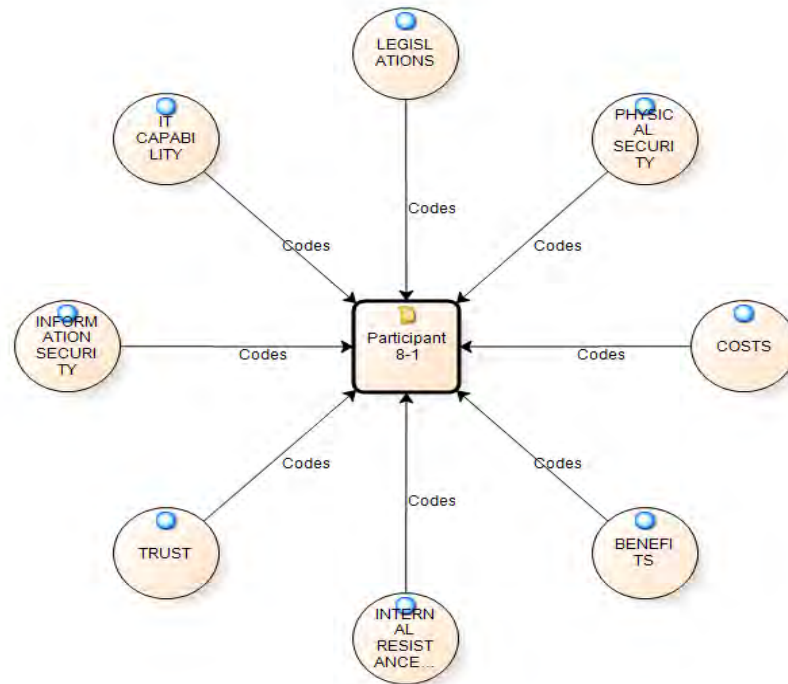
Figure 4.49. Factors extracted from Participant P8-1

Figure 4.49 illustrates that *legislations, physical security, costs, benefits, internal resistance of change, trust, information security* and *IT capability* are the factors mentioned by P8-1. As an instance, the expression *"...The project started 2005 and (Agency name omitted) was provided by the servers and the computers. Moreover, some employees were sent to Italy for training for the period 2005-2008, but some of the local agencies do not pay any attention for the devices that responsible for saving the information rather they neglect them"* refers to physical security. Regarding 'benefits', he mentioned *"Let me add something, this project will eliminate the administrative corruption where there are cases of corruption in some local agencies..."*.While Appendix J provides the complete expressions, Figure 4.50shows that it was referred to four times.

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Figure 4.50. Number of reference code for Benefits –P8-1

Further, 'IT capability' was referenced four times (Figure 4.51), in which *"The percentage does not exceed 10%. Certainly it is a small percentage"* is an example of the expressions, which is provided in full in Appendix J.

Figure 4.51. Number of reference code for IT Capability –P8-1
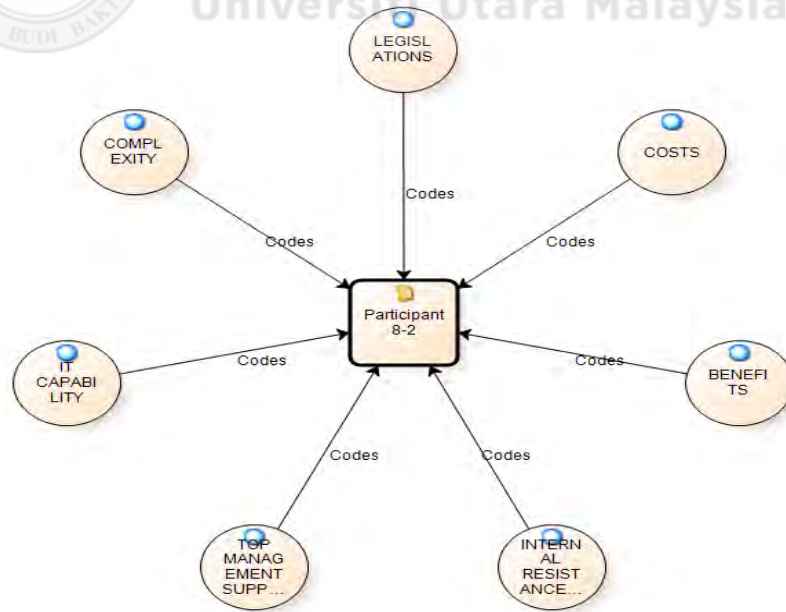
Figure 4.52. Factors extracted from Participant P8-2

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The factors noted by P8-2 are depicted in Figure 4.52, i.e. *legislations, costs, benefits, internal resistance of change, top management support, IT capability* and *complexity*. He noted about 'top management support' through *"To my best knowledge, the only obstacle is the mangers of some local agencies because they do not support the project or even help motivating the employees to use the modern technologies"*. Figure 4.53shows that the 'top management support' was referenced four times. Appendix J provides the complete expression.

Figure 4.53. Number of reference code for Top Management Support –P8-2

The 'benefits' was noted four times (Figure 4.54), in which *"... some local agencies are willing to participate, but they think there are not any financial benefits from this project"* was one of the expressions. The expressions are provided in Appendix J.

Figure 4.54. Number of reference code for Benefits –P8-2

Besides, the 'legislation' was expressed through *"The main factor is that, there should be legislations that support the electronic interaction because laws can be an important supportive factor same as funds especially if this project among governmental agencies"*.
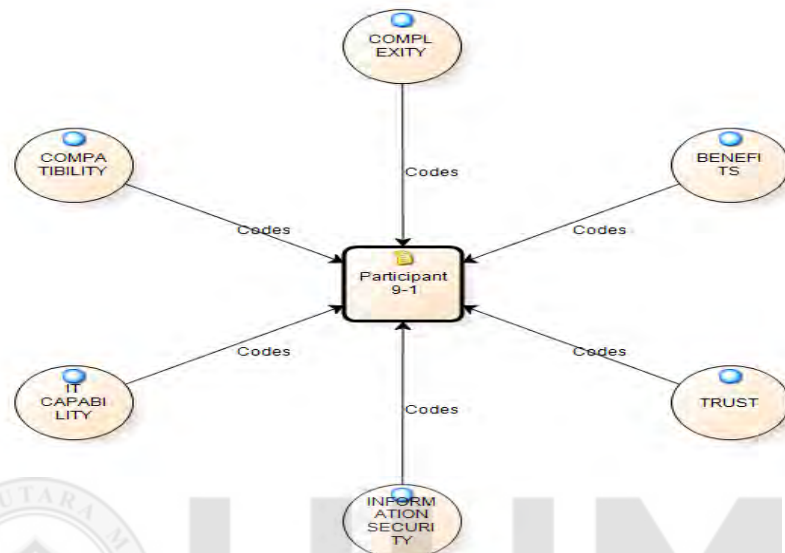
Figure 4.55. Factors extracted from Participant P9-1

When interviewing P9-1, the *complexity, benefits, trust, information security, IT capability*, and *compaibility* factors as illustrated in Figure 4.55were gathered. The expression *"The main purpose of the project is to exchange the information by using the electronic means to reduce effort and for confidentiality of the information"* noted the 'benefit', which totals three times reference (Figure 4.56). Meanwhile 'IT capability' was expressed by saying *"There is a lack of well trained employees who are capable of maintaining any damage that may occur with the servers or the networks...."*, in which it was referenced four times (Figure 4.57). The full expressions could be found in Appendix J.

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Figure 4.56. Number of reference code for Benefits –P9-1

Figure 4.57. Number of reference code for IT Capability –P9-1

Further, P9-2 addressed ten factors: *legislations, costs, benefits, internal resistance of change, trust, top management support, IT capability, compatibility*, and *information security*. They are illustrated in Figure 4.58.
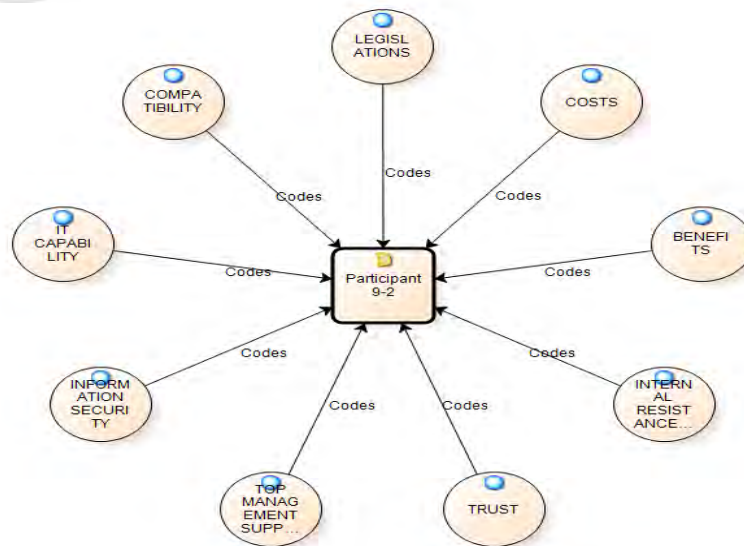
Figure 4.58. Factors extracted from Participant P9-2

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The first factor P9-2 pointed out is 'legislations'. It was found in his statement *"…One of these factors is that, the current frequency the project uses is used by many other internet companies as well. This is because of the lack of laws …".*In addition, he noted about 'top management support' by expressing *"For example, once there was a meeting for the managers and employees of the local agencies to discuss the obstacles face the project, only a few numbers of managers and employees have attended the meeting"*(referenced three times as seen in Figure 4.59).
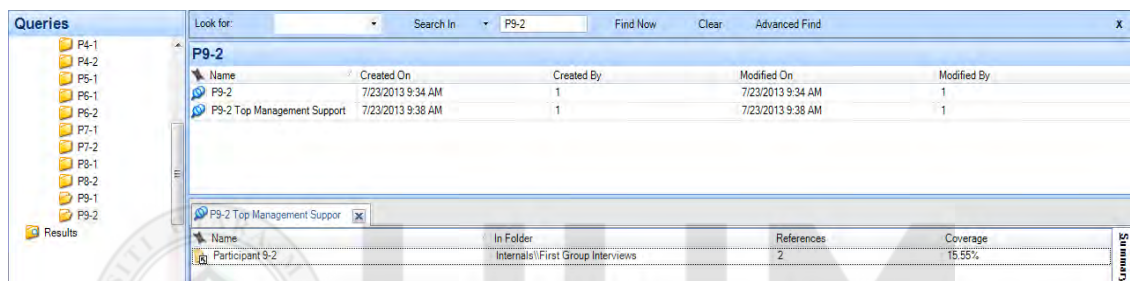
Figure 4.59. Number of reference code for Top Management Support –P9-1

Having discussed the results of interviews in the first round, Table 4.1summarizes the factors noted by the respondents. It could be noticed that not all participants in this first-round interviews note dissimilar factors, as illustrated in Figure 4.60 and Figure 4.61. Further, second-round interviews were carried out. The questions were created based on the results of the first-round interviews.

Table 4. 1

Summary about the participants and factors in the first group interviews

Factor	Participant(s)
Benefits	P1-1;P1-2;P1-3;P2-1;P2-2;P3-1;P3-2;P4-1;P4-2;P5-1;P6-1;P6-2;P7-1;P7-2;P8-1;P8-2;P9-1;P9-2.
Compatibility	P2-1;P2-2;P3-1;P3-2;P4-2;P5-1;P7-1;P9-1;P9-2.
Complexity	P1-3;P2-1;P2-2;P3-2;P4-2;P6-1;P6-2;P7-2;P8-2;P9-1;P9-2.
Costs	P1-3;P2-1;P2-2;P3-1;P3-2;P4-1;P4-2;P5-1;P8-1;P8-2;P9-2.
Information Security	P1-2;P1-3;P2-1;P2-2;P3-1;P3-2;P4-1;P4-2;P5-1;P6-1;P6-2;P7-1;P7-2;P8-1;P8-2;P9-1;P9-2.
Internal Resistances to Change	P1-3;P2-1;P2-2;P3-1;P4-1;P4-2;P6-1;P6-2;P7-1;P7-2;P8-1;P9-2.
It Capability	P1-1;P1-3;P2-1;P2-2;P3-1;P3-2;P4-1;P4-2;P5-1;P6-1;P6-2;P7-2;P8-1;P8-2;P9-1;P9-2.
legislations	P1-1;P1-2;P1-3;P2-1;P2-2;P3-1;P3-2;P4-1;P4-2;P5-1;P6-1;P6-2;P7-1;P8-1;P8-2;P9-2.
Physical Security	P3-1; P4-1; P8-1.
Top management Support	P1-2;P1-3;P2-1;P2-2;P3-1;P3-2;P4-1; P5-1;P6-1;P6-2; P8-2; P9-2.
Trust	P1-1;P1-2;P2-1;P2-2;P3-1;P3-2;P4-1;P4-2;P6-2;P7-1;P7-2;P8-1;P9-1;P9-2.
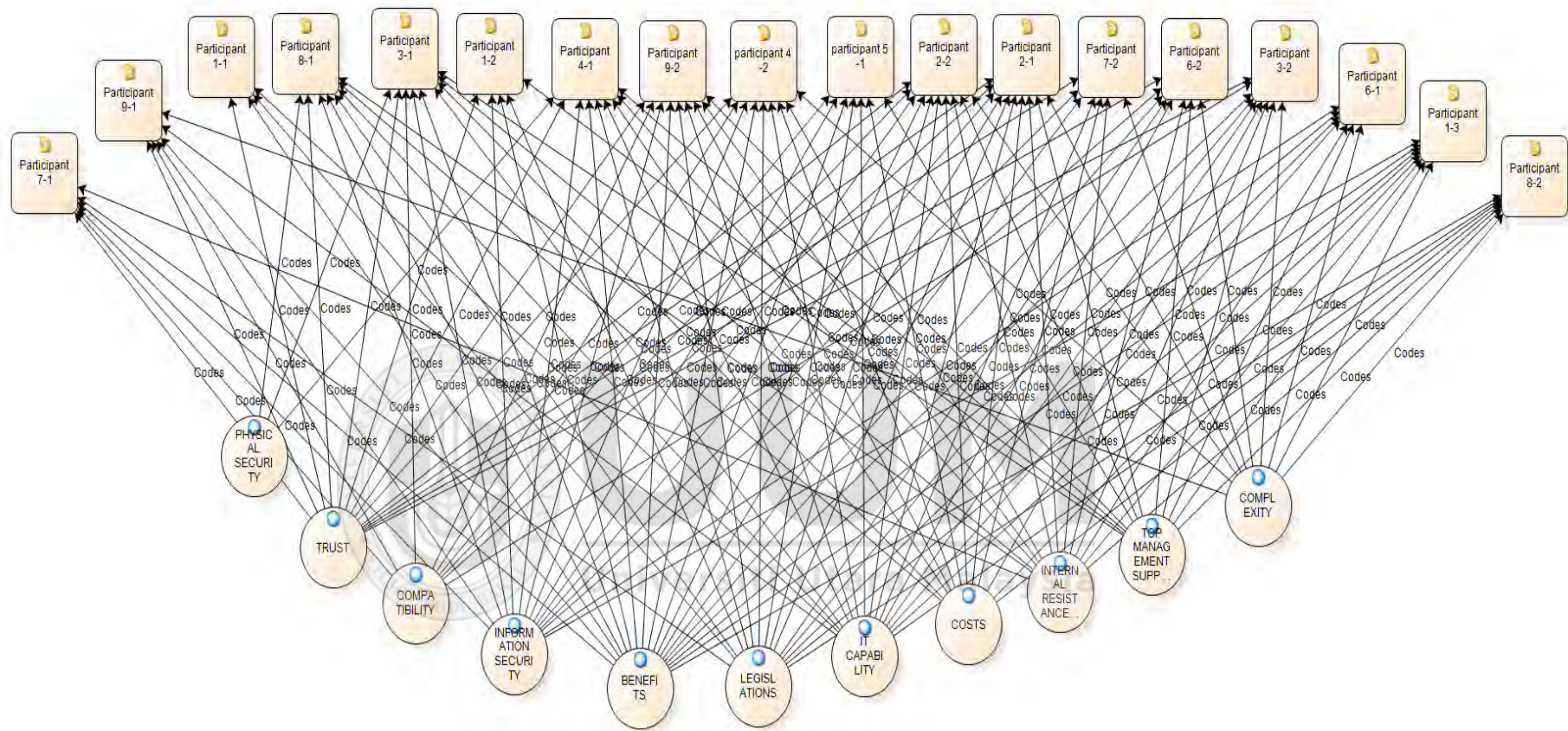
Figure 4.60. Factors that affect the electronic interaction among local agencies – gathered in the first-round interview
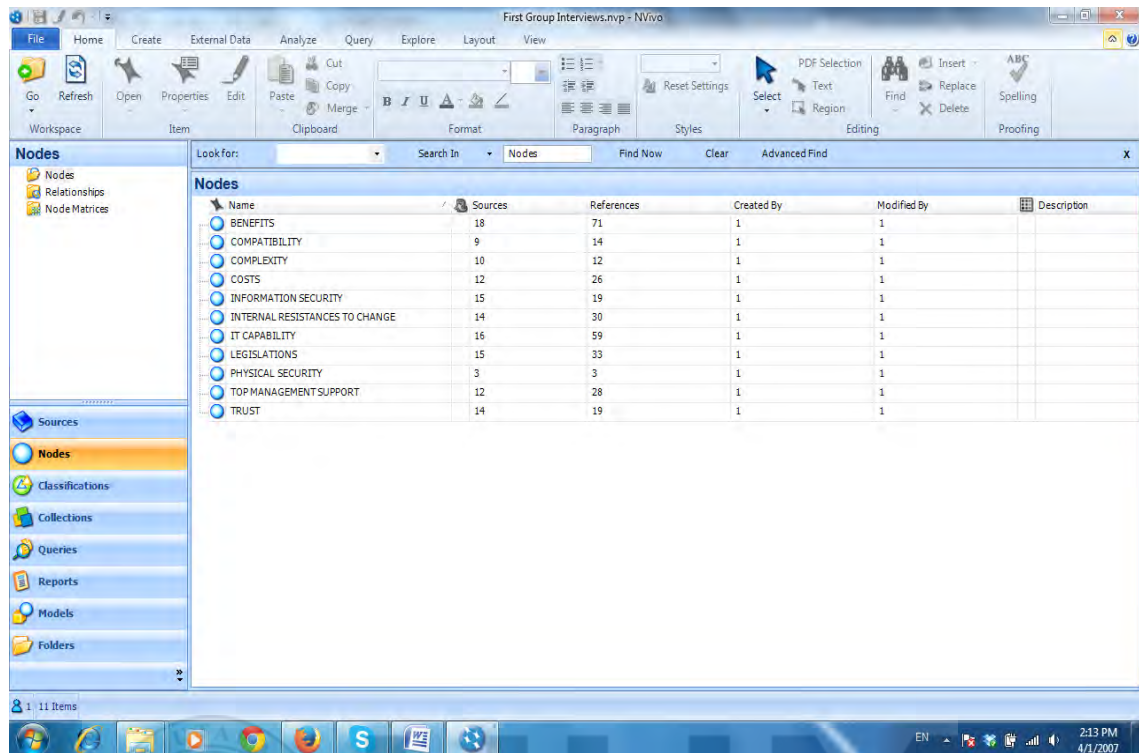
Figure 4.61. Based on First Group Interviews

4.2.2 Research Objective 2: to highlight the issues that influence the information sharing among local agenicies in Dhi Qar.

4.2.2.1 Second-round Interviews

A common approach is to start with some general categories the code in more detail (Coffey & Atkinson, 1996), while those who employ grounded theory, phenomenology or discourse analysis more often start with detailed analysis and work up to broader categories (Bazeley& Jackson, 2013). Specifically, the purpose of the second-round interview (second of interviews group) was to further ask all participants (Figure 4.62) about the factors elicited from first-round interview (first group of interviews) to gain a deeper understanding about the phenomenon, which leads to achieving the second objective from this study. That is *to highlight the issues that influence the information*

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sharing among local agenicies in Dhi Qar. Moreover, the data analysis strategy employed in this study is useful to increase the validity of the findings. Figure 4.63 initially visualizes the factors inherited into the second-round interviews.

Qualitative analysis typically involves both inductive and deductive reasoning, given that researchers generate findings through close examination of data and consider multiple theoretical explanations in search of *"the most plausible explanation"* (Roulston 2010, p. 150). Additionally, Creswell (2013) proposes that in qualitative research, deductive and inductive can help in collecting data and for analyzing data. In conjunction, this study referred to literatures in categorizing the themes as described in Chapter 3.

Figure 4.62. Interviewees Nvivo Browser (Second Group Interviews)
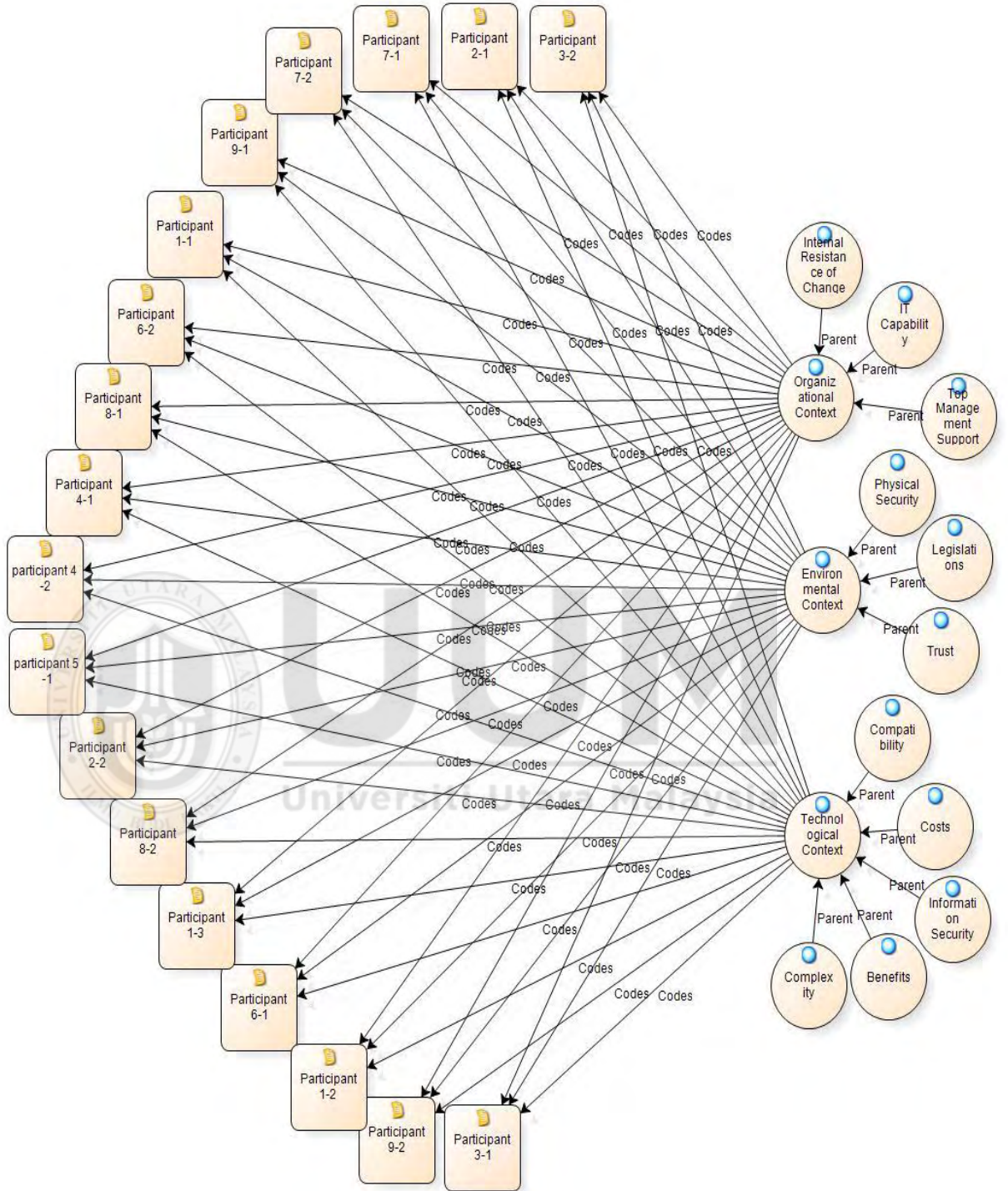
Figure 4.63. Second stage for the factors that affect the electronic interaction among local agencies

4.2.3 Technological Context

The technological content aspect visualized in Figure 4.64. The factors are further described in subsequent subsections in detail.
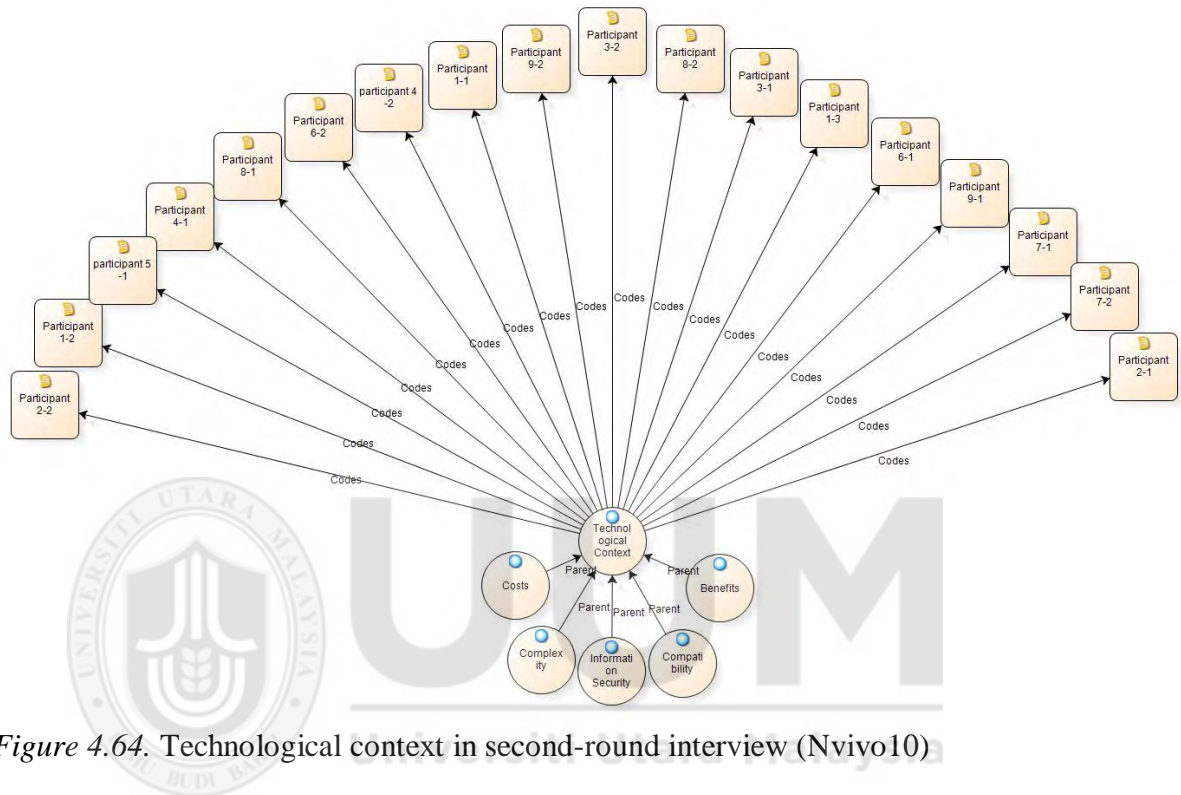
Figure 4.64. Technological context in second-round interview (Nvivo10)

4.2.3.1   Costs

Figure 4.66 conveys that cost/lack of resources is one of the most frequently cited barriers among local agencies mentioned by the respondents. Particularly, some participants realize that there are agencies better off than other agencies. It has the support of the ministry affiliate. This could be elicited in the following expressions.
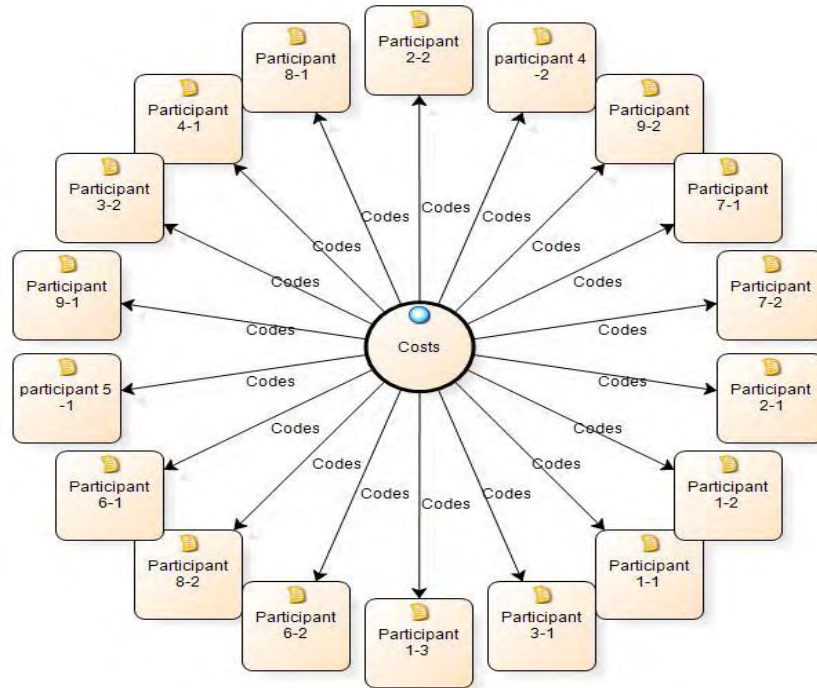
Figure 4.65. Cost factor in the second-round interview (Nvivo10)

"At the (Agency name omitted) in Dhi-Qar we have enough funds to train the employees. But the other local agencies face some difficulties and need funds from the province or from their ministries"(P 7-1).

