



E-GOVERNMENT IN IRAQ: FAILURE AND SUCCESS FACTORS

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E-GOVERNMENT IN IRAQ: FAILURE AND SUCCESS FACTORS

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OMAR AL-SALMAN

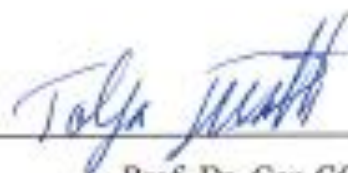
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ABSTRACT

E-GOVERNMENT IN IRAQ: FAILURE AND SUCCESS FACTORS

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E-government uses information and communication technology in order to provide services to citizens continuously and to facilitate life and conduct transactions quickly and smoothly.

This study mainly aims to determine the failure and success factors of e-government in Iraq as there are many factors that determine the failure or success of e-government, including the lack of studies on what worked in this area, which motivates us to choose this study. The study model is an online survey depending on The Heeks Factor Model directed to a large sample of employees in different Iraqi ministries most of whom specialize in information and communication technology. The data have been collected from 116 employees through an online survey. Moreover, opinions were taken on printed sheets from 23 employees of Smart Card, the Passports Department and Computer and Internet Center at Al-Anbar University. The process of collecting data continued for approximately one month between 26 December 2016 and 30 January 2017. Our study mentioned many e-government projects in many institutions in Iraq. Therefore, in order to increase the success of the projects that have been implemented in different institutions in Iraq, the Iraqi government must promote the importance of these projects. This study suggests pushing the e-government

project towards success by addressing the failure factors and focusing on strengthening these factors.

Keywords: e-government project, success factors, failure factors, Iraq, Heeks' Factor Model.



ÖZ

İRAK'TAKİ E-DEVLET: BAŞARISIZLIK VE BAŞARI FAKTÖRLERİ

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E-devlet vatandaşlara sürekli hizmet sunmak, yaşamı kolaylaştırmak ve işlemleri hızlı ve sorunsuz yapmak için bilgi ve iletişim teknolojisini kullanmaktadır. Bu çalışma esas olarak, e-devletin başarısızlığını ve başarısını belirleyen bu alanda yürütülmüş ve bu çalışmayı seçerken bizi motive edecek az sayıdaki araştırmanın olması da dahil pek çok faktör olduğundan, Irak'taki e-devlet uygulamasının başarısızlık ve başarı faktörlerini ortaya koymayı amaçlamaktadır. Çalışma modeli, çoğu bilgi ve iletişim teknolojisi alanında uzmanlaşmış Irak'taki farklı bakanlıklarda görev yapan büyük bir çalışan örneklemesine yönelik olarak kullanılan Heeks'in Faktör Modeline dayalı olan bir online ankettir. Veriler online bir anket aracılığıyla 116 çalışandan toplanmıştır. Ayrıca, Akıllı Kart Biriminde, Pasaport Dairesinde ve Al-Anbar Üniversitesi Bilgisayar ve İnternet Merkezinde görev yapan 23 çalışanın çıktı halindeki görüşleri de alınmıştır. Veri toplama süreci, 26 Aralık 2016 ile 30 Ocak 2017 tarihleri arasında yaklaşık bir ay sürmüştür. Çalışmamızda, Irak'taki birçok kurumda mevcut olan e-devlet projesinden bahsedilmiştir. Bu nedenle, Irak'taki farklı kurumlarda uygulanan projelerin başarısını artırmak amacıyla Irak hükümeti bu projelerin önemini tanıtmalıdır. Bu çalışma, başarısızlık faktörlerini ele alarak ve bu faktörleri ortadan kaldırmaya odaklanarak e-devlet projesinin başarıyla sonuçlanacağını önermektedir.

Anahtar kelimeler: e-devlet projesi, başarı faktörleri, başarısızlık faktörleri, Irak, Heeks'in Faktör Modeli.