"We do not have any problem regarding the expenses at the (Agency name omitted) in DhiQar province. I mean we can equip all the necessaries of the communication devices and applications to the directorate only. There are some local agencies that do not have enough funds and need financial support"(P 7-2).

"(Agency name omitted) will provide the necessary applications…"(P4-1).

"Yes, we have enough costs, moreover, we also got a grant and are provided with sufficient computers by the ministry to convert the information and participate in the interaction process" (P5-1).

"Certainly planning is easier than applying the applications because the question now is that does the province sufficiently able to manage this work financially and technically. However, several local agencies are able to apply the project such as the directorate distribution of oil and products and the province council while others need the financial support" (P3-2).

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Besides, there are participants who refer to lack of money and lack of sufficient support is their expressions (in the following). They coined also with the impact on the duration of the completion of the electronic interaction between all agencies.

> *"Up to now, there are no additional costs. We are trying as possible as we can to equip all the local agencies with the necessary except the applications which they are the responsibilities of the agencies themselves"*(P8-1).

> *"Actually, there is no much fund ... but it is not enough for the project requirements"* (P1-3).

> *"...if the funds are not provided regularly for the project, the project may delay until the next year till it is funded with the necessary from the next year budget"* (P9-1).

The participants also added that the province has to pay for the costs of participating in this initiative.

> *"I do not think that there are enough costs for the project. (Agency name omitted) will not continue in this project unless it is funded by the province"* (P2-2).

> *"...there are not enough funds to support the other local agencies in the province. Still, I hope there will be extra funds for the next years in addition that the available fund is not enough"* (P6-1).

> *"I do not think so because of the high costs and that the available budget is not enough to complete the project soon unless the province authorities support the project financially"* (P2-1).

> *"In fact, Dhi-Qar province will not be able to equip all of the local agencies. The province can provide these local agencies only with certain applications and it cannot provide the applications according to the local agency's requirements. However, the local agencies should help in this project because the province has other projects to perform such as the sanitation project and building housing complexes for the citizens, therefore, it cannot be the responsible to equip all of the local agencies with the devices and applications because it may affect the province's budget"* (P8-2).

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However, although the province provides appropriate hardware (servers and some computers) to local agencies at no cost, in many cases it has not been enough for the local agencies. In fact, most local agencies lacked the time and personnel to participate in this initiative. It was discovered that many agencies have limited staff and budget to train personnel to enter data. This are portrayed through the following expressions.

> *"The costs are varied. Some local agencies are in need for some employees to computerize the information so they can be ready to participate in the project. This project is not a matter of only connecting the local agencies with the internet and the fiber optic cable service, but it is about converting all the documents into softcopies and save them in the computer. To my best knowledge, some of these agencies do not have enough employees for this process because it needs much fund and time"* (P1-2).
>
> *"...without good possibilities and well-trained employees, the project will not be completely implemented across all the local agencies in the province, because there should be enough funds to train the employees on the e-government applications, equipment, programs and devices in all local agencies in the province. Recently, there are not enough funds for the project, and (Agency name omitted) is not forced to provide the center (e-government center) with the funds to buy the required applications or the protection devices"* (P4-1).

4.2.3.2 Benefits

'Benefits' emerged as a frequently cited factor influencing among local agencies in this initiative. The current stage shows that participants in this study explained that the benefits of the electronic interaction process helped them to achieve certain benefits such as increased information accuracy and timeliness, streamlined data management, and improved decision-making (Appendix C provides the Questions for Second Group Interviews). Figure 4.65visualizes the respondents mentioning the 'benefit' factor.

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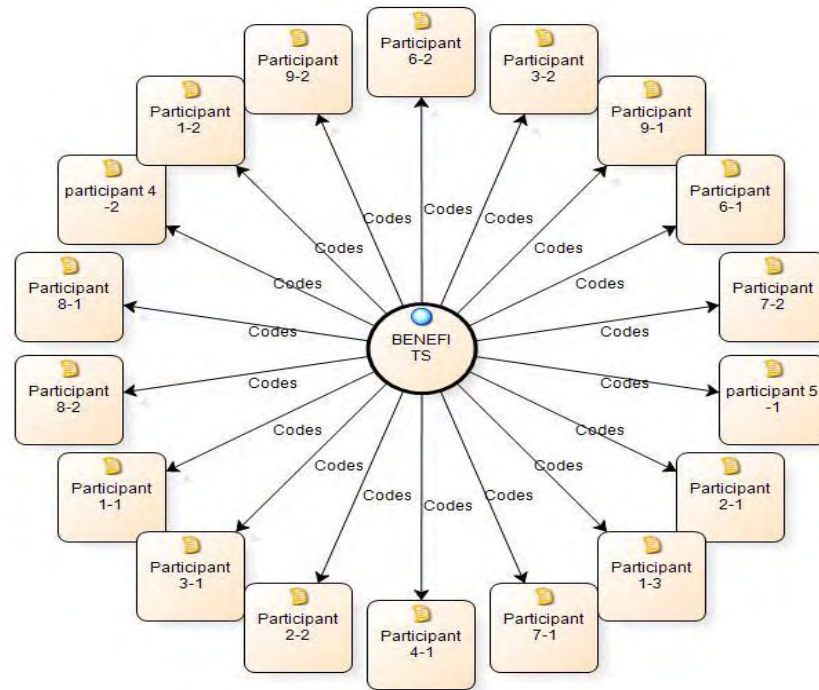
Figure 4.66. Benefits factor in the second-round interview (Nvivo10)

Specific statements by the respondents regarding 'benefit' include:

> "...there are significant benefits from this project. It will help in get rid of the boring routine of the traditional means and reducing the accumulated quantity of the documents which may not find a store to keep after two years" (P1-1).

> "The benefit of this project is to reduce the effort on the employees as well as to activate the electronic side where there are a large number of programmers who are not working within their specialties, so this project will increase their motivations and facilitating immediate response by the other local agencies" (P1-2).
> "The province is in need for service projects. In fact, the chang

> e in the administrations in the province resulted in deteriorating the administrative aspects and delaying the citizens' interests. However, the e-government applications and the electronic interaction in particular will provide stability even if governments or administrations are regularly changed and, moreover, the work will be achieved more accurately" (P1-3).

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"One more benefit is that the communicational interaction among the agencies to deliver information as soon as possible in order to take decisions about the important issues that may not need to be delayed on one hand and to reduce face-to-face interaction between the employees and the citizens on the other, which may stop the corruption that we are trying to eliminate" (P2-1).

"...significant benefits for (Agency name omitted) in particular. The (Agency name omitted) has nearly 12,000 students and about 2000 students are graduated annually. Therefore, if this huge number of students is employed, in addition to the previous students, they will be asked by the agency to bring his/her documents. This will confuse the work. However, the use of the modern electronic means will enable the local agencies to share the information without the need for the documents because all information will be electronically available" (P3-1).

"...the project <electronic interaction> will help in making-decision process" (P1-1).

As an addition to the expected answers, one participant also explained the importance of this initiative to other provinces as well as the federal government by expressing

"Actually, ministries such as the ministry of science and technology, the ministry of health and the ministry of the higher education have their own systems, therefore, when all the local agencies are connected together and then to their ministries, the Iraqi electronic portal will become a real and services will be provided in all levels as well" (P1-3).

Nonetheless, it was also found that participants' perceptions about the benefits of the system were low or they were not aware of the potential benefits. Many participants mentioned that the lack of awareness of the benefits was a major problem in obtaining process of information exchange. These could be noticed in the following expressions.

"...Unfortunately, some local agencies are not aware that this project will help them in accessing the information easily" (P1-3).
"...there are some individuals such as the managers who ignore the importance of the electronic exchange information process and what benefits it will offer for the local agencies in reducing effort on the

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employees, time and costs, in addition to achieving the work accurately"
(P4-2).

> *"...But this project has applications which do not require the needs of (Agency name omitted). Moreover, the available system LINUX cannot be used by all the agency employees because there was no much discussion about the needs of the agencies before the applying of the project"* (P2-2).

4.2.3.3 Compatibility
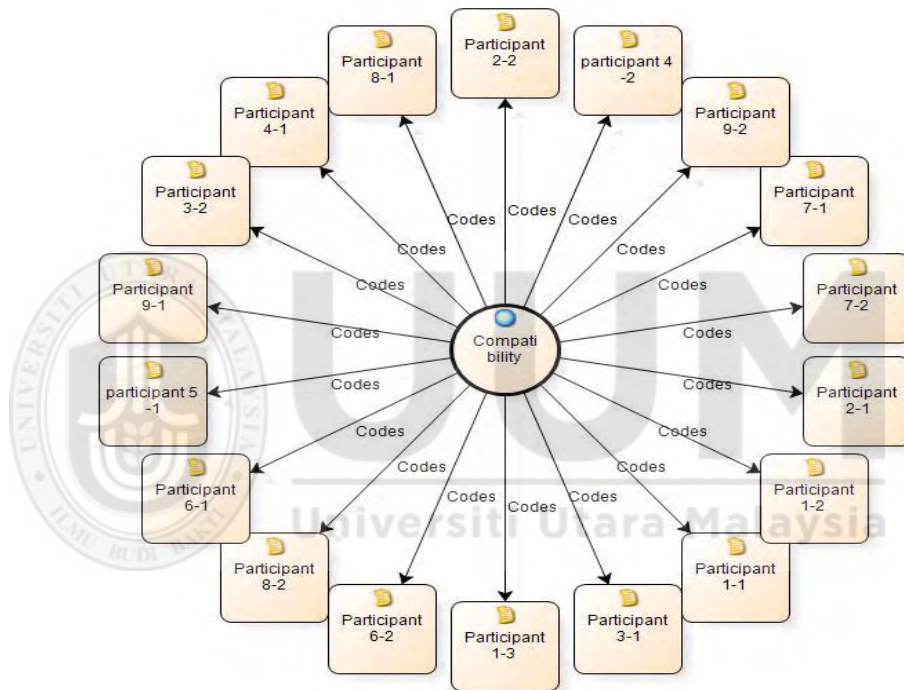
Figure 4.67. Compatibility factor in the second-round interview (Nvivo10)

Compatibility also influences the electronic interaction among local agencies in the e-government initiative. This is visualized in Figure 4.68. One of the types of compatibility is organizational compatibility, which has to do with compatible electronic interaction with the needs of the agencies participating in the interaction and its goals. That is how some agencies benefit from e-government interaction unlike some agencies.

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"Absolutely, it is compatible with the (Agency name omitted) because it needs these kinds of applications to facilitate work with the other local agencies and the agency requirements. I think the project will fulfill the needs if there are no obstacles from inside or outside the agency itself" (P6-1).

"It is absolutely compatible where there are the documents management systems applications that every single agency can prepare it according to their needs and can achieve the electronic interaction and trace it till it is processed. Moreover, the directorate manager can trace the process of any interaction as well. This is actually one of the applications that we are proud of..." (P6-2).

"...this project is compatible with the needs of the (Agency name omitted), in addition, I am satisfied this project will benefit many other local agencies in the province..." (P7-1).

"I think the (Agency name omitted) in Dhi-Qar branch is the most beneficiary if the project is operated accurately. But I would like to add that the agency needs are very important, and that the (Agency name omitted) and (Agency name omitted) want us to do something while they ignore what we need" (P7-2).

"Absolutely, because these applications enable the agencies to follow up the documents for the employees consequently, this will help to reduce the overcrowded at the (Agency name omitted)where, as we know, the population of Dhi-Qar is estimated 4 million, while in the governorate, there is only one agency. Therefore, I think it is very benefit for (Agency name omitted)" (P2-1).

"(Agency name omitted) is responsible to provide all the services for the citizens because it is regarded as the second authority and the responsible to supervise the local agencies. Therefore, the project will benefit (Agency name omitted)in facilitating the exchange information between the local agencies and the (Agency name omitted), in addition, the project will enable the (Agency name omitted) to follow up the work of all the local agencies as well as reducing corruption and establishing a kind of equality between citizens in processing their interests" (P8-2).

On the other hand, some respondents in the interviews do not see any compatibility with the needs of the agencies in the local government.

"This depends on the objectives of the local agency and its needs. Certainly there are local agencies that are looking for the type of information that will be shared and if it is compatible with their needs or not. (Agency name omitted) is one of these local agencies. I would like to add that there is also a problem in some local agencies which is that some local agencies have their own applications and the information is entered daily, therefore, they will enter the information to their previous applications and the applications that the (Agency name omitted) will provide so this is a waste of time and effort" (P4-1).

"I think the project is not compatible with the needs of the (Agency name omitted) Dhi-Qar province" (P9-1).

"The current available applications do not fulfill the requirements of the (Agency name omitted). However, the providers promised that they will equip the (Agency name omitted) with the necessary applications and funds" (P9-2).

"Absolutely not, there is only one application available which is the e-mail application because it has an excessive security to protect the information. Regarding the other applications, I can say that they are complementary applications for the project and are not what is planned for this project" (P2-2).

"...certainly, the (Agency name omitted) is in need of such applications. But currently it is a barrier against establishing other technology projects, because the failure of this project may lead the administration at (Agency name omitted) to change their mind in such projects" (P4-2).

"The applications available such as documents management system do not have all the requirements (Agency name omitted) needs. In addition, actually, all the information should be computerized to exchange them electronically" (P5-1).

On top of that, it was interesting to discover that some participants do not even feel the needs for the electronic interaction process in current advancement, and there are more important electronic interaction projects among the local agencies.

"... the officials in the province should help (Agency name omitted) to connect all its scattered branches throughout the province. However, there is a problem which is that, (Agency name omitted)'s

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branches are not connected with each other. Therefore, how could the information be exchanged while the information itself is incomplete" (P3-2).

"...A lot of employees still think that electronic interaction is insignificant. Where, the province of Dhi-Qar must focus on infrastructure projects" (P9-1).

In terms of technological compatibility, participants mentioned that they do not have any problem in integrating/interfacing the system with their existing applications. They expressed it in the following expressions.

"Actually, we did not face any difficult because we entered the information according to the application provided to us in addition there are well-trained individuals who have the ability to use LINUX. In fact, this project encouraged (Agency name omitted) to enter all the information in the computers to facilitate work. Regarding the other agencies, I think they will face difficulty in the integration process or reentering the information again" (P7-1).

"Regarding (Agency name omitted) in DhiQar, there is no problem because the information is filled in to the computers which the use of LINUX. It is the same system the servers operated with" (P7-2).

Although those participants have no problem, the other participants represent most local agencies to express that the integration of technologies is still an important issue of concern. Even though there are several agencies working with the current system (LINUX), they are all used to with different systems, which make it difficult for the sharing of electronic information effectively. Some of the expressions are stated in the following.

"Actually, I prefer to use WINDOWS SERVER instead of using LINUX otherwise we will face many difficulties in integrating the previous system with the new one. Moreover, the integration process needs experienced individuals. However, as long as the local agencies differ, therefore, the systems are being used differ as well" (P9-2).

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> *"We had a discussion with (Person name omitted) and (Person name omitted) about the compatibility issue of the previous system with the computers and the applications that already existed in LINUX the modern system. Recently, all of the local agencies are provided with computers that work with LINUX system to facilitate the work and then later there is a plan to integrate the systems by using only one system. Actually, we have tested the integration to use the two systems at (Agency name omitted), unfortunately, we have faced many problems, therefore, we have continued to use LINUX system"* (P8-1).

4.2.3.4 Complexity
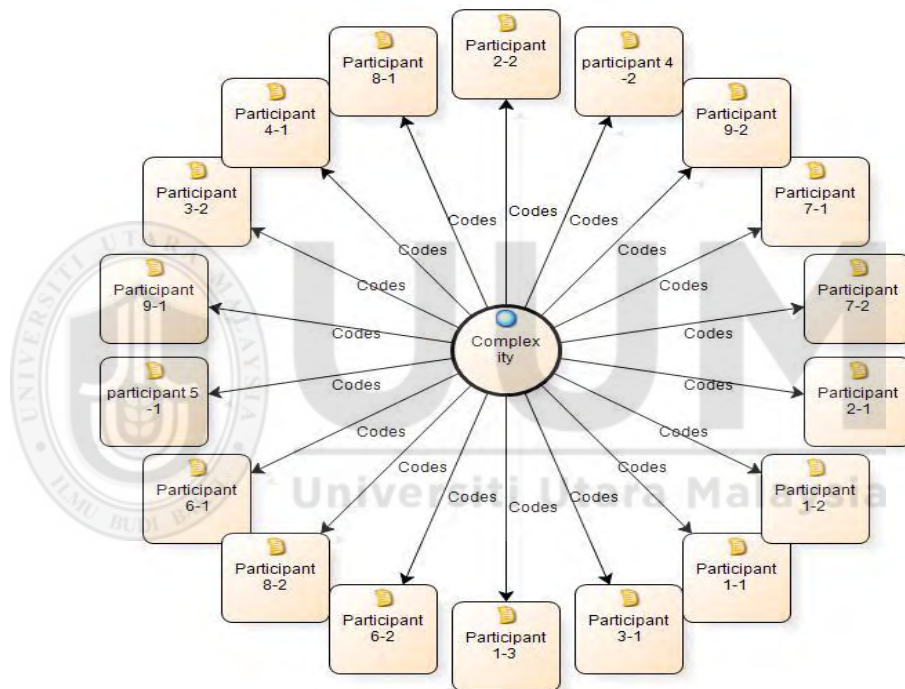
Figure 4.68. Complexity factor in the second-round interview (Nvivo10)

Figure 4.67 explains that respondents agree that complexity affects the electronic interaction among local agencies. Many participants explained that there is a difficulty among a number of staff in utilizing the e-government applications. It also leads to delay work. The following expressions details these.

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"WIFI is used in the exchange information and LINUX system, but it is not sufficient to fulfill the needs of the directorate because the number of the available computers that deal with this kind of systems as well as the users are limited which hinders applying the application all over the branches of (Agency name omitted)"(P2-2).

"It would easy for specialists, but the other users of the agencies find it difficult because most of the other local agencies employees find it difficult even to write the server's Email which is (Mail omitted). Moreover, there are several programs that delayed because they are complicated programs that need the employees to have training-courses about them. But the fact is that, these employees think that these applications are difficult to understand and will result in delaying the work, in addition, unlike the documents; they think that these applications may damage" (P6-2).

"These applications should be appropriate for all employees to use whether those who have competency in computer technology or unqualified...Moreover, the available system LINUX cannot be used by all the agency employees because there was no much discussion about the needs of the agencies before the applying of the project" (P2-2).

"...< electronic interaction > it is an easy process and does not require vast knowledge of the technical aspects because the employee will only apply the available applications, but this depends on the way applications are modified into WINDOWS in which the employee feels familiar more than LINUX system"(P2-1).

In fact, the following expressions show that there are participants who feel difficult to accept the electronic interaction.

"As a conception, there is a real difficult to accept the electronic interaction conception. Ironically, some managers claim that the electronic interaction will take much time than the traditional means forgetting that the electronic interaction is important and will save time and will reduce the corruption as well" (P7-2).

"...the electronic interaction in DhiQar province started in 2005, but the project faced several financial and administrative obstacles. Therefore, the project is specified for only a few of agencies that are why there is a misconception understanding the electronic interaction..." (P2-2).

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"Actually there is misconception regarding the electronic interaction. People think that e-government is a new authority that will make interactions so complicated…" (P2-1).

4.2.3.5 Information Security
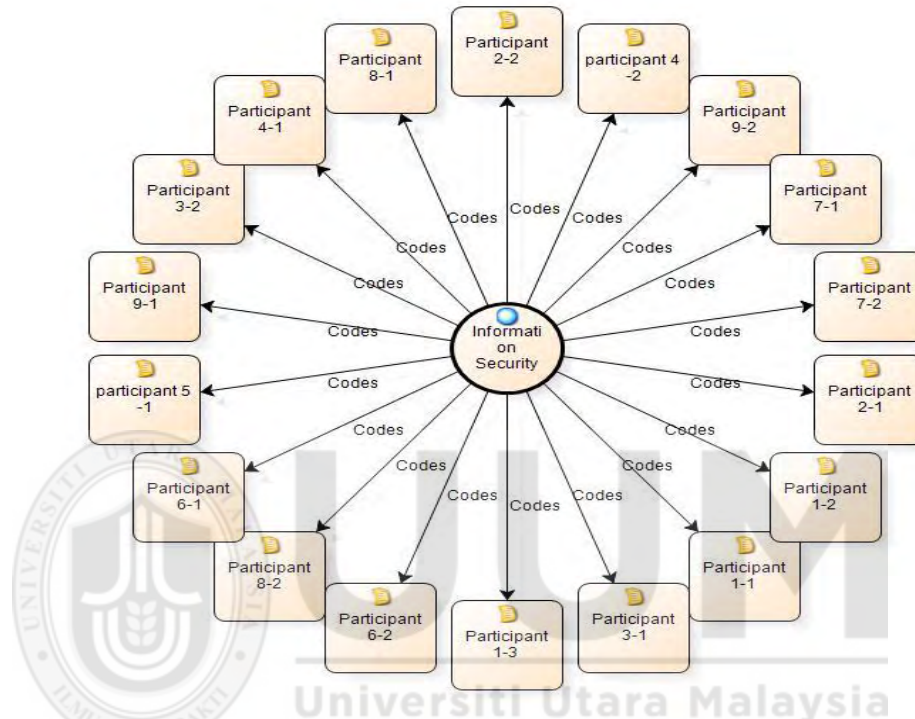
Figure 4.69. Information security factor in the second-round interview (Nvivo10)

Information security was also noted as an influencing factor of electronic interaction among local agencies in thee-government initiative. This is portrayed in Figure 4.69. Participants from local agencies pointed out that there are threats and problems in the process of sending information between local agencies, thus reduces the confidentiality of information transmitted. The following expressions illustrate this.

"Actually…there is overlapping among the frequencies the local agencies use and the frequencies the internet café use. Moreover, information security is a requirement; therefore, we will do our best to apply it in the next stage" (P6-1).

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> *"...The security factor should have much consideration by the top management. Unfortunately, I feel that (Agency name omitted) does not give any consideration about the information though it equipped the project. For example, the WIFI service is hacked accidentally and this is a real threat that may damage the project's success"* (P2-2).

Besides, data protection issue was also raised as a very important issue. Technically, data protection refers to the security of data sent between local agencies and relies only on the program. Their worries are portrayed in the following statements.

> *"According to the physical and technical possibilities, we can only provide the protection software, regarding the hardware; there are difficulties to provide them because it needs funds and well-qualified individuals. However, the lack of experienced individuals in the local agencies and the interference of the top management obstacles the project as well. So far, the electronic interaction does not work the way it should be because it needs advanced protection programs"* (P6-2).

> *"Recently, we are using the normal programs for the protection (SOFTWARE). This weak security makes it possible to hack the information because we are not provided with adequate equipment for protection…"* (P2-2).

> *"…, the process of protection the information in this project is only by using Software because of the unavailability of especial protection Hardware as long as the information exchanged is not considered as being secret"* (P2-1).

> *"In fact, except the available software that attached with the server system, there are no additional devices to protect the information"* (P3-2).

Table 4. 2

Summary of the technological context

Benefits
• Lack of perceived benefits of the electronic interaction between local agencies, and lack of awareness of the potential benefits of the process of interaction.
Costs
• Agencies involved in the process of electronic interaction has budgetary constraints, and the process of the electronic interaction among the local agencies cause additional costs to the agency associated with maintenance, support, and training of staff. Compatibility
• Not consistent with the needs of the local agencies involved in the process of electronic interaction and objectives.
• Not compatible with existing systems.
• Requires tasks distribution (Data entry process).
• Requires training for all staff on the new system.
Complexity
• Difficulty in using the new system, and difficult to accept the concept to the electronic interaction between agencies. Information Security
• Fear of the process of sending information by electronic means among local agencies.
• Requires protection devices as well as software used in the process of electronic interaction among local agencies.

4.2.4 Organizational Context

Besides technological context (discussed in Section 4.3.1), organizational context also has big influences over the electronic interaction in e-government initiative. The participants expressed their feelings in the subsequent subsections to respond on the organizational context.
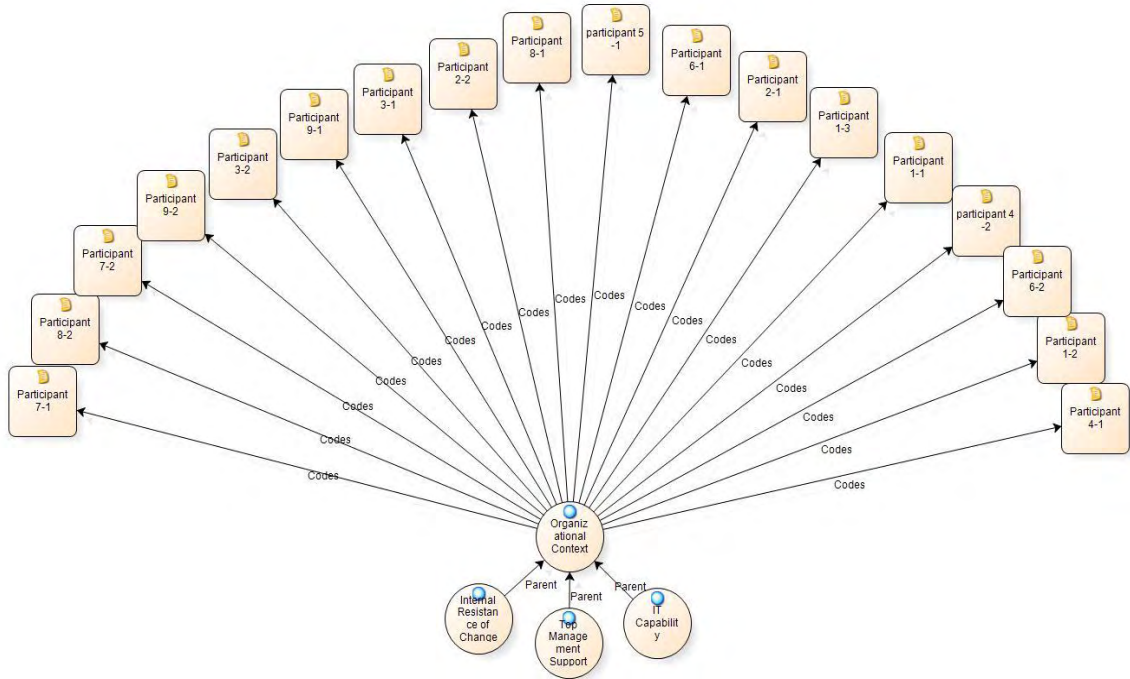
Figure 4.70. Organizational context in the second-round interview (Nvivo10)

4.2.4.1 IT Capability
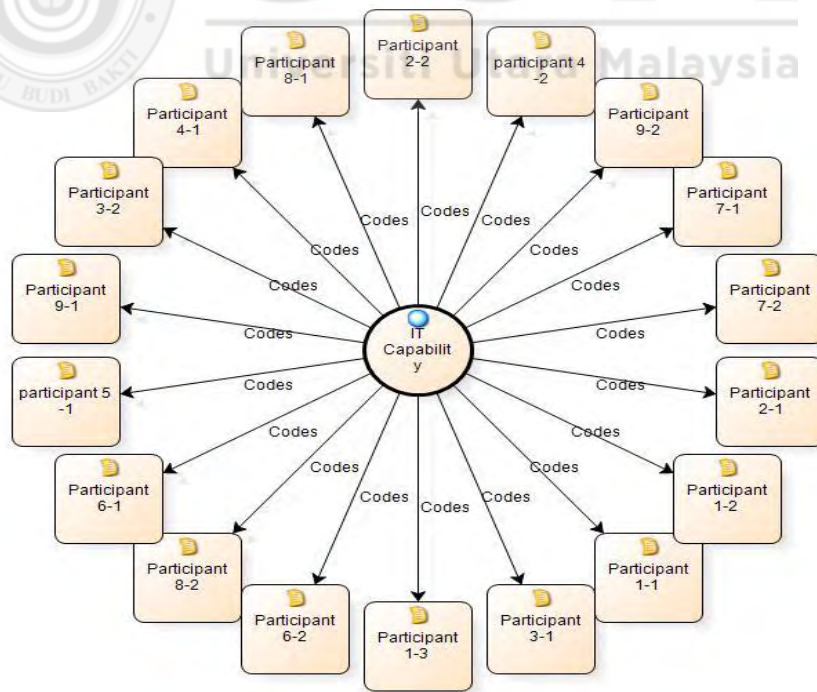
Figure 4.71. IT capability factor in the second-round interview (Nvivo10)

IT capability emerged as a frequently cited factor influencing local agencies in this initiative as seen in Figure 4.71. Generally, the participants agree that the proportion of the exchange of information through electronic means is still very little compared to what was planned. This is found in the following statements.

> *"..., there are a limited number of information exchange processes among the local agencies...Regarding the information exchanges, the percentage is limited and not high because several local agencies are still using the traditional means"* (P6-1).

> *"I will talk about the available applications in most of the local agencies; these applications are E-conference, documents management system and Voip in addition to the private Email of the province. Unfortunately, all these available programs are not used except the Email and VOIP"* (P6-2).

> *"The percentage is very low. It does not exceed 1%. But this is not because of (Agency name omitted) responsibility rather it is because of the irresponsibility of the other local agencies. We are trying doing our best to follow the applications to facilitate the work at the directorate"* (P7-2).

> *"Yes, there is an information exchange among the (Agency name omitted) branches in Dhi-Qar province. But regarding the other agencies, the electronic interaction is almost absent except the information that (Agency name omitted) sends electronically to the other local agencies. Meanwhile the other agencies tend to follow the traditional means"* (P2-2).

> *"The operations that exchanged by electronically do not exceed 2%, this does not include all the participating local agencies. Some local agencies do not interact when the information is exchanged electronically and prefer traditional means in the process of information exchange"* (P3-1).

Part of the leading problems includes the lack of sufficient number of personnel who are familiar with IT skills for data entry, as well as the use of applications that come with the LINUX system. The following expressions convey this.

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"Recently, WIFI is used in the exchange information and LINUX system, but it is not sufficient to fulfill the needs of the directorate because the number of the available computers that deal with this kind of systems as well as the users are limited which hinders applying the application all over the branches of (Agency name omitted)" (P2-2).

"..., there is a problem because the applications of this project in a number of local agencies require additional work where there is a need to provide more employees. The lack of employees will delay work. (Agency name omitted) requested the province not to include (Agency name omitted) within a project that does not contain a large number of employees; moreover, it requested more employees to be appointed to enter the information" (P3-2).

"...this project lacks the experience including the way how to enter the information and how to electronically archiving it. Plans and applications are not enough; training is a necessary aspect" (P3-1).

"...other local agencies still need more employees to computerize the information; therefore, they are still using the traditional means (documents). Yet, such a matter should be discussed between the province authorities and the relative agency" (P9-1).

Besides, in most cases, staff concern and worry about the new technology. They were addressed in the following expressions.

"A few months ago all the employees of (Agency name omitted) were tested in their ability to use simple applications of the computers. The result showed that the majority of them face difficulties to adapt with these applications though they are very simple applications in comparison with the e-government and the systems it uses" (P2-2).

"...there are some employees who find it difficult to use computer, therefore, they resort to the use of documents. This kind of employees includes a number of managers. They are regarded as an obstacle to the progress of the province"(P2-1).

Nevertheless, the small number of IT staff who involve in electronic interaction is also an obstacle to this initiative. The following expressions explain this.

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"The number of the employees does not exceed 12. This number is actually not enough to process all the needs of (Agency name omitted). Therefore, we requested the authorities to provide us with some employees. Unfortunately, the request is still in process since a year ago" (P2-2).

"Regarding (Agency name omitted), there is information exchange process between the agency and (Agency name omitted). Meanwhile, such exchange is almost not existed in the other agencies because of the lack of qualified individuals. Particularly, those important agencies such as (Agency name omitted), the (Agency name omitted) and (Agency name omitted)" (P2-1).

"...However, there are agencies who still use the traditional means as a result the number of the employees who use computers is low, an example is the (Agency name omitted)where the employees who can use computers is very low" (P3-2).

"The qualified employees can be found in two sections, the computers section and the e-government section; however, in the other sections there are employees who cannot even start a computer. When the project was approved first, (Agency name omitted) was the sole beneficiary because of its good possibilities meanwhile at the other agencies such as (Agency name omitted), there was only one individual trained, that was (Person name omitted)" (P4-1).

"There is a lack of well trained employees who are capable of maintaining any damage that may occur with the servers or the networks, however, there is a few number of employees, nearly two, and who are only trained well to repair the damages. I think this number is not enough" (P9-1).

4.2.4.2 Top management Support
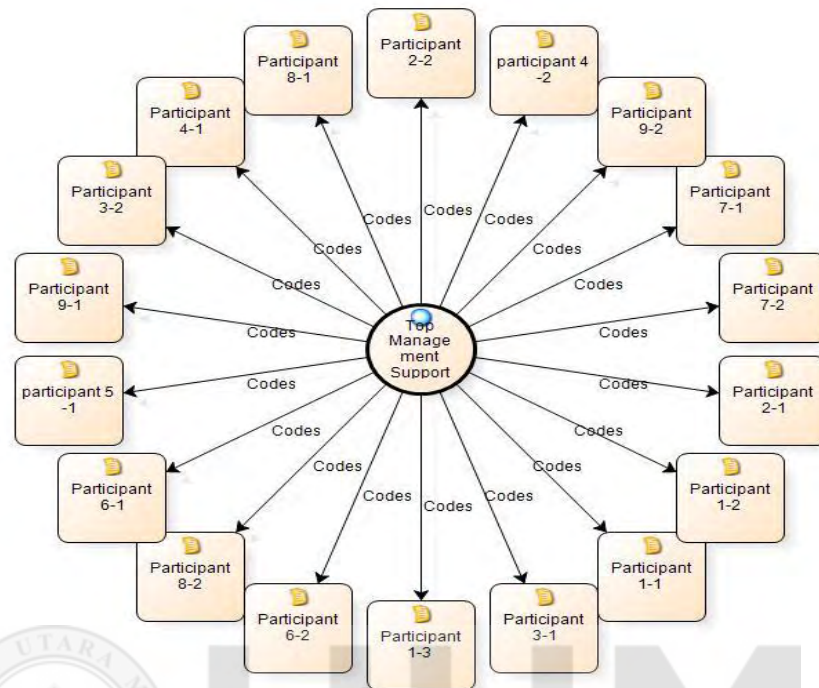
Figure 4.72. Top management support factor in the second interview (Nvivo10)

Besides, top management support is one of the barriers among local agencies in this initiative (as visualized in Figure 4.73). The participants agree that a number of agencies that have significant financial resources, receive most support from the government for the adoption of modern techniques in general and in particular electronic interaction. Among the related expressions are listed in the following.

> *"Actually, the top management at (Agency name omitted) is supporting us. In fact, the fund that is located for the project is given from the province. Moreover, regarding the other local agencies, there are attempts to include them within Dhi-Qar's budget. However, in terms of the financial funds, there is a supported at the moment"* (P6-1).

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"The manager (Agency name omitted) has a great motivation and he is one of the participants in this project as this project has benefits to the province and Iraq"(P6-2).

"(Person name omitted), the manager of (Agency name omitted) is supporting the project. But the delay comes from the top management in the province and the province council where there are individuals who are occupying high positions but they are not qualified to be supervisors at the project" (P7-1).

"Regarding (Agency name omitted) in Dhi-Qar branch, the top management (the general manager and the ministry management) encourages any progress and use of modern technologies to provide services to the local agencies and to the citizens as well"(P7-2).

There is a misunderstanding between the top management on the importance of the electronic interaction. It is seen between the local agencies in the province. Also, there is a lack of interest among the top management in the electronic interaction among local agencies. The following expressions convey the notes.

"There is a motivation, but it is limited, because of the individuals who manage the project are not aware of the importance of the e-government and how to apply it. E-Government<electronic interaction> is not a matter of only devices; it is all about management and awareness as well" (P3-2).

"...The project started in 2004 than some individuals, including me, were sent to Italy. In fact, the project stopped so many times because of technical and political reasons. However, in 2007 funds are provided for the project, unfortunately, the project was administratively neglected by the province top management" (P6-2).

"The top management position regarding the e-government application is deteriorated especially the information exchange among the other local agencies and (Agency name omitted). Actually the (Agency name omitted) fears that these applications are just a waste of money and benefits; therefore, the irresponsibility from the top management will result in the lack of the financial fund which this will obstacle the project or may stop it entirely" (P2-2).

"< Top Management Support > it is very little and intermittently. The fact that some political parties control the power is one of the reasons to stop or to continue the project because some think that this project is one of the means of development while others think it is a matter of wasting money" (P2-1).

In addition, number of supervisors of the project and the change of the top management in the province consistently affect the electronic interaction among the local agencies in the province. The participants expressed the following statements regarding this.

"...the project faced so many obstacles and difficulties. The project theoretically started 2004 and practically it started 2005. The project stopped repeatedly that was due to the different political administrations and unqualified individuals who are controlling the project" (P6-1).

"...the delay comes from the top management in the province and the province council where there are individuals who are occupying high positions but they are not qualified to be supervisors at the project" (P7-1).

"In fact, there are some individuals in (Agency name omitted) who have important positions in the province, but they did not think about the benefits of it, in contrary, they think that this project is an investment for them and not for the province" (P3-2).

Besides, a number of agencies are not ready for electronic interaction. In fact, there is only a little or no support from their management (management of local agencies). It consists in the following expressions.

"Actually, the project inaugurated in 2005, but as you know, every single project may face several obstacles especially in Iraq where there are individuals who oppose modern means of communications. Moreover, the bad decisions that decided by the top management as well as the scarcity of the resources the project may require. All these obstacles led to the obstruction of the project gradually. Moreover, several agencies even reject the idea to cooperate or participate to exchange the information electronically..." (P2-2).

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"Normally planning precedes any application. In this project, the plans were only technical including how to decide the installation places and the agencies that will participate in this project. However, there are crucial issues that need to be reviewed with these agencies because of the critical political situation that may affect the interactions among agencies. Therefore, it is necessary to select these agencies, which are ready to participate in this project and then to circulate the process..." (P2-1).

Having interviewed the participants for the second time, it could be understood that there are a number of factors leading to the practice in electronic interaction among government agencies. In short, they are summarized in Table 4.3.

Table 4.3

Summary of the organizational context

IT Capability
• IT skills among the staff are limited among local agencies, as well as the agencies lack the infrastructure for electronic interaction between local agencies.
Internal Resistance of Change
• Resistance by a number of directors of local agencies to use modern technologies in transferring data among local agencies.
Top management Support
• Lack of interest and support by the managers of some agencies in the electronic interaction for some reasons limits the resources available to the agencies. Also, the lack of support from the province to the participating agencies affects the electronic interaction.
• There is no incentive for employees to use modern technology.

4.2.4.3 Internal Resistance of Change
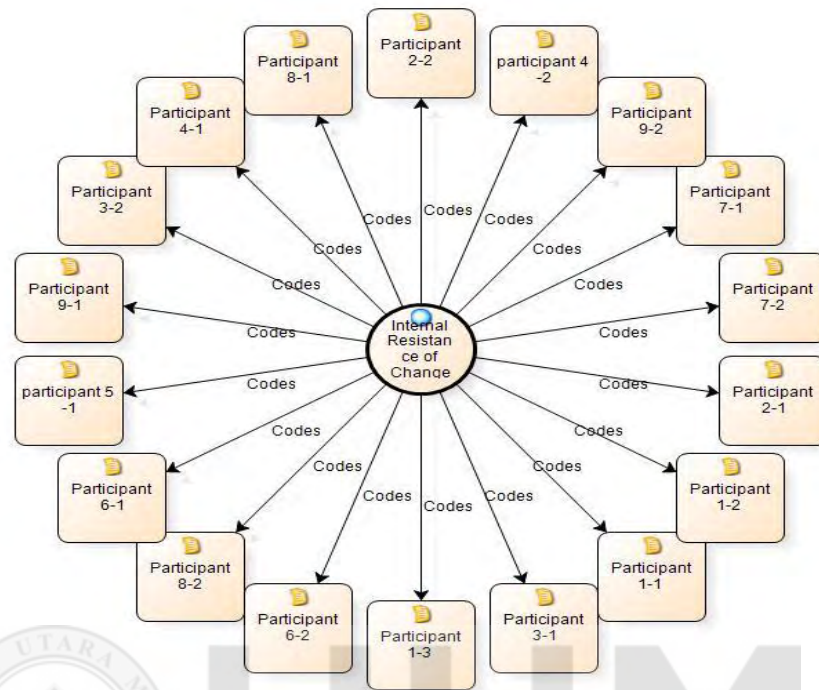
Figure 4.73. Internal resistance of change factor in the second-round interview
(Nvivo10)

One of the most frequently cited barriers among local agencies in this initiative is the

internal resistance to change, or resistance to use (as seen in Figure 4.72). Generally, the

participants noted the number of resistance to change among a large number of directors

of departments of local agencies, as well as older employees. This was expressed through

the following expressions.

> *"Actually, the lack of educating the employees on the importance
> of the electronic interaction and the e-government represents a resistance
> especially the old individuals who occupy high positions such as
> managers or a section manager because they are used to work with the
> traditional means (documents) for a long time and do not even have any
> kind of tendency towards the electronic means, therefore, they think it is
> very difficult to use the modern electronic means because they think they
> will lose their positions at the agency"* (P4-1).

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"...there is resistance from some of the employees especially from the old individuals at (Agency name omitted) who do not have any experience on using computers; therefore, they prefer the traditional means (the documents). Moreover, even the good computers users are another kind of resistance because they are not aware of the benefits of the electronic interaction and they think it is all about wasting money that may not benefit the province" (P5-1).

"Except (Agency name omitted), many other local agencies prefer to exchange their information by the traditional means (documents) and do not like to use the modern technologies; therefore, I think they are in fact resisting the project and changing" (P8-2).

"...there are elderly employees who are in service for a long time; therefore, it is very difficult to educate them and change the entire process of getting the information and to familiarize with the modern technologies" (P1-2).

"In fact, there are many factors. For example, some departments' managers do not accept the project because they are not aware of the benefits the project will bring for (Agency name omitted). This will make most of the mangers to follow the traditional means because of their inexperience of the modern technologies" (P4-2).

Nevertheless, lack of incentives on the use of modern technology is one of the means of resistance to change to use the electronic interaction. The participants addressed it in the following expressions.

"...there is not anything to motivate (Agency name omitted) employees at the present time because of the difficulty of the applications and the lack of experiences and training-courses and, more importantly, because of the funds lack that located for (Agency name omitted)" (P5-1).

"There must be simple applications so that an employee or a manager can accept the idea and then generates a motivation of the employees in using these techniques with ease and without difficulty" (P3-1).

"Recently, there are no motivations that given to the employees of the agencies who participate in this project to use the available applications such as document management system, Email, VoIP and share files. Moreover, there is the need to reduce the work effort through

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the use of modern techniques that may have greater motivations among the employees to use the e-government applications" (P2-1).

4.2.5 Environmental Context

While the previous two sections discuss about organizational and technological contexts, this section discusses about environmental context. In general, Figure 4.74 depicts the factors that affect the electronic interaction, which are further described in subsequent subsections.
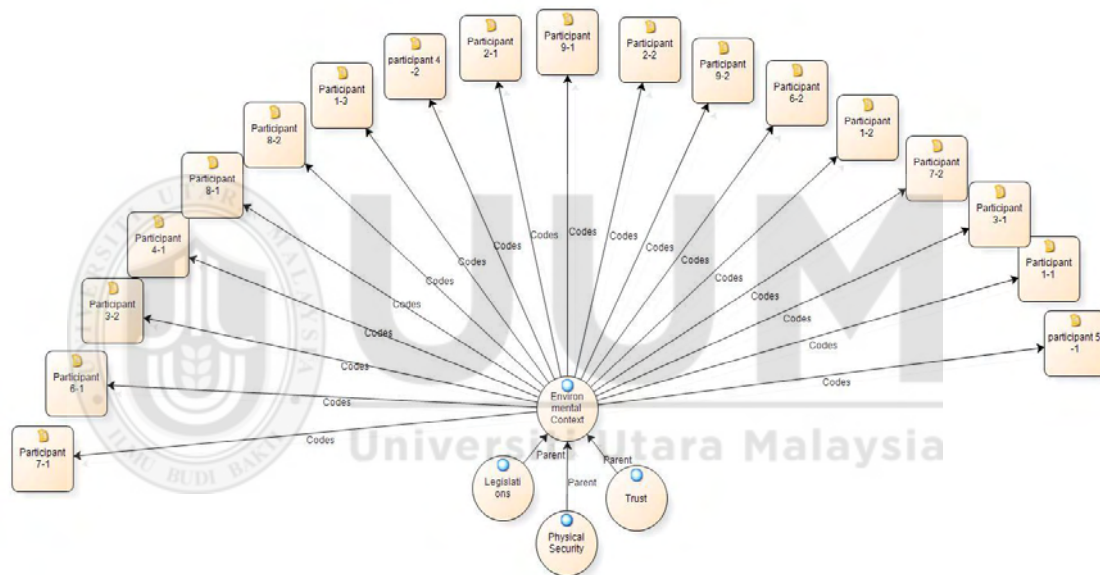
Figure 4.74. Environmental context in the second-round interview (Nvivo10)

4.2.5.1 Trust
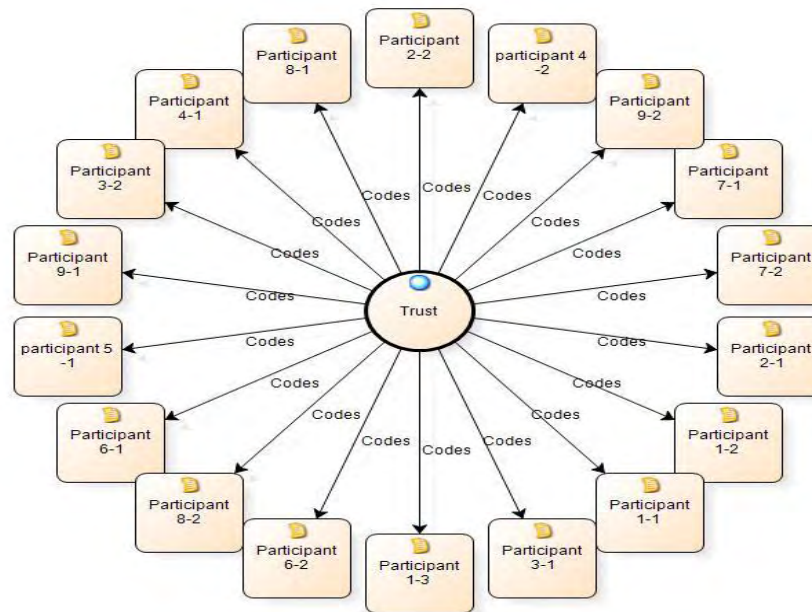
Figure 4.75. Trust factor in the second-round interview (Nvivo10)

Some participants in the interviews stated that there is limited communication and understanding among local agencies, besides some tough times in the past. They relate them with the 'trust' issue. This could be seen in Figure 4.75. Among the expressions are provided in the following quotations.

> *"Actually, the relationships among the local agencies are negative because there are different political parties control these agencies. Consequently, such a situation will negatively affect the electronic interaction project among the local agencies in which trust constitutes an important aspect in this project"* (P5-1).

> *"...there were serious problems among the local agencies at the time of the previous regime; therefore, there was not any kind of trust not only on using the electronic means in exchanging the information, but sometimes even on the process of exchanging the information by traditional means from one agency to another one belongs to specific party"* (P4-2).

"...Regarding trust, (Agency name omitted) does not have any problem with the other local agencies because it is only an educational institution. But as for the other local agencies, and this may seem surprising, there is a lack of trust because of the terrible high percentage of corruption" (P9-2).

"Trust is a complicated issue. The history of the relationship among the local agencies is so worse because of the absolute control of the political parties over the local agencies at the present time. Moreover, because of the different political aspects, a kind of mistrust emerged and there are cases of forge committed by the employees that detected. This made the other local agencies fear the electronic interaction process" (P1-2).