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LIST OF ABBREVIATIONS

CIOs	Chief Information Officers
DLE	Direct Exchange Line
DRG	Design Reality Gap
DTI	Danish Technological Institute
EDIE	E-government for Development Information Exchange
EGDI	E-Government Development Index
EPI	E- Participation Index
EU	European Union
G2B	Government-to-Business
G2C	Government-to-Citizens
G2E	Government-to-employee
G2G	Government-to-Government
HCI	Human Capital Index
ICT	Information and Communication Technologies
IDC	International Data Corporation
IT	Information Technology

ITPOSMO	Information, Technology, Process, Objectives & Values, Staffing & Skills, Management Systems & Structures and Other Resources
OECD	Organization for Economic Co-Operation and Development
OSI	Online Service Index
PSTN	Public Switched Telephone Network
TII	Telecommunication Infrastructure Index
UN	United Nations
UNDP	United Nations Development Program
USAID	United States Agency for International Development
VAT	Value Added Tax

CHAPTER 1

INTRODUCTION

E-government is considered to be one of the most important tools that are used to improve public services in various sectors. Therefore, in the developed and industrialized countries, e-government is a very important research topic. Generally, access to e-government services by citizens and citizens' conducting their transactions online has become two of the major goals to be achieved by many countries, including Iraq.

There are various definitions of e-government as defined by researchers and specialists in information and communication technologies (ICT). Some researchers define e-government as the process of providing electronic services to citizens and businesses by using different interactive techniques, including e-mail, the Internet, smart cards, fax, smartphones, tablets, computers, self-service kiosks and Electronic Data Interchange [1]. This means that e-government must organize itself, its laws, administration, regulations and the manner in which it provides its services and communications with beneficiaries in smooth and flexible ways. Moreover, the United Nations defines the e-government as “the use of information and communication technologies (ICT) for example Wide Area Networks, the Internet, and mobile computing – by government agencies” [2].

Furthermore, the Organization for Economic Co-operation and Development (OECD) defines e-government as “the use of information and communication technologies (ICT) and especially the Internet in order to get better governmental services” [2].

E-government is also known as electronic government, online government, digital government, or in a certain context, transformational government, which is the process

of utilizing information technology (IT) to provide services and information to citizens and businesses [3].

In the highlights of many initiatives in terms of e-government, the Iraqi Government is working on developing this concept for a positive and better future. Due to the current situation in Iraq since 2003, it is problematic for the Iraqi government to develop government initiatives in the current situation [4]. In 2004, the United Nations asked member states to help Iraq in the existence of its new government for institution building. Also in 2004, the Italian Minister for Innovation and Technologies and the Iraqi Minister of Science and Technology signed a Memorandum of Understanding in which the Italian government would commence to help Iraq to establish a new Internet network that aims to link Iraqi ministries with each other. This agreement was the first step to establishing an efficient e-government platform which works on supporting Iraqi infrastructure. There is a corporate strategy signed between the United States Agency for International Development (USAID) and the Iraq Ministry of Science and Technology from 2007 to 2010 which aims to develop e-government in Iraq, which consequently has achieved great success in that field.

This corporate strategy has had a great effect on the development of the governmental sector to provide integrated electronic services and to enhance community participation despite the great challenges that face e-government in Iraq. Nevertheless, these initiatives have presented many problems and shortcomings and they have not been implemented comprehensively as an e-government project is not a simple task. The success or failure of e-government programs does not depend on whether they are executed in developed or developing countries. However, developing countries are inclined to experience more failures than developed countries when implementing e-government [5].

Consequently, thorough analysis of these problems is required to identify the failure and success factors of e-government in Iraq. This study aims to investigate critical failure and success factors that influence implementation of e-government in Iraq by using The Heeks Factor Model. A questionnaire was developed and data were

collected and analyzed from officials and employees in different sectors in Iraq. The data analysis highlights both the strengths and weaknesses for each factor or variable. Finally, the study finishes with a conclusion for policymakers to shape the future of the e-government system in Iraq.

2.1 Statement of Problems

The e-government program is considered to be a vital element to enhance and update the public sector in Iraq where the Iraqi Government has adopted an integrated methodology of Iraqi development at the national and local level in line with Iraqi national development, Iraqi development goals and the national plan of development. The Iraqi Government in partnership with the United Nations Development Program (UNDP) held a high-level meeting about e-government in Amman on 13-17 November 2011. The purpose of this meeting was to develop performance indicators to monitor and evaluate the e-government and assess electronic readiness within different Iraqi organizations [6].

The implementation of e-government projects in our daily lives is considered a major shift from everything familiar to the beneficiaries of the community from traditional government services. In spite of Iraqi Government efforts during the previous years to shift to e-government, there are many issues that had to be taken into consideration; for example, Iraq Government efforts toward the e-government succeeding, a number of successful examples of ICT projects (e-government) in Iraq, and awareness of employees in Iraqi ministries about ICT projects which pave the way toward e-government projects. These questions in addition to many other questions must be answered in order to take countermeasures for e-government projects. Moreover, the lack of studies and researchers that evaluate the success and failure factors of e-government in Iraq motivate us to select this study, which will be the starting point for deeper studies in this framework.

1.2 Aim of the Study

The main aim of this study is to explore the success and failure factors of e-government in Iraq based on a large sample of employees in different Iraqi ministries and especially in ICT by conducting a survey on the Internet. The research aimed to reach a set of

key targets, including (1) exploring the awareness of stakeholders toward e-government projects; (2) evaluating the perception about any e-government projects that they have conducted in their institutions; (3) analyzing the critical factors that determine the failure or success of e-government in Iraq; and (4) determining whether the e-government project in Iraq in the current status is closer to success or failure.

1.3 Research Questions

In our study, the following research questions will be explored:

1. What is the current status of e-government in Iraq according to the opinions of stakeholders?
2. What is the extent of awareness among stakeholders toward e-government projects?
3. What are the success and failure factors of e-government projects according to the perception of stakeholders?
4. Does the implementation of an e-government project in Iraq approach failure or success?

1.4 Structure of the Thesis

This thesis consists of five chapters. The first chapter is an introduction to e-government by using different aspects and definitions, a statement of the problems in the study, the aim of the study, research questions and the structure of the thesis. The second chapter comprehensively explores and reviews the literature on e-government and the concept that is used to measure the strength of e-government by the United Nations in different countries. Moreover, we mention the current status of e-government in Iraq and Iraq's rankings according to a United Nations survey. The Heeks Factor Model is explained significantly because it will be the basic methodology used in this study. The third chapter includes the research methodology. The fourth chapter includes the results and analysis of the results. In the final chapter, major conclusions of the study, limitations, and suggestions for further research are stated and presented.

CHAPTER 2

LITERATURE REVIEW

2.1 E-government

The e-government concept has many definitions depending on the focus and attention of government, researchers or organizations. As stated by S. Alshomrani [2012], interactions take place between ministries, institutions and government departments to overcome the challenges of geographical area and time constraints [7]. Furthermore, it is the interactions which use information technology in communications between citizens, companies and other institutions.

According to studies conducted by Dinesh Chandra Misra [2006], e-government can be defined using several concepts [8]. Anyone can provide a specific definition of the term 'e-government' according to his opinion and usage. Basically, there are two definitions of e-government that have been found [9].

The first view is as a department by a hierarchy of workers in an organization. The top level of the pyramid sees e-government as an electronic service existing on the Internet that meets the needs of citizens. Similarly, at least at level 2, e-government works on improving the quality of services provided to citizens. At level 3, e-government is the services available on the Internet to fulfill community needs. Finally, the last level, level 4, of the pyramid sees e-government merely as computerization [9].