Besides, 'political rivalries' also affects the electronic interaction among local agencies, as well as the lack of transparency in dealing. This was deduced from the following expressions.

"...the political conditions in Iraq have established a barrier among the local agencies resulted in distrust in exchanging the information" (P4-2).

"...the absence of the transparency from the top management regarding the funds of the project and how much so far of fund is spent on the project and how much is assigned. Frankly, if the project continues this way, it will not fulfill its aims" (P9-2).

4.2.5.2 Physical Security
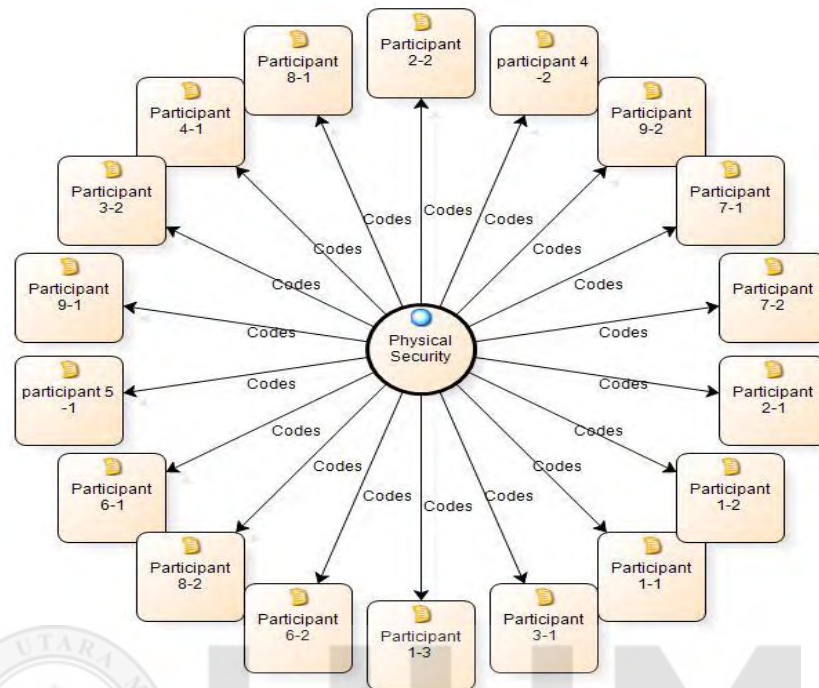
Figure 4.76. Physical security factor in Second Group of Interviews (Nvivo10)

The participants in the interview noted that physical security is another factor that affects electronic interaction among local agencies in this initiative. This is visualized in Figure 4.76. It was noted that they have lack means to protect the hardware (servers and PCs) from external threats, in which some agencies are still using traditional ways to protect the devices and servers.

> *"...As for the e-government center, there is no private control system rather there is only an external lock, but it is not sufficient, because any kind of damage will lead to lose of money and the damage of the equipment. This will make it difficult to equip them again because it takes a long time to re-programming the devices and importing equipment from the original source"* (P2-2).

> *"...the server is located at (Agency name omitted). Unfortunately, there are no cameras to control and monitor it. In fact, the server location is not appropriate at all. Moreover, this is because of the unstable political*

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situation in Iraq and because there is only a wooden door to protect the server and this makes it easier to break in and damage the equipment and lose the information. There is also a problem in the electricity, but there are generators to supply power. However, if it continues this may violate the duration of the use of equipment that supply the servers with electricity" (P2-1).

"There are not any control systems at the servers' locations..." (P7-1).

Nevertheless, constant movement, relocation of servers, and the absence of appropriate locations for a number of participating agencies led to the reduction of transmission of information among agencies. In some cases, they stop the electronic interaction.

"In fact there is not any < Devices to protect the Servers >, the server is in Mr. (Person name omitted)'s office. Actually, it is not an appropriate place but there is not any other suitable place for the server and its devices. Moreover, the server was moved through many locations before it is located in Mr. (Person name omitted)'s office" (P3-2).

"Regarding the (Agency name omitted), there is a camera to control the location in addition to the use of the fingerprint, moreover, only authorized individual are allowed to use the information. In addition, this applies also to the availability of a fire fighting system. But the problem is that the other local agencies are still using the traditional protection devices and instability on one location for these servers in a number of agencies that available in DhiQar province where they are constantly moved".

4.2.5.3 Legislations

One of the barriers that emerged during the interviews is the lack of legislations that require electronic interaction among local agencies. Figure 4.77 represents the legislations for the interviews. It was found that lack of legislation was one of the biggest concerns of the local agencies. This is obvious through the expressions in the following statements.

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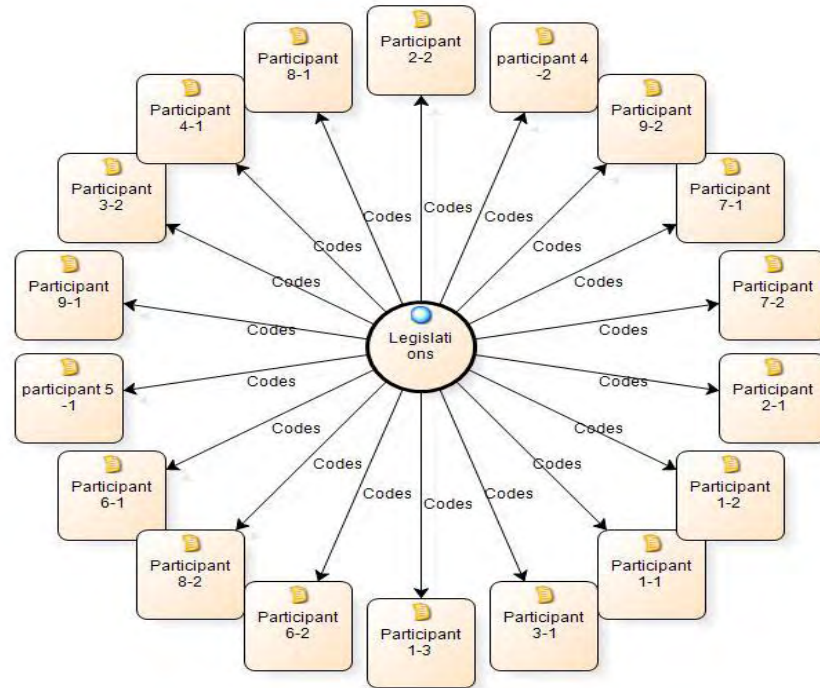
Figure 4.77. Legislations factor in the second-round interview (Nvivo10)

"*The most important factor is the absence of the lawful legislations through which local agencies will know their responsibilities towards the electronic interaction process among the governmental local agencies locally or internationally. Moreover, the managers of these local agencies need to know that it is difficult to hack the information and that security is an important factor in this project*" (P1-2).

"*That is actually what I want to comment about at the beginning of the interview. I think legislations are very important. The existence of such legislations in the electronic interaction process among the local agencies will make legislations a priority to the agencies and will force the other agencies who do not want to involve the project to participate in the electronic interaction, moreover, the legislations will make it clear to identify what kind of information to exchange electronically. Still, the question arises from a number of the local agencies regarding the type of information that should be shared*" (P9-1).

"*...according to the recent situations, it is difficult to trust the information exchanged by the local agencies unless they are attached with a hardcopy (document), this is a sign of the lack of trust among some of the local agencies because of the absence of laws*" (P8-1).

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Another issue that has been frequently mentioned, which is highly related to lack of legislation is the lack of commitment from the local agencies. They expressed in the following statements.

> *"There are not legislations. If there are laws from the government to apply the electronic interaction among the local agencies, therefore, the employees will not request the agencies managers' permission in the process of the exchange information. Actually, this is an important factor that should be solved by issuing laws that facilitate the exchange process and identify the possible means for the exchange process and the type of the information because the (Agency name omitted) rejected the interaction; however, this will not happen if there are laws".*

> *"Actually, a number of letters have been already sent to a number of local agencies at the beginning of the project. A few numbers of these local agencies responded reluctantly, but the other have not responded yet. These letters are about the participation in this project. However, there are no restrictions compelling the managers to participate in this project. So I think it will take time until all local agencies be ready to participate"* (P3-2).

Additionally, the participants also mentioned that without an effective legal mandate and binding contracts, successful inter-agency information sharing would be difficult to achieve. It is obvious through their following expressions.

> *"So far, the federal government is discussing the laws that must be set in order to facilitate the process of the electronic interaction among the local agencies. However, the delay is not in the interests of the province (the province of DhiQar)"* (P1-1).

> *"The government took a long time thinking of legislating laws regarding communications. Unfortunately, so far no laws to support the e-government applications are issued, particularly, the electronic exchange information among the local agencies and ministries. Legislation of the laws is in fact an essential factor influences the project, because when laws regarding the e-government are issued at this time, therefore, the other local agencies will have no excuses not to participate in this project"* (P1-2).

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"One of these factors is that, the current frequency the project uses is used by many other internet companies as well. This is because of the lack of laws and supervision that identify the devices these internet companies and the local agencies should use" (P9-2).

Having analyzed the results, it is understood that they environmental context highly affects the electronic interaction among the local agencies. In short, they are summarized in Table 4.4.

Table 4.4

Summary of the environmental context

Trust
• Problems of relations among the local agencies, and the lack of trust between them. Physical Security
• Lack of protection devices to prevent external risk on the devices used in the electronic interaction among the local agencies.
• Frequent server relocation result in damage to the devices as well as the constant interruptions.
Legislations
• The lack of legislations that support the electronic interaction among the local agencies, and obligated agencies to use electronic methods to send information.

4.3 Summary of Chapter Four

This chapter presents the findings and the qualitative analysis of the data gathered from the interviews conducted involving employees from the local agencies. The chapter has achieved its aims of highlighting the technology, organizational and environmental context that influenced the interaction among local agencies in Dhi-Qar. In total, thirty-six semi-structured interviews were conducted with employees in the first interviews (first round questions) to gain the employee's viewpoints regarding the factors that might influence the G2G interaction in Iraqi province Dhi-Qar. Then, the second round

interviews (second round questions) were carried out to gain the employee's viewpoints regarding the significant factors that influence the G2G interaction in Iraqi province Dhi-Qar. The data analysis process includes two parts: In this part, the interviewer asked the interviewees several general questions to answer the specific research objective one: t*o discover the factors that might influence G2G information sharing in the Iraqi province of Dhi-Qar.* The findings are analyzed to discover the factors. While, the purpose of the second-round interview (second of interviews group) was to further ask all participants about the factors that was discovered from first-round interview (first group of interviews) to answer the second specific research objective, that is *to highlight the main issues that affect G2G information sharing in the Iraqi province of Dhi-Qar*. Table 4.5 summarized the extracted factors based on the Technological contexts, Environmental contexts and Organizational contexts.
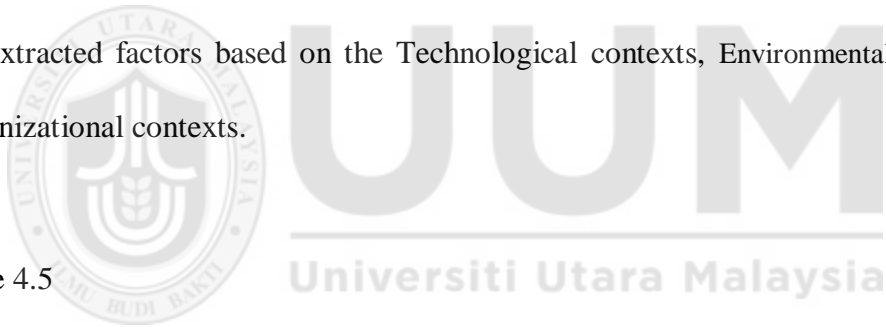
Table 4.5

Summarized the extracted factors based on the Technological contexts, Environmental contexts and Organizational contexts.

	Environmental	Organizational	Technological
Benefits			√
Compatibility			√
Complexity			√
Costs			√
Information security			√
Internal resistance of change		√	

IT capability		√	
Legislations	√		
Physical Security	√		
Top management support		√	
Trust	√		

In addition, Nvivo software tool have been applied to conduct in depth analysis in each of the phases.The next chapter will discuss the main research objective that is to propose a model of G2G Information Sharing for local government in Iraqi Province of Dhi Qar. The model will validated with a case study of an e-government initiative.

CHAPTER FIVE
CASE STUDY VALIDATION OF THE ELECTRONIC INTERACTION MODEL

5.1 Introduction

The implementation of e-Government in developing countries still faces many challenges and issues. Iraqi Government after 2003 strives to use the modern technologies in the public sector. In 2004, Dhi-Qar Province was selected by the government to apply the e-Government initiative at the local level, in which G2G information sharing was considered as the backbone of the e-government. At the same time, there were various projects and initiatives in different ministries and levels or for the whole government. In this chapter, the findings explained in Chapter 4 are compared with the e-Iraqi portal. Consequently, the issues or challenges impeding this initiative will effect on other projects too. The main expected benefits from all these projects are to reduce service delivery time, overcome corruption, and enhance the transparency. The information for this case study is obtained from various sources (Articles, Official websites and e-Iraq portal report) to ensure the information is exhaustive.

5.2 IRAQ e-Gov Portal Project (e-Iraq) Case Study

Iraq e-Gov Portal is the core component of the current e-Government Program in Iraq and roles as the official site for the Government of Iraq on the Internet. With it, users are able to access the government services 24 hours a day, everyday in bilingual. As a central portal that enables all citizens including business people and government employees to

search and find information and services, Iraq is able to be proud of such project, which costs more than USD120 million. With its objective to create a central point of access to information about the services offered by the Government of Iraq, this study refers the project as e-Iraq portal. Ultimately the portal is a "one stop shop" that is at the heart of user interaction with the government. It provides a central framework for organizing and presenting information about the services offered by the entire government. It is a sophisticated and interactive web-based application designed to reach targeted users with timely and accurate information and services. More importantly, e-Iraq portal (exhibited in Figure 5.1) was created to provide the citizens and business users with a centralized, consistent, speedy and efficient source of information on government services.

Figure 5.1. E-Iraq Portal

It started in 2009, in which the Ministerial Steering Committee (MSC) was established by the Iraqi e-Government for the e-Iraq portal initiative. The committee was chaired by The Ministry of Science and Technology and some of the ministries in the Iraqi Government (Such as, Ministry of Finance, and The Ministry of Planning and Ministry of Health). MSC was responsible for the implementation of e-Government programs and organize electronic services emerging in the government. Later, in the beginning of 2010, the e-Iraq Portal project was launched, set up after the Dhi-Qar Province project. This is because the Dhi-Qar Province was stable at that time, and under the leadership of the Italian government, which was responsible for the development of the technological aspect in Iraq. Therefore, e-Iraq portal was suitable to understand the difficulties it faced from the Electronic Interaction Model (EIM) perspective. The problems of the e-Iraq Portal initiative are further discussed in the EIM section. This project involved several services including citizens, business, government, and non-government services. The following sections discuss each service:

5.2.1 Citizen Services

Citizens services provides electronic gate for the Iraqi citizens. It contains information and services that the citizens need by connecting them with the government departments, and the provision of information on the Internet for any requested services. More importantly, it provides the applicants with all relevant information, required documents, forms, links and contact information on the services provided by various ministries and agencies.

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5.2.2 Business Services

Business services provides the gate of electronic business services for business owners in Iraq and it helps all persons seeking for support from the Iraqi Government especially in business.

5.2.3 Government Services

It offers information and services the citizens need by connecting Government institutions with respective government departments and agencies and providing online information about the required services.

5.2.4 NGO Services

It offers information and services they need by connecting NGOs to the respective government departments and agencies and providing online information about the required services. Here, applicants will find all relevant information, required documents, forms, links and contact information to services being offered by the different government departments and agencies.

5.3 Electronic Interaction Model (EIM)

Iraq e-Government ranked similarly from 2012 to 2014 in the United Surevy e-Government. Based on this survey, which ranks portals in the Asian countries and the Middle East, e-Government in Iraq is still at the bottom of the list. Thus, EIM can be used as a benchmark for e-Iraq Project and other initiatives. The proposed EIM consist of Technological Context (Costs, Benefits, Complexity, Compatibility, and Information

security), Organizational Context (IT Capability, Top management Support, and Internal Resistance of Change), and Environmental Context (Trust, Physical Security, and Legislations) as seen in Figure 5.1. The previous studies, reports, the official website, as well as other reports from some ministries form the core sources for the information about e-Iraq Portal.
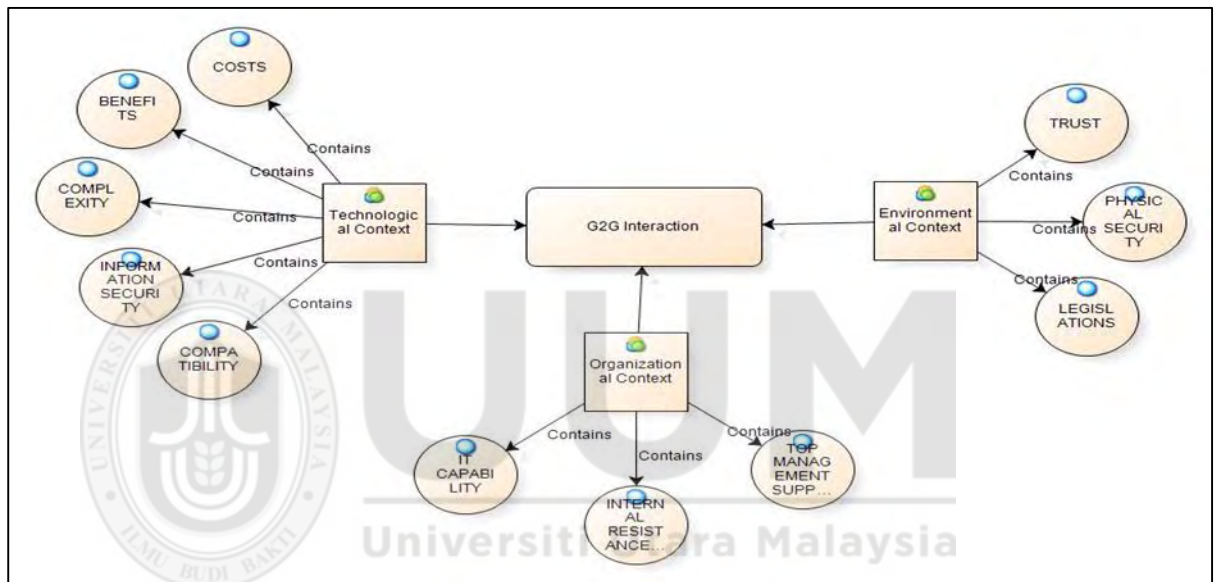
Figure 5.2. Proposed Electronic Interaction Model (NVIVO Results)

5.3.1 Technological Context

5.3.1.1 Costs

Implementation of the e-Government services requires a number of planning and design processes to be successful and that using such an approach may, in fact, increase the costs of providing E-Government services (Bertot, Jaeger & McClure, 2008; Pathak, Singh, Belwal & Smith, 2007). The findings of this study highlight that the information sharing

process across different local government agencies is costly. The continuation of the initiative also depends strongly on the availability of funds, because unexpected budget affects the progress of a long-term information sharing project. However, most of the local agencies face difficulties in obtaining sufficient funding.

In e-Iraqi Project, Mohammed, Ibrahim, Hussein, and Anad (2013) acknowledge that the structure and design for the e-Iraq project is costly. In addition, this centralization structure increases the integration costs. Therefore, it is advised to use vertical and horizontal features to decrease the cost of delivering services. Thus, implementing such projects (e-Iraq and information sharing project) is considered quite costly as it requires bringing together both tangible (people, money, equipment, etc.) and intangible (data and information) resources. Moreover, the Minister of the Science and Technology of Iraq, the honourable Mr. Abdul-Karim Al-Samarrai said that the beginning of the e-Iraq project is still hobbled by the lack of coordination between ministries, and without allocation of a real budget for this project.

Based on the above discussions, the cost is deemed as the crucial factor that influences the implementation of the e-Government in both the e-Iraq project and the information sharing project in this study.

5.3.1.2 Benefits

Relevant studies illustrate that identifying expected benefits of information sharing among the agencies in public sector can play an important role in encouraging participation in

this initiative. In conjunction, Bigdeli, Kamal and de Cesare (2013) found successful information sharing projects in the public sector can bring several advantages such as increased productivity, improved decision-making processes, shared and integrated service delivery. It could be achieved partly through harnessing new technologies (such as, Kamal and Alsudairi (2009), Klievink and Janssen (2008), and Tarabanis and Tambouris (2006)).

The information sharing project among local agencies face various barriers such as, confronting with unreal expectations of the outcome and impatience in gaining benefits in the early stages of the project. Also, there is lack of agreement on mutual and fixed goal. Such barriers can severely limit the the potential benefits of information sharing among the local agencies and may result in failure of the project.

In terms of the benefits of the e-Iraq project, it is centralized and only contains general information on Iraq. There are weaknesses in the e-Iraq project since 2010 (Abdulwahid, Mutalib, Yusof & Alib, 2014). In response to that, Mohammed et al. (2013) suggest that the Iraqi government should also use decentralized approach so that it benefits all stakeholders. So far, only five (5) ministries out of twenty four (24) use the e-government services. As a result, this project may not provide benefits for the relevant stakeholders as only a small percentage of the e-government services are made available. In fact, Abdulwahid et al., found that the e-Iraq project needs to be improved with increased active characteristics. The discussions in this section sufficiently point a strong justification to

consider benefits as a factor that influences the e-Government in general and information sharing project in particular.

5.3.1.3 Compatibility

Compatibility can take on a very broad meaning. In 1983, Rogers defined the compatibility as, the degree to which innovation fits with the potential adopter's existing values, previous practices, and current needs. In the information sharing aspect, Moore and Benbasat (1991) and Akbulut (2003) define it as the degree to which participation in electronic information sharing with agencies is perceived as being consistent with existing systems, tasks, and also the current needs of each agency.

In this study, after analyzing the data, as discussed in Chapter 4, two kinds of compatibility emerged; technical compatibility and organisation compatibility. The technical compability indicates the degree to which the technologies required for information sharing are compatible with the existing systems of the local agencies (such as, hardware and software). Information sharing initiatives face several difficulties in their use and integration. Meanwhile, organization compatibility refers to the degree to which changes introduced by information sharing initiatives are aligned with existing practices and current needs of the local agencies. In conjunction to those concepts, many local agencies in this study face incompatibility problems in terms of both technical and organization. In short, local agencies prefer useful projects that meet theer needs.

With regard to e-Iraq initiative, Abdulwahid (2015) found that the user satisfaction on the e-Iraq project is very low and that the current project needs to be re-designed by adding a set of important and influencing features to make it easy to use and useful. Based on his study, 87% of the respondents were not satisfied with the e-services available in the portal. In addition, the access of the users to the e-Iraq portal is still very low. This may be due to the lack of services from the portal on important information of interest to agencies and citizens that have not been met in this project. Abdulwahid also adds that e-Iraq portal is not helping the stakeholders in government to perform their tasks and also not meet their needs. In same vein, 75% of the online services still need to be equipped in the e-Iraqi project (UN, 2012). Therefore, compatibility can be considered as a factor that influence on the e-government projects.

5.3.1.4 Complexity

The complexity of the implementation of e-government is also creating challenges to the government in influencing stakeholders' intention to use the e-government services (Lean, Zailani, Ramayah & Fernando, 2009). In the same context, electronic information sharing in the public sector may contain complex ideas or processes. Therefore, Akbulut (2009) expresses that the information and communication technologies required for information sharing among the government agencies might be difficult to implement and use. With respect to the information sharing project among the local agencies in Dhi-Qar province, the local agencies who participate in this initiative talked about their staff facing difficulty in using the the system, and that the electronic information sharing process delays their

tasks. The local agencies refused to accept such new initiative as compared to face to face. This made them decided not use it again after using it for the first time.

With regard to e-Iraq, Abdulwahid (2015) found that the process to use the e-services by the users (citizens, business, and agencies) is complex and takes time. There are at least seven steps users have to perform before accessing the e-services. Accordingly, Abdulwahid recommends that the interface of the portal needs to be re-designed so that it is easier and more intuitive. In addition, this portal should enable the users to select, analyze, interact, and download materials at any time. Also it should be in trilingual (Arabic, Kurdish, and English) so that it is usable by all interested parties and be less complex (UN, 2012; Al-Taie & Kadry, 2013). The complexity of e-Iraq portal reduces the likelihood of participation because it requires additional skills and effort from the citizens and agencies when using it. Consequently, it can be argued that Complexity influences the e-government project in general and the information sharing in particular.

5.3.1.5 Information security

Lack of security is one of the main problems associated with the use of any modern technologies in the public sector. The users' satisfisfaction and use are crucial for the success of any IT project. The e-government project will not be successful if the users (citizens, business, or government agencies) do not accept it and refuse to use the services provided. Particularly if security is not guaranteed, they may be reluctant to use these services.

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In the information sharing project, the local agencies in Dhi-Qar are concerned about the information security. They are worried on the security of the electronic information sharing and apprehensive about unauthorized access and privacy rights. In fact, information security is achieved by implementing a suitable set of controls, including policies, processes, procedures, organizational structures and hardware/software functions. However, information sharing project provides only simple protection programs. Therefore, the information sharing among local agencies in Dhi-Qar is exposed to several penetration operations only at the beginning of the project.

The government of Iraq has entered the 'new economy' environment with ICT, where information security issues emerge in the form of malicious electronic intrusions and attacks. However many information system projects in Iraq have not been designed to be secured. One of these projects is the e-Iraq portal (Abdulwahid, 2015). In regards to that, Al-Dabbagh (2013) urged a system with lack security features is difficult to accept because it can jeopardize the continuation of e-government initiatives in Iraq. Th e-Iraq portal does not use the HTTPS feature, which exposes users to vulnerability in terms of attacks and surveillance. This means that the protection for security is low. Therefore, information security is crucial to protect Iraq e-government portal.

5.3.2 Organizational Context

5.3.2.1 IT Capability

IT capabilities indicates the level of IT resources, personnel IT knowledge, and IT sophistication of an organization (Akbulut, 2003; Akbulut, Kelle, Pawlowski, Schneider

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& Looney, 2009). Many researchers found that IT capabilities is an important factor for utilizing modern technologies in public sector (such as, Fan, Zhang & Yen, 2014; Bigdeli Kamal & deCesare, 2013).

In local agencies in Dhi-Qar, there is a wide disparity in the level of IT capabilities. Thus some of the agencies have different attitudes towards information sharing. The IT skills of local agencies' staff are considered as a crucial issue that constrains the implementation of information sharing in Dhi-Qar. In the same context, lack of sufficient IT infrastructure in the local agencies is deemed as a barrier to participate in the information sharing and also to complete the project on time.

With regards to the e-Iraq portal, Al-Dabbagh (2013) found that there is a need for better skilled personnel who can take initiative and carry out the project without higher intervention, which agrees with Al-Taie and Kadry (2013). They discovered that recently Iraq has lack of qualified IT staff because many IT-skilled people have migrated to other countries for better living chances. As an illustration, 20% of the Iraqi ministries lack the necessary skilled IT staff and therefore, they still proceed with their daily works in the traditional way and this affected on the implementation of e-Iraq portal. In fact, Danziger (1980) earlier underlined that one of the most important factors in the adoption of computer applications in the government initiatives was staff competence. Also, this portal is not designed in an optimal way (Mohammed *et al,* 2013). Al-Taie and Kadry (2013) also indicated that, Iraq lacks the necessary information and communication infrastructure. In general, e-Iraq portal has still not achieved its goal, since there are still

many challenges and problems associated with IT skill and infrastructure to the e-government success (Al-Dabbagh, 2013). More specifically, e-Iraq portal requires a set of skills, but these skills do not exist in the government institutions (e-Iraq report)

5.3.2.2 Top Management Support

According to Fan, Zhang, and Yen (2014), the top management support is one of the most frequently discussed factors in the literatures on successful system implementation. It can help initiate and sustain the information sharing project among agencies (Yang & Maxwell, 2011).

In this study, the commitment by managers of local agencies and departments in providing a positive environment may encourage their staff to participate in the electronic information sharing with another local agencies or any project that uses modern technologies. Unfortunately, the support by managers of local agencies for information sharing project in Dhi-Qar is still lacking, similarly with the incentives. Without supports from the managers of the agencies, the initiative is less likely to be accepted. Thus, the lacking support by the top management is considered a barrier to information sharing project.

In the e-Iraq portal, it received good supports from the top management such as the Minister of Science and Technology (e-Iraq report, 2015). They consistently played an important role in Iraq in the adoption, implementation, and continual use of the portal in general, and information sharing in particular. However, it was also discovered that there

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is a need for a support of leadership from those responsible for the project, to coordinate the works among the various ministries and departments, as well as between different levels of government. In the e-Iraq project, only five (5) ministries took part, while thirty seven (37) others do not. Thus it can be concluded that although the top management of the nation has committed, the top management of individual minsitries, or agencies need to also be on board.

5.3.2.3 Internal Resistances of Change

Briefly, resistance to change emerges from the fear of loosing priviledges or jobs. AL-Naimat, Abdullah, and Ahmad (2013) discovered that the reasons of resistance to change include user's fear of new technology and its impacts on their live. It is inline with Bhatnagar and Deane (2004) who earlier considered that the resistance to change as the biggest challenge to e-Government implementation, which needs much effort to overcome.

Since 2004, the information sharing project has been facing various difficulties. Some of the problems are attributed to poor planning, lack of support by the top management, and resistance of change among the employees and directors. Employees in some of the local agencies are not well-trained in using ICT, in which this inadequate training results in resistance to change due to the fear of new technology. The employees' lack of motivation to use modern technologies is one of the means of resistance to change to involve the information sharing project.

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Regarding the e-Iraq project, according to the head of the b-planuk company (Mr. Shirko Al-Abid), which is responsible for processing the e-government technologies in Iraq, there are companies who keep using the old system and do not seek to progress (Babnews, 2013). He also pointed out that some consider that modernity and organization of work with computers will prevent them from manipulating public funds, thefts, and other. This agrees with the speaker for the Ministry of Planning, Mr. Al-Hindawi who said that there are departments in specific agencies that still refuses to move to the electronic system. These agencies prefer to use the traditional paper-based method. Therefore this study reveals that resistance to change is also among the issues that influences the implementation of the e-Iraq project.

5.3.3 Environmental Context

5.3.3.1 Trust

Many previous studies have indicated the importance of trust (whether Trust of the Internet or trust of Government) in relation to users' acceptance and use of modern technologies. Generally, across discipline there is an agreement that trust only exists in an uncertain and risky environment (Lean, Zailani, Ramayah, & Fernando, 2009). In Iraq, both political and civil situation are not stable enough, that they have affected the smooth transition from one party in power to another. That is the reason that Yang and Maxwell (2011) express that inter-agency trust is one of the fundamental conditions for establishing an information sharing project

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Trust between agencies is critical in the information sharing initiative. It can enhance better communication and promote efficient information sharing. The multiplicity of political parties in Iraq generally and the province of Dhi-Qar in particular controls a number of government agencies. Thus, there has been lack of mutual trust between agencies especially when sharing documents in the traditional manner. Particularly, each local agency tends to collect its own information about the same subject. Eventually, such distrust among members of agencies creates barriers to information sharing initiative among local agencies in Dhi-Qar.

In the e-Iraq portal project, Al-Dabbagh (2013) stated that, problems and challenges exist outside the government scope, but directly influence the e-government project such as the lack of citizen trust towards the government. The citizen trusts on the traditional methods more than the services available in e-Iraq portal. Therefore, the latest report about the national strategy and action plan of the Iraqi e-Governance 2012-2015 recommends the government to create good relation with the citizens and enhance communication, thus this will lead to increased trust and helps to accept and use the e-government by all stakeholders. Abdulwahid (2015) also found that transparency is essential in e-Iraq portal to win the trust of citizens. Based on earlier discussion, it can be argued that trust influences the e-government in Iraq whether in the e-Iraq project or information sharing project

5.3.3.2 Physical Security

According to Setiadi, Sucahyo, and Hasibuan (2013) and Andress (2014), physical security refers to the controls that protect the physical environment or systems place, or where the e-government servers, data, network and infrastructure are established. In fact, the security sector is absolutely necessary due to the high price of failure. For this study, it is particularly a high priority as Iraq is in a conflict situation.

With regard to the information sharing project, there are various issues related to the lack of physical security. As an example, the local agencies have lack protective mechanism to prevent any external threat on the services or the computer devices that are used in the information sharing initiative in Dhi-Qar. In addition, continuous changes in the location of the servers can result in damage to these devices and may also affect the integrity of the data.

Similarly, the e-Iraq portal project faces problems with the safety of the equipments and employees. According to Mr. Al-Hindawi as the speaker of the Ministry of Planning, the equipments for the project was installed mainly in the Ministry of Planning, and then it was decided to transfer them to the Ministry of Science and Technology. The number of ministries that should be covered by this project is about twenty four (24). Some of these ministries do not have adequate resources to protect their equipments, and as the current security situation in Iraq is bad, some of the ministries change their location under emergency circumstances. Therefore, in unstable countries, the physical security is considered very important.

5.3.3.3 Legislations

In legislation aspect, Yang *et al.* (2014) state that a suitable legislative rules that protects information privacy is critical. Similarly, researchers indicate that the lack of legislative support to assure the privacy and confidentiality of shared information initiatives (Atabakhsh et al., 2004; Zhang & Dawes, 2006) is a serious matter. Therefore, this study notices that legislation has a significant effect to the implementation of the information sharing initiative among the government agencies and in other e-government in general (Fan, Zhang & Yen, 2014)

In both projects, the information sharing initiative among local agencies in Dhi-Qar Province (2004) and the e-Iraq portal (2010) the government has focused mainly on the technological aspects, more than the environmental context, while Heeks (2006) mentioned the importance of environment issues which if neglected may lead to failure of the entire e-government projects. However, after more than 10 years, the local administrations in the province of Dhi-Qar still believe that the reasons for the delay in the project and the small number of participating agencies are only related to technological aspect. Without proper legislations during implementation, it is revealed in the findings of the information sharing initiative that local agencies can easily abort the information sharing initiative with various excuses.

On the same note in the e-Iraq portal project, the MSC recommends that the current legislations need to be updated to incorporate cybercrime, and the theft of electronic data. Also it must modify the legislation upon intellectual property rights to include the

protection of electronic content ownership. This committee also adds that the legislations must be provided to regulate and authorize access to information and to match the data to facilitate the exchange of information. Thus, the lack of legislation enables smooth electronic information exchange among local agencies to protect personal privacy and the rights of agencies will hinder the implementation of e-government projects.

5.4 Summary of Chapter Five

Based on the discussions in the previous sections in this chapter, including the EIM and the extracted factors, it is understandable that e-Government initiatives may face problems or failure if these factors are not taken into consideration. It is difficult to understand why the e-Iraq portal implemented in 2010 faced similar issues with the information sharing initiative in this study (implemented in 2004). It is noticed like a repeated mistake from a previous project that was not realized and shared among the ministries in the implementation of e-Government initiatives in Iraq, regardless of the levels of administartions. While this chapter discusses the factors, the following chapter discusses the findings that lead to sufficient understanding.

CHAPTER SIX
DISCUSSIONS

6.1 Introduction

The data based on the interview sessions were used to generate the figures using Nvivo10 as discussed in Chapter 4 to meet the objectives of the study. Chapter 1 outlines the main objective of the study, which is to propose the EIM model for G2G information sharing in Dhi-Qar, Iraq. The model was validated with a previous e-Government initiative case study for a comparison. In this chapter, the empirical findings are discussed in detail. It also discusses the issues highlighted in the implementation of the information systems for the local government agencies.

6.2 Discussion

Information systems planning, development and implementation pose a challenge for organizations due to the huge investment needed to capture and process data and produce information for decisions makers to make right decisions at the right time. Often the returns on investment are not clear and may not be tangible, and management is weary to spend more money to maintain the systems. This problem is compounded particularly if the information systems are part of the e-Government initiatives using public fund to deliver information and services to various users. Many government agencies particularly at the local level have severely limited resources, especially in terms of skilled manpower and budgets, which are needed in the implementation and maintainance of IS.

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In response to that, this study proposes the G2G EIM as seen in Figure 6.1 for information sharing. The model has been compared with the Iraqi e-Government portal. The previous chapter explains that e-Government initiatives in Iraq reflect the importance of each factor in electronic sharing of information.
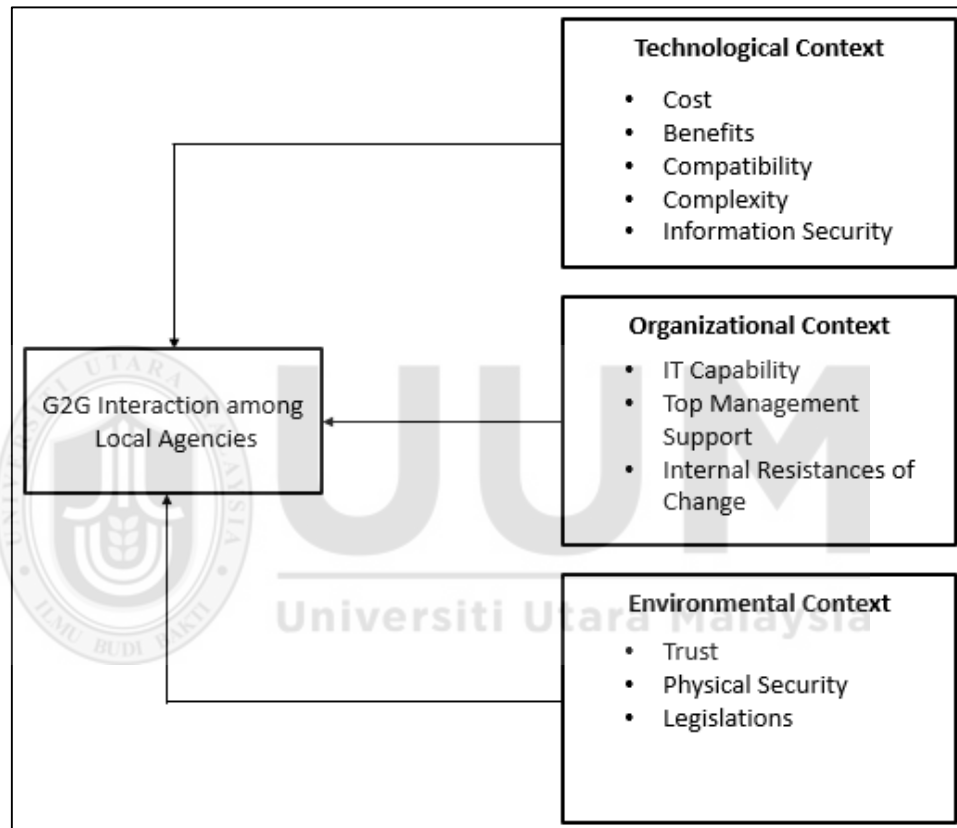
Figure 6.1. G2G Electronic Interaction Model

The model depicts the various factors discovered and confirmed by Nvivo. These factors were accepted and seen as necessary from the employees' viewpoints. The experiences of all individuals interviewed in this study, from various agencies support the model. Upon delving into the data from the second interview, the researcher extracted several

issues among the matters the employees revealed in the interviews, especially those raised again and again by employees across the agencies. Nvivo showcases the participants who have mentioned these factors and issues, however, as this is a qualitative study, the frequency of the statements or the number of employees have not been recorded (as suggested by Smith (2013, pp 66)). Rather, the factors in the model are more appropriate to be discussed, hence detailed in the following subsections.

6.2.1 Technological context

6.2.1.1 Cost

One factor found to affect the decision to participate is cost. Local agencies are greatly concerned with the costs that come with electronic interaction initiatives, such as setting-up, maintenance, and training. Generally, local agencies have limited resources as compared to state and federal agencies. Additionally, majority of the agencies rely on their ministers. The cost of participation and limited resources prevent many agencies from taking part in electronic interaction projects among agencies.

This is supported by the findings in Chapter 4, in which many local agencies have insufficient computer hardware and software. The setting-up and maintenance costs as well as affording for compatible computer systems are perceived as additional expenditures for most local agencies. Consequently, the management often decides to reduce costs by buying cheap alternatives or not buying proper equipments, and refuses to send staff for training. Eventually, with the rapid development of technology, such agencies face the problem of obsolete machines and staff who are not able to fight attacks

on the systems. Previous studies (listed in Figure 6.2) also confirm the effect of costs to process electronic interaction, and this finding indicates the importance of costs in the electronic interaction between local agencies.
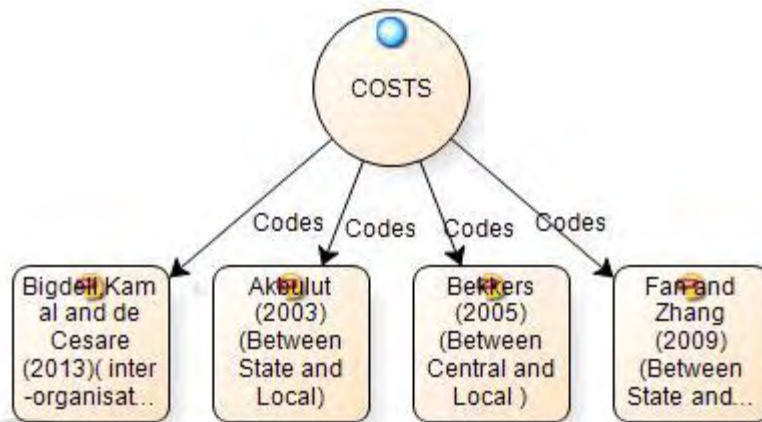
Figure 6.2. Previous studies dealing with cost as a factor in the process of interaction

Cost influences the electronic interaction among local agencies. The level of the participation among the local agency can be increased by means of financial assistance in general and specific technology grants in particular. Allocating grants that are more inclusive is a better option than creating a competitive environment for local agency technology grants since all local agencies can be considered for these grants. Awareness and promotional programs could also be carried out to make local agencies realize that the benefits obtained from electronic participation will justify the investments they made. According to Akbulut (2003), another approach that could be taken is the use of an Application Service Provider (ASP), which allows the burden of system design,

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development, and maintenance to be outsourced to a common third party. Furthermore, Dhi-Qar could provide assistance with the costs associated with ASP service provision.

6.2.1.2 Benefits

Benefits turned out as a frequently cited factor. Based on the interviews, some of the agencies claimed that involvements in the electronic interaction initiative help them attain certain benefits, such as increased information accuracy and timeliness, streamlined data management, and improved decision-making. Other agencies thought that the benefits were low, or they were unaware of how participation in the G2G interaction can benefit them. The researcher felt that the agencies that have bigger budgets were able to gain benefits from the initative, unlike those agencies that have not been able to spend money to train their staff, or buy necessary equipments. It is a vicious circle that makes the low budget agencies become more isolated due to the lack of resources to provide them the benefits.

Table 6.1

Summary of Issues Raised

TECHNOLOGICAL CONTEXT
COSTS
• Agencies involved in the process of electronic interaction have budgetary constraints, and the electronic interaction process between local agencies cause additional agency costs associated with maintenance, support, and staff training.
BENEFITS
• Lack of perceived benefits of the electronic interaction between local agencies, and lack of awareness of the potential benefits of the process of interaction.

COMPLEXITY

- Difficulty in using the new system, and in accepting the concept of electronic interaction between agencies.

COMPATIBILITY

- Inconsistent with the needs of the local agencies involved in the process of electronic interaction and objectives.
- Incompatible with the existing systems.
- Requires tasks distribution (data entry process).

INFORMATION SECURITY

- Fear in the process of sending information by electronic means between local agencies.
- Requires protection devices and software used in the process of electronic interaction between local agencies.

ORGANIZATIONAL CONTEXT

IT CAPABILITY

- Limited IT skills among the staff of local agencies.
- Lack of infrastructure for electronic interaction among local agencies.

TOP MANAGEMENT SUPPORT

- Lack of interest and support for the electronic interaction process from some managers of the agencies.

TOP MANAGEMENT SUPPORT

- Lack of interest and support for the electronic interaction process from some managers of the agencies.
- Other reasons include limited resources, lack of support from the province to the participating agencies.
- Lack of incentive for employees to use modern technology.

ENVIRONMENTAL CONTEXT

TRUST

- Connection problems and lack of trust among local agencies.

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PHYSICAL SECURITY

- Lack of protection devices to prevent external risk on devices used in the process of electronic interaction among local agencies.
- Frequent location change of servers can result in damage (to the devices) as well as constant data interruptions.

LEGISLATION

- Lack of legislations that support the electronic interaction process among local agencies, and oblige agencies to send information via electronic methods.

The discrepancy in the findings of the qualitative study can be explained by the assumption that the awareness of the local agencies of the potential benefits of electronic interaction in general indicates that the agencies perceive the initiative in certain electronic interaction as beneficial to their respective agencies. One possible reason is the differences of agencies in their expectations, assumptions, or knowledge with regard to the key aspects, such as benefits of electronic interaction. It can be concluded that the importance of the benefits local agencies can gain in their participation in the interaction process as against the current circumstances of the agency (Chau & Tam, 1997), and not on whether the agencies can agree on the potential benefits. Thus, the effect of benefits on electronic process should be examined in relation to the ability of the agency to be involved in such initiatives and make use of their benefits. Previous studies also confirmed the importance of the benefits from the interactions. In regards to that, Blackstone (2012) says *"don't forget about all the good research that has come before you that can help strengthen your investigation"*. Figure 6.3 illustrates the effect of benefits on the electronic interaction process devised from previous studies.
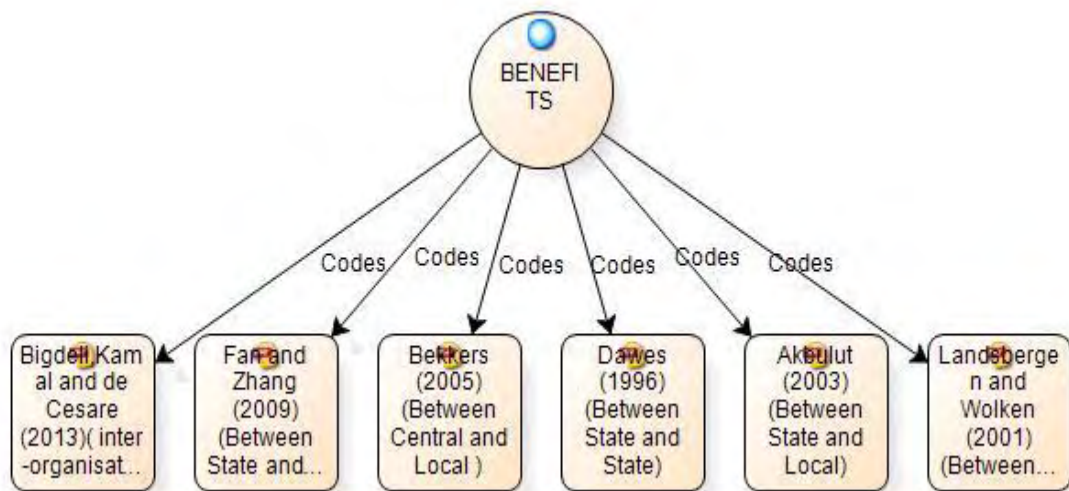
Figure 6.3. Previous studies dealing with the benefits as a factor in the process of interaction

Based on the findings, benefits influence the electronic interaction among local agencies. Hence, to increase electronic interaction among local agencies, promotional efforts could be targeted at local agencies to enhance their awareness on how electronic interaction can benefit them. Additionally, the electronic interaction design could be geared to benefit all participating agencies. When considering electronic interaction projects, potential benefits should be considered together with the needs and abilities of the agencies to assimilate electronic interaction technologies.

6.2.1.3 Compatibility

Like benefits, Compatibility is a frequently cited factor. For Technological Compatibility, majority of local agencies are using various systems, which result in problematic connectivity, and consequently distorted electronic interaction. This makes the transfer of

data and files difficult as there is lack of integration between the systems and agencies. In terms of Organizational Compatibility, electronic interaction is not compatible with the current needs and objectives of certain local agencies. As a result, these agencies do not really see an internal need for participation in electronic interaction process among local agencies. Furthermore, several participants in most agencies pointed out staff satisfaction in using traditional methods in the information exchange process with other local agencies. The participants felt that engaging in the electronic interaction system would entail unnecessary changes in the existing practices and tasks. Compatibility might have an influence on the electronic interaction process among local agencies, in which the promotion of both Technological and Organizational Compatibility might help in increasing electronic interaction process among local agencies.

On the other hand, almost all local agencies faced many difficulties through entering the data. As mentioned in the previous chapter, the new system is different than the previous one. Therefore, it requires each agency to enter the data in both systems. Based on the agency's view, this consumed time and was inefficient, plus increased workload on the staff. At this time, local agencies faced resistance from the staff, which in turn makes it difficult to accept this initiative.

Inter-agency electronic interaction systems could be designed after a thorough investigation of the existing IT inventory utilized by local agencies with regard to Technological Compatibility has been carried out. Inter-agency electronic interaction systems would be more useful, and if possible, local agencies could work together to

develop a fully integrated system. Studies in Figure 6.3 have confirmed the importance of Compatibility in the information exchange process among agencies at all levels.
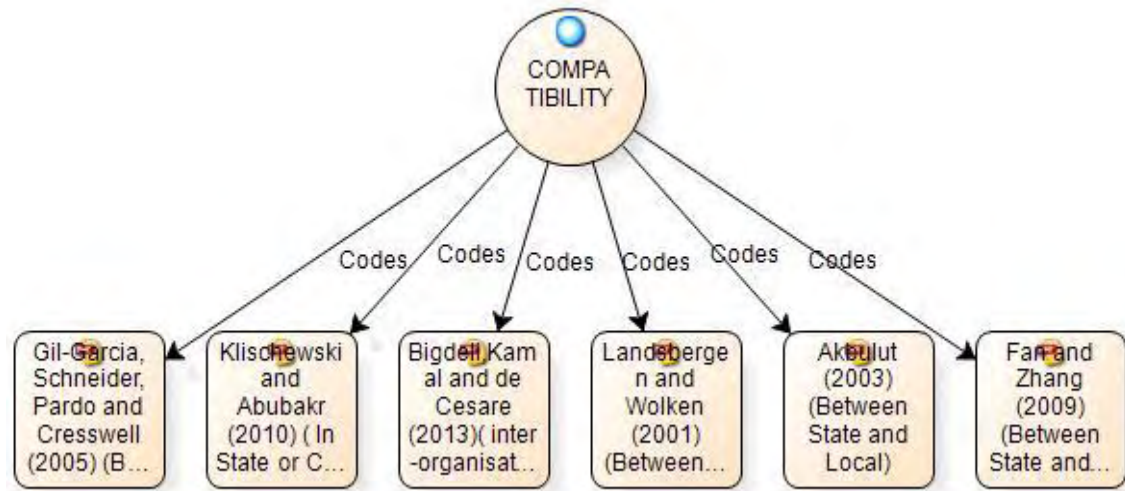
Figure 6. 4. Previous studies dealing with Compatibility as a factor in information exchange process

Dhi-Qar as the leading local agency could facilitate the integration by providing technological and financial support to other local agencies. Although several local agencies have their own center to support the electronic government initiatives (some are called computer centres, while others refer it as e-government centres), those centers lack commonalities in the decision-making process. These existing centers can provide guidelines regarding technology purchases, and help other local agencies to procure compatible solutions, and give other forms of technological assistance. However, the lack of a common platform limits the interaction among agencies. Addressing the needs of all participants when designing electronic interaction among local agencies might increase

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inter-agency compatibility (Bigdeli, 2012). This step can be achieved by identifying common goals and requirements as well as by increasing the involvement of local agencies during the design and development phases. These techniques have been adopted by business organizations, and need to be utilized by government agencies to ensure that the systems are compatible.