The second view of e-government is as one of the most important services needed by government in order to enhance public services provided to a society. We see that e-government is a modern system adopted by governments by using the Internet to connect their institutions with each other and to connect their different services with special institutions and the community at the same time and place that the information is available to individuals so as to create a transparent relationship characterized by speed and transparency to improve the quality of performance. Generally, there are

three main groups where e-government targets are located. These groups include citizens, business/interest groups, and government. E-government comprises three types of connection, namely government-to-government (G2G), government-to-business (G2B) and government-to-citizens (G2C). The three previous types which we have mentioned are considered to be common and exist in most approaches. However, there are other classifications of connections between government, business and citizens [9]. The relationships between numerous actors in e-government are shown in Figure 1.

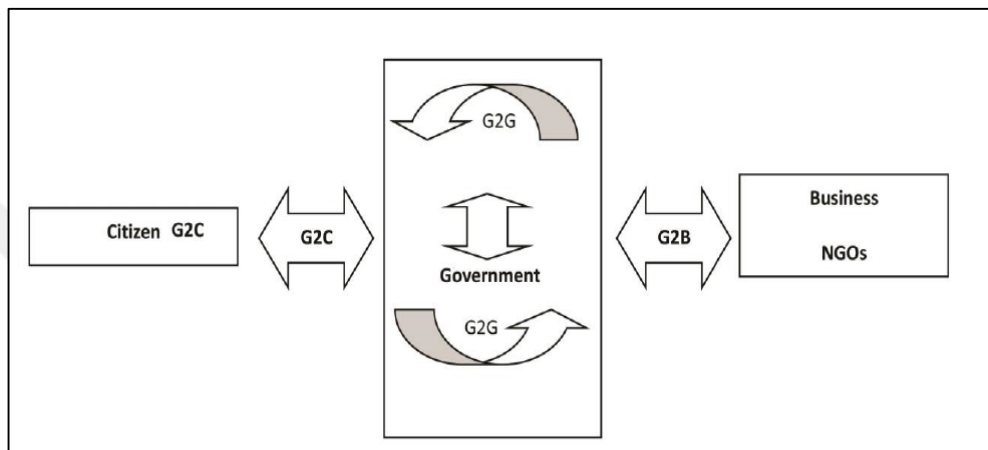


Figure 1: Relationship between numerous actors in e-government [9]

Figure 1 illustrates the interaction between government and citizens in two directions. The G2C arrow illustrates the interaction between government and citizens that obtains information from citizens and delivers information to them. The same status applies on G2G, which represents the interaction between government departments and organizations. G2B refers to the exchange of information between business and government.

Government-to-citizen (G2C) is the electronic interaction between government services and citizens. E-government provides the ability to communicate between government and citizens in order to provide electronic services such as appointment applications, driver's license acquisition and renewal, dissemination of information and warnings that concern the citizen, and so on [9]. The citizen can access the services of e-government anywhere and at any time by using multiple communication channels including PCs, mobile phones or tablets. The communication channels of e-government services are illustrated in Figure 2. The major goal of G2C is to provide

services to citizens easily and conveniently, to facilitate access to laws, systems and governmental legislation, to stimulate the interaction with services and to increase transparency. Thus, G2C leads to decreasing the time and cost required to complete transactions through the electronic services which exist under the cover of e-government.



Figure 2: Channels to access G2C services [9]

An extensive range of services can be provided according to age group through e-government. Figure 3 displays a number of e-government services such as fines payment, registration, and renewal of licenses as well as submission of comments to government officials.