6.2.1.4 Complexity

The complexity of electronic interaction was found to be a factor in the participation decisions of the local agencies with regard to the use of new technology to share information among local agencies. Specifically, the findings show that agencies that perceive electronic interaction as a complex idea involving a complex development process had lower levels of participation. The complexity of a system will increase with more stakeholders, agencies, and process involved that would require proper planning based on requirements and existing inventory, the equipments used, and the skills of IT professionals among the staff (Yang, Pardo & Wu, 2014). The complexity of electronic interaction technologies reduces the possibility of participation in the process because of the need for additional skills and effort from local agencies to send information using this platform. This study also reveals that some local agencies found that the proposed electronic interaction is difficult. Meanwhile, agencies that have higher levels of technology expertise, as well as everyday use for the information exchange between the departments of the agency, perceived electronic interaction among agencies as a relatively simple concept to implement. These agencies perceived interaction technologies as easier

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to use and are user-friendly. Figure 6.4 shows the types of complexities and their corresponding proponents.
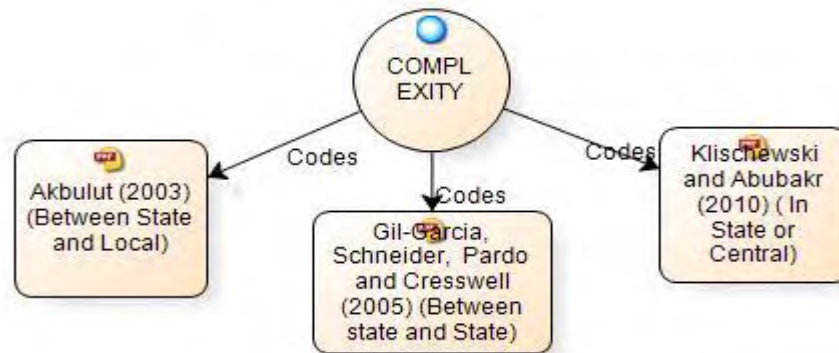
Figure 6.5. Previous studies dealing with Complexity as a factor in the process of interaction

Based on the discussions in the previous paragraphs, it implies that Complexity influences electronic interaction among local agencies and is dependent on the resources of the agencies. Designing easy to use and user-friendly electronic interaction systems is one possible solution to help increase the electronic interaction process among local agencies (Akbulut, 2003). This requires an understanding of the capability, organizational, and staffing limitations among the local agencies. In reality, a system viewed as easy to use by a particular agency may be viewed as a complex system by another one because of the wide disparity of skills among the IT staff of local agencies.

Some authors suggest that prototypes can be used to demonstrate the propose system before coming up with a final system to know if the system is suitable for the staff in

terms of ease of use and user-friendliness (Akbulut, 2003; Gil-García & Pardo, 2005; Rose & Grant, 2010). In addition, special training programs for the staff of the local agencies on the electronic interaction process will help the employees to use the system properly.

6.2.1.5 Information security

During the interview sessions, Information Security factor was frequently cited for the electronic interaction process. The participation of some local agencies in the electronic interaction process indicates that the process of sending information between agencies does not require high data security since most of the information is available to all. However, some agencies stressed the significance of the confidentiality of the information sent between local agencies in the first phase of the initiative. Moreover, local agencies do not have competent devices used for protecting transmitted data, and a few programs are integrated with the system that can be used in this process. Previous studies refer to Information Security as an important factor in the exchange of electronic information. Thus, those studies (Figure 6.6) support the results obtained in this study.
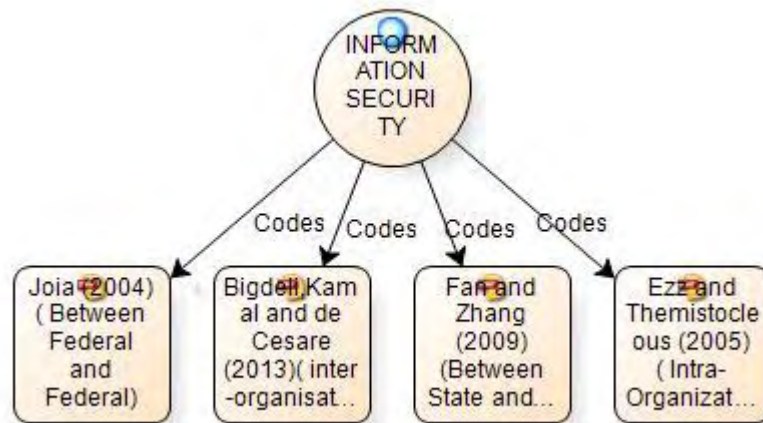
Figure 6.6. Previous studies dealing with the Information Security as a factor in the process of interaction

Information Security influences the electronic interaction process among local agencies. Minimizing potential threats might prove to be helpful in increasing the electronic interaction process among local agencies. These measures can be achieved through the use of advanced protection devices among local agencies involved in the electronic interaction process. Additionally, security standards should be employed and information access should be limited to authorized persons.

Having discussed about all factors, this study have sufficient evidence to propose some recommendations. Accordingly, Table 6.2 provides a summary of the recommendations concerning technological context that could be used to increase the electronic interaction process among local agencies.

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Table 6.2

Recommendations for technological context

Benefits

- Ensure the right electronic interaction building process among local agencies to benefit all local agencies.

- Promote the participation objectives in the electronic interaction process among local agencies to achieve tangible results.

- Raise awareness on the benefits of electronic interaction process among local agencies by organizing promotional programs (presentations, seminars).

Costs

- The province should assist local agencies that have limited resources through the provision of financial assistance for the purchase of equipment needed in the process of interaction and staff training.

- Agencies that have high technological capabilities should provide technological assistance to the rest of the local agencies at low to minimal costs.

Compatibility

- Identify and address the needs of local agencies that participate in the electronic interaction process to facilitate the participation of the maximum number of other agencies.

- Design systems for the process of electronic interaction among local agencies that are appropriate with the existing systems.

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- Encourage local agencies to contribute to the design of appropriate applications and to participate in the development process.

- Activation of e-Government center for all local agencies.

- The responsible parties for the process of the electronic interaction between local agencies should help buying the technologies compatible with the process.

Complexity

- Gain an understanding of the capabilities, organizational, and staffing limitations of local agencies.

- Design applications that are user-friendly and easy to use for employees in local agencies.

- Local agencies must use prototypes first before the real system is designed and developed to measure its suitability with the staff as well as to provide training to the local agencies.

Information security

- Promote the process of electronic interaction among local agencies.

- Develop necessary standards to protect data in transmission.

- Provide necessary hardware to protect the process of electronic interaction among local agencies.

- Identify necessary programs to protect from global origins.

6.2.2 Organizational context

6.2.2.1 IT Capability

Based on the responses gathered through the interviews, IT Capability is found to be a factor in the process of electronic interaction among local agencies. The results show that agencies with a higher level of electronic process among local agencies perceived themselves as possessing the technological resources required to process electronic interaction. These local agencies appear to have already acquired a certain level of IT infrastructure and their employees are better trained in the use of ICT. The IT Capabilities of local agencies involving interaction vary greatly. Although some agencies are advanced, most local agencies generally lack the required computer resources and IT skills among the employees. Furthermore, in many cases, the staffs are intimidated by the modern techniques used for the process of interaction. In fact, several studies as shown in Figure 6.7 have cited this factor as well, which supports the importance of this factor in this study.
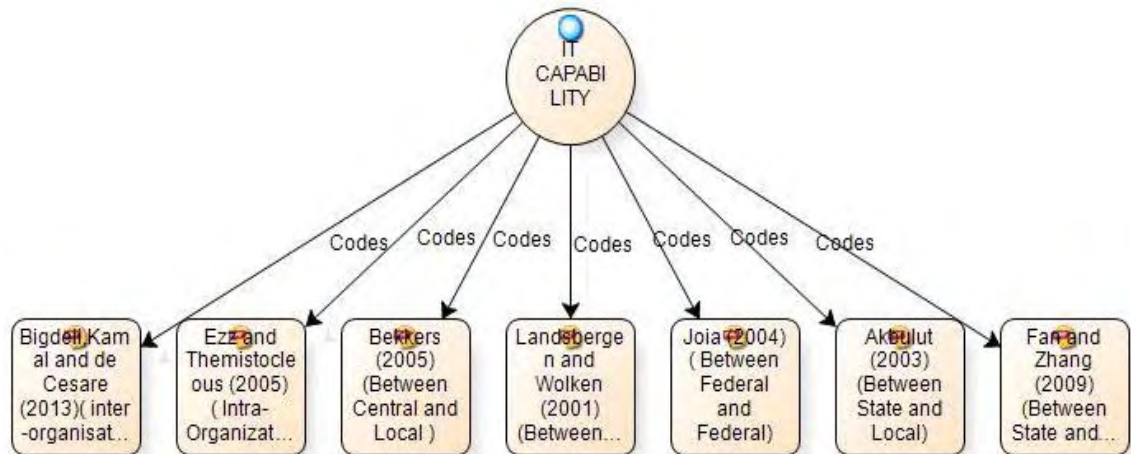
Figure 6.7. Previous studies dealing with IT Capability as a factor in the process of interaction

Although IT Capability influences the electronic interaction process among local agencies, local agencies might have the tendency to postpone the electronic information process until the necessary skills are developed and the necessary infrastructure is acquired. This postponement is critical as electronic interaction technologies are built upon the existing IT resources and skills. Technological assistance in this regard can be very helpful in increasing the process of electronic interaction among local agencies. This center, for instance, can provide assistance in training the employees of local agencies.

6.2.2.2 Internal resistance to change

The interviews also revealed that resistance to change is a factor that influences the electronic interaction process among local agencies. The participants pointed out that the staff are untrained on modern technology, especially on the practical applications that are

used in the electronic interaction process, and this lack of training has resulted in the resistance (among the staff) to changes. According to Danziger (1980), one of the most important factors in the adoption of computer applications among local government is staff competence. Additionally, Norris (1999) found out that local governments have argued that when their employees were not well-trained in the use of IT, it causes employees' resistance to change, refusal to use, and inability to use IT to their capacity. Besides, the fear of the managers of local agencies that the electronic interaction process may affect their administrative positions is another factor in the resistance to change. On top of that, four other studies (in Figure 6.8) show resistance to change as an important factor in the success or failure of the electronic interaction or e-Government in general.
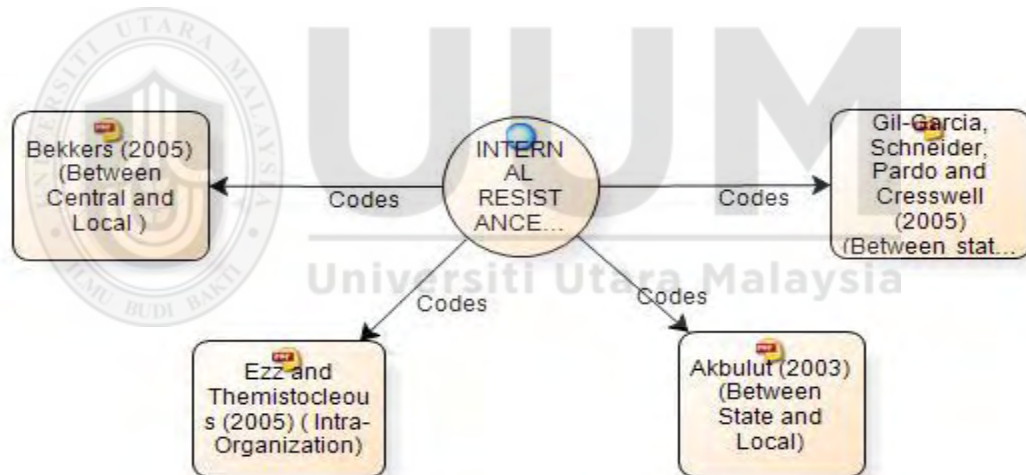
Figure 6.8. Previous studies dealing with Resistance to Change as a factor in the process of interaction

As a summary, this study believes that the identification of potential sources of resistance in advance will be helpful in increasing the electronic interaction process among local

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agencies. Individuals might resist changing since they are concerned with its impact on their personal status, authority and power, and job security.

6.2.2.3 Top management support

In the interview sessions, Top Management Support was found a frequently cited factor. The lack of support by the top management is an obstacle to electronic interaction process among local agencies. The top management (Province or Director of the Agency or Ministry) in some local agencies are supportive of the adoption of modern techniques in general, and the electronic interaction process in particular. However, the top managements in some other local agencies are often unfamiliar with the use of modern technologies in the information exchange process among agencies. In short, the electronic interaction process among local agencies lacks attention from top management because it is not within its priorities. In supports of this, two studies as seen in Figure 6.9 have been found dealing with top management as an important factor and include the local agencies.
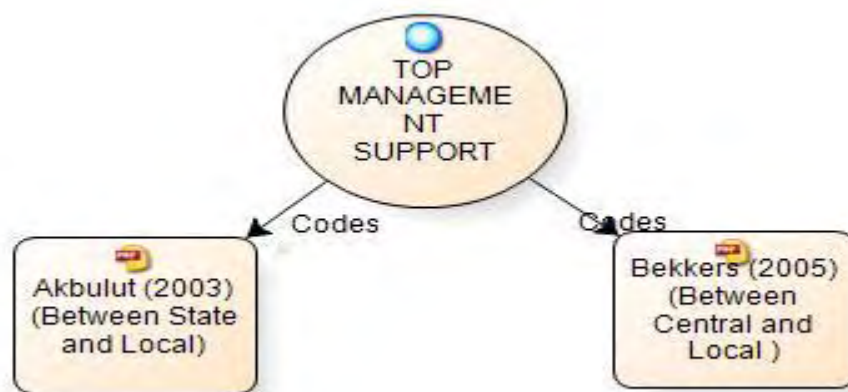
Figure 6.9. Previous studies dealing with the top management as a factor in the process of interaction

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Based on that, this study understands that the top management support influences the electronic interaction process among local agencies, and is essential to the use of modern technologies in general and the electronic interaction process in particular. This support will increase the electronic interaction process among local agencies. Having analyzed the factors, this study is confident to propose certain recommendations for the benefits of the local agencies. In conjunction, a list of recommendation is addressed in Table 6.3, concerning the organizational context for the process of electronic interaction among local agencies.

Table 6.3

Recommendations for organizational context

IT capability

- Activating the local government center in local agencies.

- The province must seek to help local agencies through the provision of equipment, technological assistance, and staff training in the use of modern methods and processing of documents using computers.

Internal resistance to change

- Identify potential sources of internal resistance to change in advance.

- Develop specific strategies to address the concerns of employees and managers in local agencies.

- Reassure employees as well as managers that the use of modern techniques does not affect the position they hold at the agency, and on the contrary, it increases achievement and success at work.

- Clearly explain the goals of the electronic interaction process to the managers and staff of the local agencies.

Top management support

- Use promotional seminars and presentations to illustrate the benefits of electronic interaction among local agencies.

- Provide direct or indirect incentives.

6.2.3 Environmental context

6.2.3.1 Trust

In the interview sessions, mistrust among local agencies was a frequently cited factor. Relationships among the local agencies were observed to have been problematic to a certain degree, and they concern among each other. Three of the most important studies (in Figure 6.10) in the field of electronic information exchange show that confidence among agencies both vertically or horizontally are important, and should be considered in any study.

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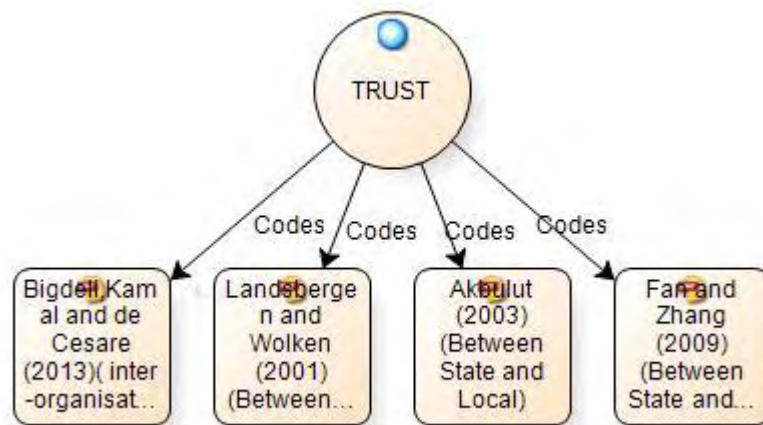
Figure 6.10. Previous studies dealing with Trust as a factor in the process of interaction

The findings as discussed in the previous paragraphs enable this study to understand that inter-agency trust influences the electronic interaction process among local agencies. Hence, strengthening trust between local agencies will be helpful in the success of electronic interaction among local agencies.

6.2.3.2 Physical security

During the qualitative study, certain additional factors that were previously unconsidered emerged (see Figure 6.1). In the interviews, Physical Security, although previously limited research was done on this factor, was also one of the factors that influenced the electronic interaction process among local agencies. Most local agencies have installed appropriate equipment for use in the process of electronic interaction, such as servers and PCs, in inappropriate or unsecured places. In case protection devices that prevent external attacks are not setup, the possibility of unauthorized access to the equipment is widely opened. Eventually, not only failure happens, but also damages risk the system.

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Based on the discussions, determining the authorized persons to access the equipment may be useful, and this process can be done by providing necessary hardware to protect the servers and computers. At the same time, the equipment must be placed in appropriate places, where proper air-conditioning and stable and continuous electric power is necessary.

6.2.3.3 Legislation

In this study, the lack of legislation to organize the electronic interaction process among local agencies is also cited as a factor. Participants pointed out the need for clear technical standards as well as effective legal mandates and binding contracts to organize the electronic interaction process among local agencies. According to a survey conducted by Waseda University, most developing countries obtained a low score due to lack of legislation involved in e-Government promotion (Obi, 2013). At the same time, more than half of the previous studies (visualized in Figure 6.11) focused on legislation as a necessary provision in projects that involve the exchange of information among government agencies or persons.
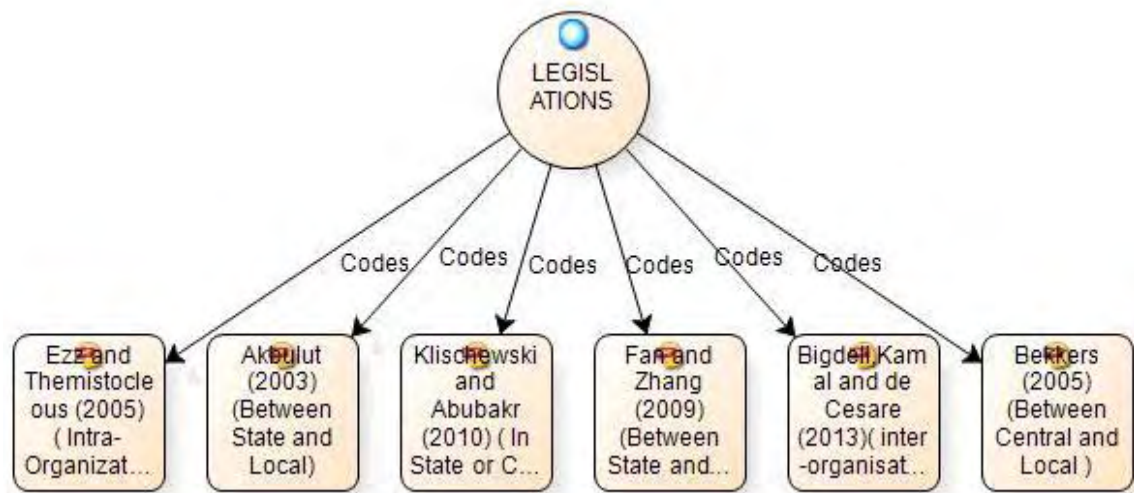
Figure 6.11. Previous studies dealing with Legislation as a factor in the process of interaction

The lack of legislation and legal framework to regulate information exchange affects the electronic interaction process among local agencies. It has to be admitted that proposing government legislation or formal policies to organize the electronic interaction process among local agencies could increase the electronic interaction process among local agencies. It is because through legislation that provides technical, financial, and political support, the central government may be able to develop ways to support the electronic interaction process among local agencies. Particularly, the role of legislation would be to encourage and facilitate the electronic interaction process among local agencies. This legislation could give planning support, extend guidance from a national perspective, facilitate the needed infrastructure enhancements, and implement a broad yet defined set of principles and policies for electronic interaction.

Further, clear data and technical standards could be determined to decrease the inconsistencies in data definitions and to simplify the interaction process. Thus, guidelines could be established to protect the privacy rights of individuals. Also, official policies can be prepared to provide financial assistance in the form of grants to local agencies that participated in this process or agencies that intend to participate. Among the ways, studying the legislation with local agencies would be useful to support and to encourage the electronic interaction process. In certain cases, mandating agencies to participate and to use electronic interaction process may be necessary.

Nevertheless, local agencies should possess the necessary financial and technological resources as well as benefit awareness on electronic interaction to continue. It implies that a committee of local agencies must be established to achieve a balance between the interests of local agencies in the legislation of laws for the electronic interaction process. It is important because the committee can coordinate all activities related to electronic interaction and constantly communicate with all agencies. Based on the discussions in the previous paragraphs, Table 6.4 summarizes the recommendations concerning environmental context for the process of electronic interaction among local agencies.

Table 6.4

Recommendations for environmental context

Trust
• Encourage open and honest communication among local agencies.
• Take advantage of the formal written agreements among local agencies to conduct the process of electronic interaction.
Physical security
• Provide fixed locations for servers and emphasize security measures.
• Provision of adequate equipment to protect the location of servers used in the electronic interaction process.
• Only authorized persons can have access to the location of servers.
Legislation
• Provision of legislation that facilitates the process of electronic interaction.
• Establish clear data and technical standards.

6.2.4 Main issues that affect G2G information sharing in Dhi-Qar

Based on the discussions in the previous section regarding the issues that are rasied from the study, Figure 6.12 outlines an illustrative summary.
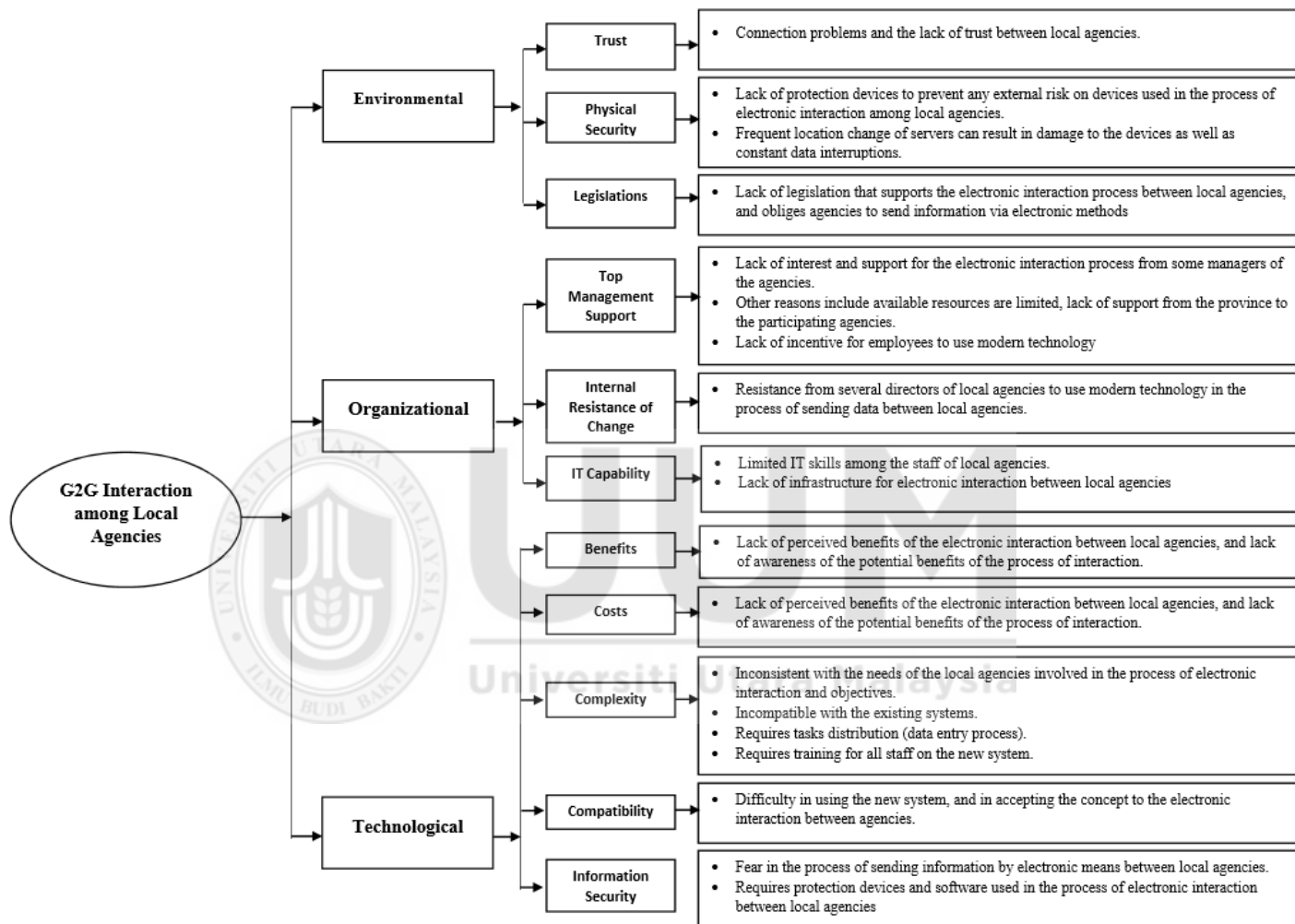
Figure 6.12. The main issues that affect G2G information sharing in Dhi-Qar

6.3 Summary of Chapter Six

This chapter discusses the core factors and issues gathered through a series of semi-structured interviews with the key actors from local agencies who were involved in the information sharing project. Many challenges and issues pertaining to the socio-technical perspective (Technological, Organizational and Environmental) were found influencing the project's progress and also the participation of the largest number of local agencies. From to the technological aspect, the interviewees indicated that these factors are relevant: costs, benefits, complexity, compatibility, and information security. As for the organizational aspect, the findings indicated the factors of internal resistance of change, IT capability, and top management support. While, with regard to the environmental aspect, the physical security, legislations and trust among the agencies factors are deemed as the main barriers to implement the information sharing initiative at the local level particularly in the developing and unstable countries like Iraq. In the next chapter, the research insight and the contribution as well as the limitation and suggests future research of the current work are discussed.

CHAPTER SEVEN
RESEARCH INSIGHT AND CONCLUSION

7.1 Introduction

With the evolution in the ICT, e-Government is considered a very important strategy for attaining effectiveness and efficiency in government programs and public services. Therefore, information sharing among government agencies has become increasingly important in the public sector where the critical role that cross-boundary information sharing plays in the stages of e-Government development. While Chapter 6 discusses the results of the interview sessions to highlight the barriers impeding the information sharing initiative in the local level, this chapter discusses the research insight based on the researcher's experience on the e-Government project in general, and information sharing among local agencies in specific. The contributions of the study are also discussed. Finally, the chaper ends with a discussion on the limiations and directions for future research.

7.2 Research Insight

Being attached in the government after the baccalaureate degree graduation, the researcher has experienced several challenges while working in one of the local government in Dhi Qar after the implementation of the information sharing initiative in 2004. So it was a personal journey to understand the concept, and process of e-Government in order to improve the services for the Iraqi people. Adoption of information sharing among government agencies electronically is a fairly new topic in the context of

the public sector in general and local governments in specific (Yang *et al.,* 2014). Therefore, this study is considered as an opportunity for the researcher to interview many senior managers of local government agencies and the deputy of the governor, as well as the IT specialist who have been involved in the information sharing project in Dhi-Qar. As a citizen, and an employee of a local agency, before becoming a researcher, taking into consideration the observations collected during the tenure, the researcher aims to make Iraq safer by providing the best service to the citizens without any obstacles. Thus, the researcher sought to understand the previous challenges in the information sharing literature and appropriate solutions to reduce them. In addition, through these series of the interviews with the core participants on the information sharing project in Dhi-Qar, the researcher has increased his knowledge about the information sharing process through both the centralization and decentralization in two dimensions of vertical and horizontal.

Iraq is a rich country with many resources that could have provided many benefits and services to the citizen. However, due to the many challenges and barriers, the e-Government initiatives failed to be implemented successfully when it started in 2004, and even later in 2010 in the Iraqi Portal project. There are many lessons that can be learnt from the initial e-Government project, but it seems that the knowledge is lost and not utilized for other e-Government projects be it at local or central government level.

With this study, this research journey gives the researcher various opportunities to understand the research methodology in general and the qualitative approach specifically. As a novice researcher, the qualitative approach is a challenge to the researcher, because

it needs more justification and the arguments to convince the reader and to understand the in depth analysis. The biggest challenge is to use the phenomenological approach as the means to gather and analyse the data from the participants. The phenomenological is the most appropriate approach to extract rich information from the individuals who have the experience with certain phenomena. The researcher considered several approaches such as grounded theory, case study, ethnography as well as others, but decided to use the phenomenological approach due to its rich and in-depth immersion into the study. This diversity of knowledge has helped the researcher to acquire the characteristics and limitations of each type of qualitative research. With the empirical data obtained from this study, the researcher is determined to do more to document the lessons learnt and publish so that it can be used as a benchmark for future projects.

7.3 Theoretical and Practical Contributions

7.3.1 Theoretical Contributions

This study has several theoretical implications and contributions to information systems, public administration, and management communities. The findings and discussions of the study are expected to enrich the current information sharing literatures in e-Government. This study specifically adds to the literatures on IT adoption, inter-organizational and information sharing, digital government in general, and governmental information sharing systems and local agencies management of public information systems in particular.

Also it examines the electronic interaction among local government agencies, which was very limited based on the extensive review of pertinent literature in Chapter 2. In particular, little research that addresses electronic interaction among local agencies in developing countries has been conducted. Among the few available studies, some of them are related to inter-agency information sharing conducted in the public administration domain. In fact, those studies concentrated on information sharing initiatives among federal with state or federal with center, or state with local government agencies. They did not address the phenomenon in the context of local agencies. With reference to the nature, this study bridges this gap by addressing the existing research insufficiency and lack of empirical data, and develops a thorough and deep understanding of the factors that affect G2G interaction among local agencies. Generally, these contributions are summarized as follows:

- This study extends the literatures on information sharing by providing empirical data on information sharing of the post implementation e-Government initiatives at the local government level. Particularly, the critical role that G2G information sharing plays in the stages of e-Government development.

- It also highlights the challenges faced by local government to maintain information sharing capability of e-Government initiative to have factors like enough internal resources although assistance or grants are provided by external source, specifically the Italian Government support. The study highlights the barriers discussed in Chapter 2 that are still in existence in Dhi-Qar despite the efforts the Iraqi Government put in to improve e-Government services. That illustrates the

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extent of limited resources especially in the context of local government in developing countries. Costs of acquiring IT solutions (CAPEX) and to maintain the applications (OPEX) are too high for developing countries like Iraq, more so at the local government level. Staff has to be constantly trained; especially IT staffs who need to upgrade their knowledge with the advancement of new technology, process changes, and increasing threats from disgruntled staff, hackers, and criminals. Apart from technical training, awareness programmes on the benefits of the system for senior IT staff in particular should be done from time to time to reduce the resistance and create more acceptance of the new system implemented.

- This study also extends the existing theoretical frameworks of information sharing in public sector (such as Dawes, 1996; Landsbergen & Wolken, 2001) in using SET and the external factors from DOI from the technology, organization, and environment perspectives through employees' viewpoints.

- In terms of the methodological contribution, one of the main strengths of this study is in the utilization of the phenomenological approach, where, this research focuses on the employees' perspective in the offices that execute e-Government. Thus, the extraction of the main factors can be obtained through interaction and communication with the employees who have experienced the e-Government services information exchange. The study provides rich and in-depth perceptions of employees that have to adapt to the new system despite challenges like lack of budget to maintain operations. The resourceful way employees have to find alternative technology to make communication possible, as in the case of using WIMAX instead Wifi due to the cost factor.

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7.3.2 Practical Contributions

The information sharing among government agencies has the potential to provide and increase efficiencies in government operations and enhance services to the citizens. Local agencies were encountered by various technological, organizational, and environmental barriers to electronic sharing. The government administrators recognize the significance of electronic sharing among government agencies and the huge benefits that the policymakers, agencies, and public in general can possibly be derived from the adoption of an enhanced inter-agency communication.

Currently, Iraq attempts to progress towards being a developed, stable, and secure country. In conjunction, this study found how the instability of the political situation in Iraq has influenced G2G interactions (such as trust and support from top management support). Particularly, Dhi-Qar was chosen because it is the first province that tries to complete information sharing between the local agencies electronically (as a result of being under the control of the Italian government). Since embarking on the application of electronic interaction in 2004, until now, the reason for non-completion of e-government in general, and electronic interaction between the local agencies in Dhi-Qar, in particular have not been discussed. Therefore, this study provides empirical evidence to fill in the e-Government information exchange among local agencies in Iraq. Eventually, a set of recommendations (in Table 6.2, Table 6.3, and Table 6.3) that could help the local government in Dhi-Qar is outlined to address the obstacles and improve the process of electronic interaction with the evidence obtained as outlined in the early part of this

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chapter. In fact, other agencies can also take advantage of these recommendations and to prepare for electronic exchange in future.

7.4 Limitations of the Study

Despite easy access to all the local government agencies, there are limitations of the current study. The first limitation is the unstable political situation in Dhi-Qar. The second challenge is the limited number of participants who were willing to be interviewed. Consequently, the generalizability of the findings might have been limited by the nature of our participants. In relation to this limitation, the recruitment of participants through GateKeeper might have limited the generalizability of the findings. Hence, extended works should be conducted in different contexts and by using complementary samples to address the issue of generalizability.

As a result of the second limitation, only selected local agencies participating in the process of electronic interaction were interviewed. Hence, there is no assurance that these agencies are representative of the other local agencies. In addition, despite the interview data were gathered from diverse agencies and also in different purposes to achieve multiple sources of evidence and to increase validity, the study focuses only on the factors that influence the information sharing among local agencies.   As part of the recommendations for future research, more local agencies should be interviewed and concentrate on how information is shared among the local agencies and what the potential determinants are, to overcome these limitations.

7.5 Suggestions for Future Research

This study constitutes an initial step towards developing a thorough and deep understanding on the factors and issues that affect information sharing among local agencies. It is restricted to interviewing employees of local agencies that are participating in the electronic interaction process. In order to increase the possibility of generalizing the results, this study need to be repeated using qualitative and quantitative approaches with the inclusion of a larger number of local agencies that have not participated in the electronic interaction process.

Furthermore, future works are recommended to use theories to shed light into the factors that have an influence on electronic interaction among government agencies. The exchange of information among government agencies needs the participation of stakeholders that have various self-interests and priorities as well as perceptions and expectations of the inter-agency information sharing initiatives. Most of the time, these self-interests, perceptions, and expectations may not match or may even conflict with one another. Thus, a combination of the insights of the Stakeholder Theory (Freeman, 1984), Technological Framework Approach (Leon, 1995; Orlikowski & Gash, 1994), and the Critical Mass Theory (Bouchard, 1993) will be advantageous. On top of that, future studies are also encouraged to focus on how information is shared among the local agencies and what the potential determinants are, because there is still limited empirical research conducted in the aspect from electronic information sharing in the local level.

7.6 Conclusions

In the last a few years, information sharing among government agencies has become increasingly important in the public sector. Also, it played critical role in the stages of e-Government development. However, much of current information sharing literatures in e-Government focus on exploring the influential factors that raise the compliexity or hinder the information sharing among the government agencies in the center/federal/state levels. In bridging the gap, this study aims at exploring the factors affecting G2G information sharing among local agencies and highlighting the issues that influence the information sharing among local agencies in Iraq.

The results show that a number of technological, organizational, and environmental issues affect the electronic interaction process among local agencies. Thus, they imply theoretically and practically. In short, this study contributes to the body of knowledge in information systems, public administration, and management fields. It specifically adds to the literatures on IT adoption, inter-organizational, and inter-agency information sharing, digital governments in general, and government information systems in particular. The findings of this study are significant and relevant to federal and local government agencies and their respective directors and IT managers. Additionally, this study has a significant contribution to the society. When the factors and the issues that facilitate or prevent the process of electronic interaction are determined, specific strategies can be developed to increase the electronic interaction process among local agencies. An important extension of this research is to develop a set of the strategies or recomendations to facilitate participation in this important initiative. In fact,

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implementing statewide or nationwide programs and enforcing legislation can help increase electronic interaction among government agencies based on these strategies. As a summary, the details are visualized in Table 7.1.

Table 7.1

Summary of G2G Interaction among local agencies in Dhi-Qar

Area	Country	Government levels involved	Objective of Study	Research Approach	Result
E-Government	Iraq	Local Government	The aim of this study is to propose a model for G2G Interaction among local agencies.	Literature review

Interview | The outcome of this study is a proposed G2G Interaction Model (G2GIM) (Figure 6.2) based on the discovery that: environmental, organizational, and technological are the major factors that influence the electronic interaction among local agencies in Dhi-Qar.

A set of the issues highlited that may provent the information sharing process among local agencies in Iraq.

A set of recommendations that enhance the G2G information sharing in Dhi-Qar and can be applied in other local agencies that have still not applied any interaction among the agencies. |

In summing-up this study, data related to major electronic interaction among local agencies to understand the factors that affect electronic interaction among local agencies were collected qualitatively. Semi-structured interviews were used as an instrument to collect data, and the average time of each interview was approximately 90 minutes. Indeed, semi-structured interviews have the flexibility to follow-up on new information presented in the context of an interview and to further explore new findings. Purposive sampling and gatekeeper technique were used in this research. A total of sixteen individuals from nine local agencies were interviewed. They hold different positions such as deputy governor, section director and technical specialist. With various profrssional background and experiences, the sixteen participants played important roles in the different parts of the study and provided rich information, which really supported the exploration and highlight the main issues influnecing the information sharing initiative in Dhi-Qar. The interviews were conducted face to face in participants' workplace and where recorded by using MP3 recorder and also the Mobile phone with interviewees' permisions.

Additionally, the interview questions were designed to lead the interviewees towards a goal of helping the researcher to identify the answers to the proposed research questions. As a result, the interview questions were classified into two sections; the first section consists of general questions to explore the factors that influence the information sharing initiatives and explain more about the initiatives. Meanwhile the second section contains questions that highlight the main issues or challenges faced by the local agencies to implement information sharing among local agencies. This structure and the proposed

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questions were validated by experts in qualitative research to strengthen the structure of the questions and understand how to extract rich data from participants. In addition, the interview data were translated, transcribed, and analayzed in English. The data analysis process follows both inductive and deductive approaches, and three type of the coding, simultaneous coding, provisional coding, focused coding and theoretical coding applied to analyze and interpret qualitative data. The triangulation and the member checking were sued to validate the data collected from the participants. For the triangulation, this study conducted multiple interviews with the same paticipants but at different times. In member checking, once an analysis was complete, the analysis (the themes with specific description) was returned to the participants for confirmation of accuracy. Lastly, to validate the findings, this study compared the final results with other e-Government initiative in Iraq (e-Iraq potal project).
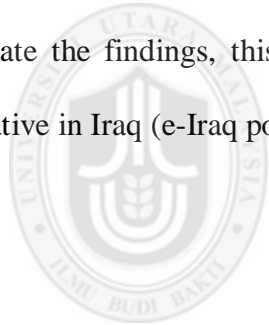
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APPENDIX A

Awang Had Salleh Graduate School of Arts and Sciences
UUM College of Arts and Sciences

"KEDAH SEJAHTERA"

UUM/CAS/AHSGS/A-3/26
23 May 2012

Nassir Jabir Farhan Al-Khafaji (93456)
Room 101, Block H, DPP Maybank
Universiti Utara Malaysia

Dear Sir/Madam

DATA COLLECTION FOR PROJECT PAPER/ THESIS

This is to certify that **Mr. Nassir Jabir Farhan Al-Khafaji (matric number: 93456)** is a full-time graduate student in Doctor of Philosophy (Information Technology) at UUM College of Arts and Sciences.

He needs to do his field study and data collection for his project paper/thesis in order to fulfill the partial requirements of his graduate studies.

We sincerely hope that your organization will be able to assist him in the data collection and the distribution of the questionnaires for his research.

Thank you.

"ILMU BUDI BAKTI"

Yours sincerely

ABD. RAHMAN MOHD. ISA
Assistant Registrar
for Dean
Awang Had Salleh Graduate School of Arts and Sciences
UUM College of Arts and Sciences
Universiti Utara Malaysia

c.c   -   UUM/CAS/AHSGS/93456

This is to certify that the signature appears on this document/Certificate/Marriage Certificate/Birth Certificate is that of Mr........................who is ....from University Utara Malaysia.

Mohd Farriq Osman
Executive Officer
Consular Division
Ministry of Foreign Affairs
Putrajaya Malaysia
1 8 SEP 2012

The Eminent Management University

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APPENDIX B

بسم الله الرحمن الرحيم

السيد --- المحترم

تحيه طيبة ...

م / طلب مقابلة

يرجى التفضل بالموافقة على اجراء مقابلة مع سيادتكم حول موضوع (تبادل المعلومات بين الدوائر احد تطبيقات الحكومة الاكترونيه ذي قار / العراق) لكوني طالب دكتورة في قسم الحاسبات في جامعة اوتارا الماليزية . هذة الدراسة تعمل على التحقق وكتشاف العوامل التي قد تاثر على عملية تبادل المعلومات بين الدوائر في محافظة ذي قار . هذه المقابلة سوف تساعد على الحصول على المعلومات حول تبادل البيانات او المعلومات بين الدوائر . الناتج من هذا البحث او حصيلة هذا البحث قد تادي الى منفعة الى الدوائر والمحافظة بصورة عامة لمعرفة العوامل التي قد تادي الى فشل او تقلل عملية تبادل المعلومات بالطرق الاكترونيه . دون مساعدتكم ودعمكم في هذا البحث لن يكتمل ولان يرى النور . وتاكد أن جميع المعلومات المقدمة هنا هي لأغراض أكاديمية.

السيد ناصر جابر فرحان الخفاجي، وهو طالب دكتوراه في مجال تكنولوجيا المعلومات في جامعة أوتارا ماليزيا (UUM) / ماليزيا. ويشرف على هذا البحث من قبل:

(1) Dr. Abdul Jaleel Kehinde Shittu   abdjaleel@uum.edu.my
(2) Prof Madya Dr. Wan Rozaini Sheikh Osman. rozai174@uum.edu.my

شكرا جزيلا لمساعدتي لتحقيق أهداف هذه الدراسة التي هي مهمة جدا في الكشف عن القضايا المصيرية للحكومة الإلكترونية في محافظة ذي قار-. لا تتردد في الاتصال بي في +60-1116556123 أو nassirfarhan@yahoo.com أو s93456@student.uum.edu.myإذا كانت هناك حاجة أي معلومات إضافية.

ولكم الامر مع التقدير

بسم الله الرحمن الرحيم

م ١ الى من يهمه الامر

نؤيدلكم ان السيد ------------------------------ قد اجرى مقابلة مع السيد ------------------------------ بخصوص جمع
بيانات حول تبادل المعلومات (تفاعل بين الدوائر احد انواع الحكومة الاكترونيه) بعد ان تم المداوله من خلال طرح الاسئلة
الموجهه من قبل طالب الدكتوراه وتمت المناقشة على مرحلتين جميع الاسئلة بصورة مفصلة .

تاريخ اول مقابلة :   الوقت :

تاريخ ثاني مقابلة :   الوقت :

مع التقدير

اسم مدير الدائرة

ايميل مدير الدائرة او الدئرة

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APPENDIX C

First Session of Interviews

1. **Biography of the interviewees (First Section: First Part)**
   1.1 Please, can you briefly introduce yourself?
   1.2 How long you have been working in the agency?
   1.3 Can you share with me your experience in this agency?

2. **General Questions (Second Section: First Part)**
   2.1 Will you please give some information about the project (electronic interaction among local agencies)?
   2.2 What is the purpose of this project (the electronic interaction among local agencies)?
   2.3 How many employees are there in this project (the electronic interaction among local agencies)?
   2.4 When did the project start?
   2.5 Why did you change from traditional to the digital (electronic) applications?
   2.6 At the moment, do you exchange the information among the agencies?
   2.7 What types of information do you exchange among the governmental agencies?
   2.8 What is the information exchange percentage among agencies involved in this project (electronic interaction among local agencies)?
   2.9 What is the type of interaction (electronic information sharing) among agencies?
   2.10 What are the factors that affect the process of the electronic interaction among local agencies?
   2.11 What are the main factors that affect the process of electronic interaction among the local agencies?
   2.12 Is there a noticeable improvement in the process of information exchange at the moment?
   2.13 Regarding Dhi-Qar Province, do you think the agencies are prepared to interact electronically? Why?

Second Session of Interviews

3. QUESTIONS ON THE TECHNOLOGICAL FACTORS

3.1 Costs

3.1.1 Do you think the project (electronic interaction among local agencies) will be completed as it is scheduled? (If yes, why? And if no, why?)

3.1.2 Do you have additional costs for the information exchange project among the local agencies in Dhi-Qar Province?

3.2 Benefits

3.2.1 What are benefits of this project (electronic interaction among the local agencies)?

3.2.2 What are the ways do you think that, the interaction among local agencies will provide benefits to other agencies at local, state and federal level?

3.3 Compatibility

3.3.1 Was it easy to integrate this system with the current computer systems?

3.3.2 Is this project Compatible with the need of your agency?

3.4 Complexity

3.4.1 Do you think that the electronic interaction among agencies is an easy process?

3.4.2 Do you think that the electronic interaction among agencies easy/difficult concept?

3.4.3 Do you think it is difficult to apply this project across all agencies of Dhi-Qar Province?

3.5 Information Security

3.5.1 Do you think that Information Security is very important in this project (The Information sharing among local agencies)?

3.5.2 Are there threats do you expect that may lead to the failure of the project? (If yes, what kind are these threats?)

3.5.3 Can you tell me, how do you take care of the security of the information in the process of the information sharing among the local agencies in Dhi-Qar Province?

4. QUESTIONS ON THE ORGANIZATIONAL FACTORS

4.1 IT Capability
4.1.1 How many Operations are performed electronically among the agencies? (Alternative Question: Do you expect that operations among agencies will be good, if yes, why? And if not, why?)

4.1.2 What is the level of computer literacy among the employees?

4.1.3 How many IT employees there are in your agency?

4.1.4 Does your agency have any professional IT manager?

4.2 Top Management Support
4.2.1 What is the attitude of the top management in Dhi-Qar government towards the project implementation?

4.2.2 Can you tell me if there is any motivation from the Top management to implement the project (electronic interaction among local agencies)?

4.3 Internal Resistances to Change
4.3.1 Have you recorded any resistance from the employees?

4.3.2 What motivate the employees to use the project application?

5. QUESTIONS ON ENVIRONMENTAL FACTORS

5.1 Legislations
5.1.1 Are there any legislations for the electronic interaction among the local agencies (if No, so why did not you create any legislation as the project started 2004)?

5.2 Physical Security
5.2.1 Can you tell me how many offices are involved in this project?

5.2.2 Can you tell me what the specific physical security requirements to fulfil are?

5.2.3 Can you explain to me, is the server under a control system?

5.3 Trust
5.3.1 Briefly please, how are the relationships among the local agencies in Dhi-Qar Province?

5.3.2 Can you tell me how do you create trust among the local agencies?

APPENDIX D

CERTIFICATE OF THESIS EDITING & PROOFREADING

Document Title (INTERACTION FACTORS THAT EFFECT ON E-GOVERNMENT IN LOCAL GOVERNMENT)

Job Performed

(A) Editing-proofreading

(B) Style editing and formatting

Proofreading request made by :	**NASSIR JARBIR FARHAN** (Passport No. G2208252)	06 October 2013

A) **Proofreading statement**: I hereby declare that the our Academy editor has edited the aforementioned document.

B) **Validation procedure was performed by Asian EFL Academy**

Employee signature: **Date**: 02 November 2013

ASIAN EFL ACADEMY SDN. BHD,
917421-D
93B-1-22 JALAN SUNGAI DUA
...11700 GELUGOR, PULAU PINANG......

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APPENDIX E

<div dir="rtl">

وفقا للمقابلات التي اجريت مع عدد من الموظفين في محافظة ذي قار، الذين لديهم علاقة مباشرة مع عملية التفاعل الإلكترونية (الحكومة الإلكترونية). تبينت النتائج التاليه الموضح في الجدول ادناه:

</div>

Factors	Agree اتفق	Not Agree لا اتفق
Technological Context		
Benefits • Lack of perceived benefits of the electronic interaction between local agencies, and lack of awareness of the potential benefits of the process of interaction. <div dir="rtl">• قلة الفوائد التي يمكن الحصول عليها من عملية التفاعل الالكتروني (نقصد الحكومة الالكترونيه او تبادل المعلومات الكترونيا) بين الوكالات المحليه (نقصد بين الدوائر في محافظة ذي قار) ، وكذلك هناك قلة وعي من الفوائد المحتملة في عملية التفاعل الكتروني بين الوكالات المحليه (الحكومة الالكترونيه)</div>		
Costs • Agencies involved in the process of electronic interaction has budgetary constraints, and the process of the electronic interaction between local agencies cause additional costs to the agency associated with maintenance, support and training of staff. <div dir="rtl">• الوكالات المشاركة في عملية التفاعل الإلكترونية (الحكومة الالكترونيه) لديها قيود الميزانية (نقصد لديها مبالغ قليله مخصصه للحكومة الالكترونيه)، وعملية التفاعل الالكتروني بين الوكالات المحلية (نقصد الحكومة الالكترونيه بين الدوائر في محافظة ذي قار) تسبب تكاليف إضافية لوكالة المرتبطة الصيانة والدعم والتدريب للموظفين (نقصد ان هناك مصاريف اضافيه عند الاستمرار بالحكومة الالكتروني).</div>		
Compatibility • Not consistent with the needs of the local agencies involved in the process of electronic interaction and objectives. <div dir="rtl">• لا تتفق مع احتياجات الوكالات المحلية المشاركة في عملية التفاعل الإلكترونية وأهدافها (نقصد ان الحكومة الالكترونيه الان لا تلبي احتياجات الدوائر في محافظة ذي قار)</div> • Not compatible with existing systems previously. <div dir="rtl">• غير متوافق مع الأنظمة الموجودة سابقا (اي ان الانظمة المستخدمة بالحكومة الالكترونيه (وهو نظام لنكس) غير متطابق مع الانظمة الموجوده حاليا (وهو الويندوز))</div> • Requires the distribution of tasks (Data entry process). <div dir="rtl">• يتطلب توزيع المهام (عملية إدخال البيانات) (نقصد تتطلب طاقه هائله لادخال جميع الوثائق والمعاملات الورقيه الى الحاسوب)</div> • Required training for all staff on the new system. <div dir="rtl">• مطلوب تدريب لجميع الموظفين على النظام الجديد (وهو نظام اللنكس المستخدم في الحكومة الالكترونيه).</div>		
Complexity • Difficulty in using the new system, and difficult to accept the concept of the electronic interaction between agencies <div dir="rtl">• صعوبة في استخدام النظام الجديد (وهو نظام لنكس)، ويصعب قبول مفهوم التفاعل الإلكترونيه بين وكالات المحليه في محافظة ذي قار</div>		
Information Security • Fear of the process of sending information by electronic means between local agencies. <div dir="rtl">• الخوف من عملية إرسال المعلومات عن طريق الوسائل الالكترونية بين الوكالات المحلية (بين دوائر محافظة ذي قار).</div> • Requires protection devices as well as software used in the process of electronic interaction between local agencies <div dir="rtl">• يتطلب أجهزة الحماية فضلا عن البرمجيات المستخدمة في عملية التفاعل الالكتروني بين الوكالات المحلية.</div>		

Organizational Context		
IT Capability • IT skills among the staff of limited local agencies, as well as the agencies lack the infrastructure for electronic interaction between local agencies. • مهارات تكنولوجيا المعلومات بين موظفي الوكالات المحلية محدودة (بين موظفي الدوائر الحكومية في محافظة ذي قار)، فضلا عن بعض الوكالات تفتقر إلى البنية التحتية الإلكترونية للتفاعل بين الوكالات المحلية.		
Internal Resistance of Change • Resistance by a number of directors of local agencies to use modern technology in the process of sending data between local agencies. • المقاومة من جانب عدد من مدراء الوكالات المحلية (دوائر محافظة ذي قار) لاستخدام التكنولوجيا الحديثة في عملية ارسال البيانات بالطرق الالكترونيه بين الوكالات المحلية.		
Top management Support • Lack of interest in and support of the managers of some of the agencies of the electronic interaction process; for some reason the limited resources available to the agencies, and the lack of support from the province to the participating agencies the process of electronic interaction. • عدم الاهتمام والدعم من مديري بعض الوكالات من عملية التفاعل الإلكترونية (او الحكومة الاكترونيه)؛ لسبب محدودية الموارد المتاحة للوكالات (عدم وجود اموال اضافيه للدوائر)، وعدم وجود دعم من المحافظة إلى الوكالات المشاركة في عملية التفاعل الالكتروني. • There is no incentive for employees to use modern technology. • لا يوجد هناك اي حافز للموظفين لاستخدام التكنولوجيا الحديثة.		
Environmental Context		
Trust • Problems of relations between local agencies, and the lack of trust between local agencies. • مشاكل العلاقات بين الوكالات المحلية (وجود مشاكل بين بعض الدوائر في محافظة ذي قار)، وعدم وجود الثقة بين الوكالات المحلية.		
Physical Security • Lack of protection devices to prevent any external risk on devices used in the process of electronic interaction among local agencies. • عدم وجود أجهزة حماية لمنع أي خطر خارجي على الأجهزة المستخدمة في عملية التفاعل الإلكتروني بين الوكالات المحلية. • Change places servers frequently result in damage to the devices as well as the constant interruptions. • تغيير أماكن الخوادم يؤدي في كثير من الأحيان في الأضرار التي لحقت الأجهزة فضلا عن الانقطاع المستمر للتيار الكهربائي.		
Legislations • The lack of legislation that support the process of the electronic interaction between local agencies, and obliges agencies to use electronic methods to send information. • عدم وجود التشريعات التي تدعم عملية التفاعل الالكتروني بين الوكالات المحلية (عدم وجود قوانين لتبادل الالكتروني بين الدوائر المحليه في محافظة ذي قار)، وتلزم الوكالات على استخدام الوسائل الإلكترونية لإرسال المعلومات.		

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ونرجوا من سيادتكم المشاركه في الجزء الأخير من هذه الدراسة، والتي هي مختصة بالتحقق من النتائج النهائية. مخرجات هذا البحث أو نتائج هذا البحث قد يؤدي إلى الفائدة التي تعود على الوكالات المحليه و كذلك محافظة ذي قار بشكل عام، لمعرفة العوامل التي قد تؤدي إلى فشل أو تقليل تبادل المعلومات بالوسائل الالكترونية. دون مساعدتكم ودعمكم في هذا البحث لن يكتمل. وتأكد من أن جميع المعلومات المقدمة هنا هي للأغراض الأكاديمية.

يمكنك كتابة اي تعليق هنا " يمكنك استخدام اللغة العربيه
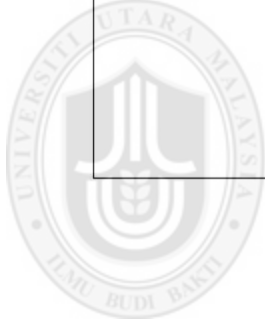
مع التقدير

ختم او توقيع   الاسم:

التاريخ:

APPENDIX J (Nvivo Report)

	Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	

Node

Nodes\\First Group Interviews\\BENEFITS

Document

Internals\\First Group Interviews\\Participant 1-1

No			0.2302	6			

| | | | | | 1 | 1 | |

Therefore, we are doing our best to overcome these obstacles by applying the modern exchange information and providing computers which will reduce efforts on the employees and will facilitate the citizens' interests and interactions, moreover, the idea of the e-government will compel the citizens themselves to use the modern technologies and as a result the society will progress. In addition, the project will help in making-decision process.

| | | | | | 2 | 1 | |

Actually, the electronic interaction is very important at the present time for Dhi Qar province because of the increasing number of the population especially after 2003, in addition a large number of the people of marshes are now moving to the city so the local agencies have witnessed increase in the number of the visitors.

| | | | | | 3 | 1 | |

The project will facilitate the communication with the remote local agencies in the province which cannot be reached in bad weather.

| | | | | | 4 | 1 | |

The electronic interaction facilitates the work among the local agencies and reduces efforts on employees.

| | | | | | 5 | 1 | |

but most of the exchange information is between the local agencies and the <Agency Name>

| | | | | | 6 | 1 | |

I think the benefits of the project should be identified for both the employees and the managers of the local agencies by the directorate of <Agency Name> so that a large number of the local agencies in the province participate without any rejections.

Internals\\First Group Interviews\\Participant 1-2

No			0.2571	7			

| | | | | | 1 | 1 | |

The electronic interaction is the essential application of the e-government. Actually this project aims to use the electronic interaction to facilitate the interaction among the local agencies so that modern technologies replace the traditional means which in return will save time and efforts. This will contribute in the development of Iraq

Reports\\Coding Summary By Node Report (2)

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	Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	
					2	1	

In fact, there are other benefits that we may gain as employees at the e-government in programming and computer engineering.

| | | | | | 3 | 1 | |

The main purpose after the project is to follow the progress the modern countries witness and to facilitate the local agencies works and interactions with less time and less efforts, and this what every country aims at.

| | | | | | 4 | 1 | |

Actually, the traditional means are stressful and slow comparing with the modern technology means. Moreover, the modern technologies will save time and reduce effort therefore the employees will feel comfortable to process all of the interactions for the citizens and for the other agencies with safety and confidentiality.

| | | | | | 5 | 1 | |

Regarding Dhi Qar <Agency Name>, we actually check the names of the ██████. This is a system that used in 2003 through which salaries for ██████ individuals are distributed where the local agencies send the names of their employees regularly so that we check it constantly lest they receive any other salaries from any other agency.

| | | | | | 6 | 1 | |

I think the percentage among only the involved local agencies does not exceed 20%.

| | | | | | 7 | 1 | |

Actually, some local agencies do not know the main purpose after the electronic interaction project for both the province and the agency.

Internals\\First Group Interviews\\Participant 1-3

			Coverage	Number Of Coding References	Reference Number	Coded By Initials	
No			0.1481	4			
					1	1	

I think, first these employees have to be educated on the project and on how this project will benefit the country and will contribute in reducing the corruption and costs and it will offer accurate information

| | | | | | 2 | 1 | |

Unfortunately, some local agencies are not aware that this project will help them in accessing the information easily.

| | | | | | 3 | 1 | |

The electronic means specifically the electronic interaction among the local agencies will reduce the waste of money that paid to buy the copy paper documents. Moreover, it will help on future plans in reducing unemployment rate that spread in the province as a result of the administrative corruption and nepotism. However, the e-government is considered an important component to build the modern countries, because without the e-government applications, where the project is a part of it, it would very difficult to provide equal services to the citizens when using the traditional means.

| | | | | | 4 | 1 | |

still, some managers insist on using the traditional means, however, I think when they know the benefits of the electronic interaction they will change their minds.

	Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On

Internals\\First Group Interviews\\Participant 2-1

	Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
	No		0.1315	4			
					1	1	

Regarding the directorate of <Agency Name> in Dhi-Qar, the purpose is to make the interactions of the agency in a continuation process with the other local agencies through spreading the knowledge about the official books and administrative legislations. More significantly, the purpose focuses on creating a real communication between the directorate of <Agency Name> and ▮▮▮ in the province by using recent means through which ▮▮▮▮▮▮ will be able to register and fill the application forms electronically

	2	1

Therefore, I believe that the level of information exchange among some participated agencies which involve in the project since it was founded is 3%. This percentage may collapse the project because an employee or an administrator will feel that this project is just a waste of money.

	3	1

we strive to educate the other agencies of the interaction benefits because of the importance it can bring to Dhi Qar province agencies and their employees. Dhi- Qar directorate <Agency Name> is considered one of the main service agencies that can benefit of the information exchange because other agencies of Dhi-Qar need to document the certificates and to certify the certificates for applicants who will work in their agencies.

	4	1

the lack of awareness about the usefulness of the information exchange, or e-government in the directorate <Agency Name> of Dhi Qar, this obstacle is also important.

Internals\\First Group Interviews\\Participant 2-2

	No	0.0737	2
		1	1

The project will provide a great contribution to Dhi Qar directorate of <Agency Name> because it is the ▮▮ directorate in Dhi-Qar province. Therefore, the employees find difficulty to achieve the work because of the large number of the clients who come to the agency. Hence, this contributes in the delay of the completion of the citizens' interests. However, this project provides a good service for the citizens and will reduce overcrowded at the directorate and will also provide the best services for the other agencies.

	2	1

Frankly, at the moment I find no benefits out of this project (the e-government) because most of the available applications cannot be used by the unqualified employees.

Internals\\First Group Interviews\\Participant 3-1

	No	0.0538	1
		1	1

the project has been politicized and has become an electoral benefit rather than to be a benefit for the local agencies because non-qualified individuals are employed in the e-government applications which led to the delay of the project due to factors such as the cost and lack of expertise and awareness of the benefits of the project.

Internals\\First Group Interviews\\Participant 3-2

	No	0.2647	5
		1	1

The purpose of the project is mainly to reform and to develop the province. Therefore, if this project is achieved successfully it would be a great step that performed by Dhi Qar province towards progress and serving the citizens. So this project is to organize the work of the local agencies and to reduce corruption as well.

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	
				2	1	

At the present time, there is no exchange of information among the other agencies in the province that is due to several reasons including the large number of the local agencies that have not been involved in the interaction.

| | | | | 3 | 1 | |

<Agency Name> of Dhi Qar requested the province not to include the ▮▮▮▮ within a project that does not contain a large number of employees; moreover, it requested more employees to be appointed to enter the information. In fact, I think there are no benefits from the project and that Dhi Qar <Agency Name> will continue with the ways that suit its interests.

| | | | | 4 | 1 | |

In fact I don't feel any improvement in the interaction between the agencies, in contrary, the opposite is now happening, there is a decrease compared with the previous years.

| | | | | 5 | 1 | |

Actually, a number of letters have been already sent to a number of local agencies at the beginning of the project. A few numbers of these local agencies responded reluctantly, but the other have not responded yet. These letters are about the participation in this project. However, there are no restrictions compelling the managers to participate in this project. So I think it will take time until all local agencies be ready to participate. In addition, there should be a kind of education about the importance and the benefits of the e-government applications since this project is a part of it.

Internals\\First Group Interviews\\Participant 4-1

| No | | 0.1888 | 4 | | | |

| | | | | 1 | 1 | |

Unfortunately, this project seems as slow as turtles in movement. It is progressing very slowly. Just imagine starting from 2004 until now we are only discussing the factors led to the delay or may stop the project completely if the top management and the project's supervisors continue to neglect this project (the electronic interaction among the local agencies in Dhi Qar province).

| | | | | 2 | 1 | |

As you know, Dhi Qar directorate of <Agency Name> is one of the important service agencies in the province. However, because of the increase number of the population, the explosions happen in the country and the pollution it is necessary to find other means to control ▮▮▮▮. Therefore, this project implemented with a very low rate of information exchange among the local agencies where some information exchanged between Dhi Qar directorate of <Agency Name> and some the other local agencies such as the directorate of <Agency Name> and the <Agency

| | | | | 3 | 1 | |

Unfortunately, the directorate of < Agency Name> refused to exchange the information because they only want to receive the information of the other agencies, consequently, there would not be any kind of benefits the other agencies to find.

| | | | | 4 | 1 | |

think it is even difficult to force the current involved agencies to apply the applications because the benefits of this project are not identified clearly to most of the local agencies.

Internals\\First Group Interviews\\participant 4-2

| No | | 0.1042 | 3 | | | |

| | | | | 1 | 1 | |

The main purpose of the electronic interaction among the local agencies in Dhi Qar province is to reduce the effort on the citizens and the employees as well, in addition to offer a good services to the citizens by using the modern electronic means.

| | | | | 2 | 1 | |

However, there is a difficulty to accept the electronic interaction among the local agencies in Dhi Qar province. Regarding the vague possible benefits of the process, Dhi Qar <Agency Name> hesitated to continue in this project. This will obstacle the work and applying it in all of the local agencies in the province.

	Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	
					3	1	

In fact, there are many factors. For example, some departments' managers do not accept the project because they are not aware of the benefits the project will bring for Dhi Qar < Agency Name>.

Internals\\First Group Interviews\\participant 5-1

No			0.2033	4			
					1	1	

The main purpose of the electronic interaction among the local agencies is to reduce effort and time; moreover, it is also to eliminate the traditional means (documents) procedures which waste much money in copy papers and inks. In addition, the electronic interaction will create confidentiality for the information exchange. More importantly, the electronic interaction will eliminate corruption. These are the most expected requirements from this project to fulfill.

					2	1	

Generally, the e-government will benefit the citizens and the government respectively. In fact, this project is a form or a part of the e-government. Unfortunately, the province authorities are unaware of the benefits the project will bring to the province and to Iraq in general. The project will make a great step of changing from the traditional means (the documents) which waste effort and time to the most easily, safe electronic means which reduce costs. Frankly, at the beginning of the project there will be more costs, but there will be good results when the information exchange starts.

					3	1	

Actually there is no clear vision to apply the electronic interaction by the electronic means.

					4	1	

Moreover, it is also due to the unknown benefits the project may offer to Dhi Qar province.

Internals\\First Group Interviews\\Participant 6-1

No			0.1745	5			
					1	1	

One important application is exchanging the information among the local agencies. We are doing our best in order to help the citizens; instead of going to every single agency, their procedures would be available and would be easily processed electronically. More importantly, the project will save time and effort and will reduce the financial and administrative corruption so that in the future the citizens will be able to process any local agency and pay the electricity and water bills from their houses through the portal. The portal will contain a page for complains and interactions.

					2	1	

The main reason behind this project is to benefit the citizens through processing all of their procedures from one local agency rather than they visit all of them.

					3	1	

Iraq is trying to pace development in modern sciences where most of the countries recently use the modern technologies to serve their own citizens and to save time and costs on one hand and to reduce efforts on their employees on the other where the traditional means (the use of pen and paper) in paying invoices, job applications and issuing passports are almost disappeared. Therefore, we are trying to get rid of this boring routine to development same like other countries as well as to reduce the financial and administrative corruption. According to the United Nation's report on the most corrupted countries in the world, Iraq is listed as one of these corrupted countries.

					4	1	

in addition the traditional means waste much money, time and efforts. Regarding Dhi Qar province, the population is in increase so the traditional means do not suit the needs of the local agencies hence the current project is considered to be a step forward, but there are so many factors that may obstacle the project.

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	
			5	1		

Besides, the information that sent between the <Agency Name> and the other agencies in order to know about the tenders, since most of these information are considered to be services and contain confidential details that must be secret in the process of the information exchange as well as there are important information that should never be delayed in the information exchange process between the general directorate for <Agency Name> and the other local agencies and that the traditional means may delay and hinder the work

Internals\\First Group Interviews\\Participant 6-2

No		0.1248	3			
				1	1	

Moreover, one more benefit for the e-government is that it will help in securing the information which is a priority that Iraq needs at the moment. Therefore, we are in need for more promotion and education for this project. In addition, the project will symbolize the trend to good governance; I mean transparency, integrity, democracy and electronic election in addition the information exchange will help in the census, through which budgets are allocated for each province, which is facing political obstacles and maintaining stability and security in the province.

				2	1	

Moreover, the project will reduce the traditional means among the local agencies where most of them are still using the traditional routine means. For example, they send a certain individual from one agency to another to certify a particular document or to pay the invoices.

				3	1	

Because of the unstable political and administrative situation in Iraq, conflicts arise and, consequently, these conflicts will negatively affect the construction process in Iraq and Dhi Qar province in particular. The available employees at the project are not aware of the importance of what this project may offer for the province and for the citizens in general

Internals\\First Group Interviews\\Participant 7-1

No		0.2717	4			
				1	1	

Anyhow, the interaction exchange, as a part of the e-government, is already applied but it is limited to several agencies because of the lack of education and awareness of the importance of the electronic interaction among the agencies.

The traditional means of corresponding information among the agencies are not sufficient at the present time because the number of the employees in the province is huge; moreover, the number of the local agencies in the province is increased. Consequently, the use of the traditional means makes it difficult for the agencies because of the accumulated documents. Therefore, it is of necessity to convert all these documents into a smaller accurate process that saves time and effort. Thus, this electronic interaction will benefit the directorate <Agency Name> in Dhi Qar province, consequently, we accept the project

				3	1	

Just imagine the situation that we are using the documents for more than 40 years and these documents are kept in stores belong to the offices. Therefore, there is a large amount of documents in all agencies and ministries that occupy vast space in addition that they can be damaged while all these documents can be converted electronically in a CD or a hard desk. Moreover, as I stated earlier, that the modern technology facilitates the work no matter if the size is huge or small and provide accurate services for the citizens and this is what the government tries to fulfill.

				4	1	

As a manger for the <Agency Name>, I agree on the applications of the project, but the problem is that some of the local agencies do not know that the connection of all the agencies to the network will facilitate the work among the agencies and the province. This is considered as a contribution to the agencies and a better way for them than using the traditional means.

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	

Internals\\First Group Interviews\\Participant 7-2

No		0.3046	5			

					1	1

In fact, the real benefit behind the application is to convert all the available documents at the local agencies to computers and deal

					2	1

In fact, the electronic interaction among the local agencies will facilitate the process of inquiry about the information sent from the province. Moreover, it will contribute even statistically. In addition, the project will save the information for a long time without any damage. This was the main reason that encouraged the <Agency Name> to be one of the participants in this project. In fact, we do not care if other agencies could get the information we have or not.

					3	1

The only motivation that encouraged the <Agency Name> to contribute in this project is that electronic interaction is extremely effortless and interesting process; in addition, the information will be available at any time whenever I need it, therefore, the shift to the digital means will put an end to the huge documents.

					4	1

Regarding Dhi Qar <Agency Name>, the province depends on it too much because it supplies all the other local agencies as well as the electric ██████████████████ such as petrol or diesel. The supply process is implemented based on the information that sent by the province, the <Agency Name> or other local agencies. Therefore, applying the electronic interaction will make the work more accurate and will reduce the corruption; moreover, it will create transparency where the ████████, the local agencies processed and the date of the delivery will be known to the province through the electronic interaction which the directorate of the communication will provide. Thus, this will protect the <Agency Name> of any suspicious in case of robbery.

					5	1

I think if the local agencies realize the benefits of the project for them and for the province, I they will prepare to participate.

Internals\\First Group Interviews\\Participant 8-1

No		0.2250	4			

					1	1

However, <agency Name> offers administrative support for the local agencies in the province. The project is provided with additional servers in addition to some other computers connected with them. This project will help the managers to get precise information on one hand and will reduce time and effort on the citizens and getting good services on the other.

					2	1

Let me add something, this project will eliminate the administrative corruption where there are cases of corruption in some local agencies, for example, in the process of entering the information into computers, some case of corruption regarding the salaries was revealed and that the salaries under false names were received by one employee at the agency.

					3	1

the modern means work can be achieved very fast with less cost. In addition, the information remain completely secret as well as to keep up with the other countries that near Iraq such as Bahrain, Jordan and United Arab of Emirates which are considered to be advanced countries in applying the e-government and its applications.

					4	1

There are many important factors. For example, the lack of qualified individuals in the local agencies, the absence of lawful legislation and some of the local agencies do not have the tendency to participate in the project though they can. Moreover, some individuals do not trust the project. They think this project will change the agency and will not bring any financial benefits to the local agency. In addition, other local agencies are not enough aware of the project.

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				2	1	

Actually managers should motivate their employees. For example, if the managers are well aware of the benefits the project may bring into the agency, they will encourage the employees to have training-courses and to participate in the interaction. Similarly, if the managers, there are many of them, are not aware of the importance of the project, I think the motivation will be weak.

Nodes\\Second Group Interviews\\Organizational Context\IT Capability

Document

Internals\\Second Group Interview\\Participant 1-1

No		0.0843	4			
				1	1	

I have mentioned in the previous interview that the percentage of the information exchange is exceeding 25%. Actually, this percentage is good comparing with the percentage in any other local agencies.

				2	1	

I think all of the employees are fond and have enough experience on using the computers, therefore, they will feel comfortable when they use computers.

				3	1	

There are around 7 experienced employees with higher certificates that qualifying them for the project applications and, if necessary; they can design the applications by themselves.

				4	1	

Certainly Mr. ███████ is a good candidate for this position for his expertise in administrative applications because he had several training courses in the field of e-government applications in some different countries in the world.

Internals\\Second Group Interview\\Participant 1-2

No		0.0674	4			
				1	1	

As I mentioned earlier, 20% percent of the electronic interaction process among the local agencies is recently happening in Dhi Qar province.

				2	1	

There are enough number of the qualified employees in computer skills in the province and they feel comfortable with these applications, however, the number differs from one agency to another based on the knowledge and skills among the employees.

				3	1	

There are around 7 individuals between engineers and technicians, in addition to the manager Mr. ███████.

				4	1	

I think Mr. ███████, the manager of the e-government in Dhi Qar province is well-qualified and he has enough experience on the e-government applications because he was trained well in Italy, turkey and Jordan.

	Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On

Internals\\Second Group Interview\\Participant 1-3

	Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
No			0.0703	4			
					1	1	

There are a large number of interaction operations and correspondences that are applied now. In fact some agencies are still using the traditional means; however, others use the electronic interaction and the number is in increase.

| | | | | | 2 | 1 | |

In ▇▇▇▇▇▇▇, there is enough number of employees who are familiar with computers. Certainly, there is still a need to train them, but I think the recent number is enough.

| | | | | | 3 | 1 | |

There are around 7 individuals between engineers and technicians. According to my experience, I think the number is sufficient and to give training opportunities for others in the province.

| | | | | | 4 | 1 | |

As I told you earlier, in ▇▇▇▇▇▇▇ there are enough experienced employees on the e-government applications. I am here the responsible manager for the information.

Internals\\Second Group Interview\\Participant 2-1

	Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
No			0.0951	4			
					1	1	

Regarding Dhi-Qar province, there is electronic exchange among the ▇▇▇▇▇▇▇ and the ▇▇▇▇▇▇▇ and the ▇▇▇▇▇▇▇ of Dhi-Qar. But for the rest of the agency, there seems no motivation to use the interactional exchange due to many reasons. However, the interaction exchange does not exceed 3%.

| | | | | | 2 | 1 | |

Regarding the ▇▇▇▇▇▇▇ in Dhi Qar, there is a good number of employees who can use the computer skillfully. In addition, there are computer courses to educate them to use some electronic applications such as documents management systems. Moreover, there are some employees who find it difficult to use computer, therefore, they resort to the use of documents. This kind of employees includes a number of managers. They are regarded as an obstacle to the progress of the province.

| | | | | | 3 | 1 | |

There are a few numbers of them in Dhi Qar ▇▇▇▇▇▇▇. I cannot determine the exact number, but they are less than what the directorate of education needs.

| | | | | | 4 | 1 | |

In Dhi Qar ▇▇▇▇▇▇▇, there is a section which is specialized in educational maintenance applications and simple applications. As for the e-government, the number does not exceed three individuals and I am the person who is supervising the project in Dhi Qar ▇▇▇▇▇▇▇ with the help of qualified professors.

Internals\\Second Group Interview\\Participant 2-2

	Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
No			0.0777	4			
					1	1	

Regarding Dhi Qar ▇▇▇▇▇▇▇, which is the first contributor in this project, the rate of information exchange is 2%. Regarding the other agencies involved in the project, I think the interaction exchange is less.

| | | | | | 2 | 1 | |

A few months ago all the employees of ▇▇▇▇▇▇▇ were tested in their ability to use simple applications of the computers. The result showed that the majority of them face difficulties to adapt with these applications though they are very simple applications in comparison with the e-government and the systems it uses.

Reports\\Coding Summary By Node Report

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				3	1	

The number of the employees does not exceed 12%. This number is actually not enough to process all the needs of the ▮▮▮▮▮▮▮▮▮▮▮. Therefore, we requested the authorities to provide us with some employees. Unfortunately, the request is still in process since a year ago.

| | | | | 4 | 1 | |

Absolutely, especially at the computer center at Dhi-Qar ▮▮▮▮▮▮▮▮ where there are two experienced individuals in the e-government applications.

Internals\\Second Group Interview\\Participant 3-1

	No	0.0728	4			
				1	1	

The operations that exchanged by electronically do not exceed 2%, this does not include all the participating local agencies. Some local agencies do not interact when the information is exchanged electronically and prefer traditional means in the process of information exchange.

| | | | | 2 | 1 | |

There are several well-qualified employees, but unfortunately some of the professors cannot use the computers especially professors of history and science.

| | | | | 3 | 1 | |

There are a small number of the employees. Actually I do not know the real number of the computer technology's professors and technicians.

| | | | | 4 | 1 | |

In Dhi Qar ▮▮▮▮ there is a computer center and it is the responsible for e-government and there is a well-qualified manger as well as professor ▮▮▮▮▮▮ and professor ▮▮▮▮▮.

Internals\\Second Group Interview\\Participant 3-2

	No	0.0904	4			
				1	1	

The percentage does not exceed 1%. This is only about the processes among the ▮▮▮▮▮▮ and the ▮▮▮▮.

| | | | | 2 | 1 | |

It depends on the type of the local agencies. However, there are agencies who still use the traditional means as a result the number of the employees who use computers is low, an example is the directorate of tax where the employees who can use computers is very low.

| | | | | 3 | 1 | |

There is a good and enough number of the employees. However, the problem is not with the number of the employees rather it is about training them where a number of them are sent outside Iraq for training on the application of the e-government, moreover, most of these employees have no experience in the computer skills and because they were selected inappropriately.

| | | | | 4 | 1 | |

I am the responsible director of the computer center in ▮▮▮▮▮▮.

360