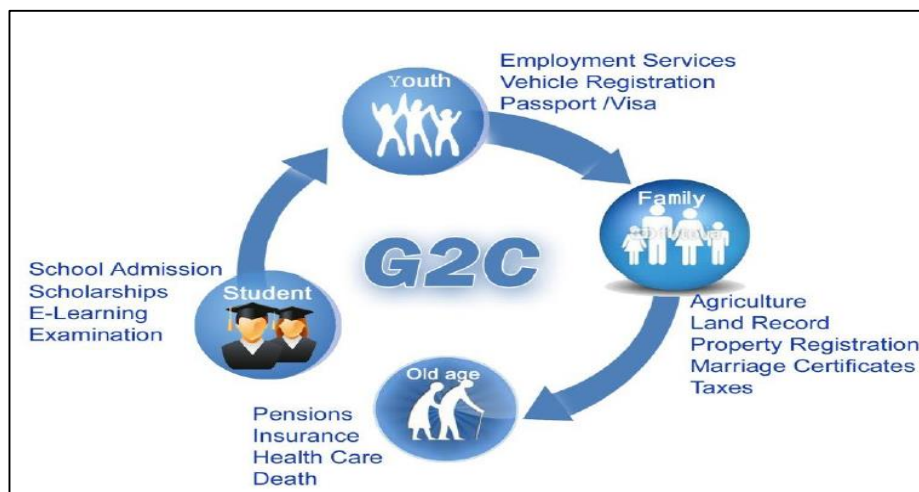


Figure 3: G2C services throughout life [9]

Government-to-business (G2B) refers to the relationship between government and business which may occur in two directions. The first direction of government to business may include the electronic sales of companies and government auctions, while the second direction from business to government may include selling or providing services to government departments and organizations which may need to deal and communicate with private companies, such as the completion of transactions and the registration of new companies through websites [9]. Moreover, government departments competent in buying and selling can place events on their own websites, thereby allowing the business sector to bid or buy from such events. Figure 4 shows a number of e-services provided by government to businesses.

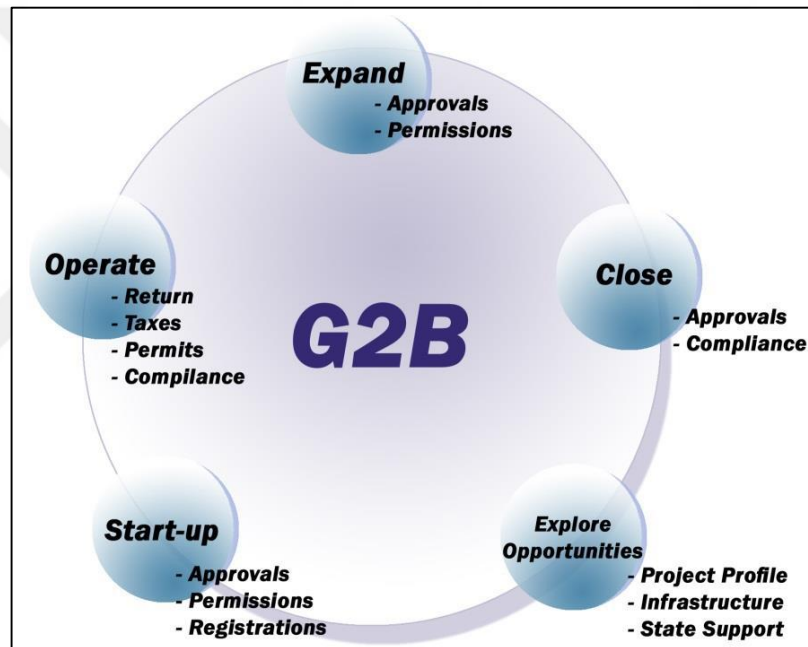


Figure 4: G2B services [9]

Government-to-government (G2G) refers to the relationships between governmental institutions through the Internet in general, including local or state institutions. Furthermore, G2G offers very efficient services between government departments and it facilitates and enables the communication process across the Internet in order to exchange information, experiences, and databases that promote efficiency and efficacy.

Government-to-employee (G2E) refers to the relationship between government and employees. Various researchers are merging this model with the G2G block where many people at this time consider employees as internal customers, and as a result, in order for the e-government method to be customer-centric, it should also take into account the needs and requirements of this group. Some examples of this model include the registration of addresses, following tax records and providing health insurance. Moreover, G2E is considered a popular way to offer e-learning and raise the exchange of knowledge among employees to enable them to access information in terms of laws, regulations, civil rights and opportunities of training and learning [10].

2.2 United Nations Survey

The United Nations survey is considered to be one of the most comprehensive surveys that work on evaluating the performance of e-government depending on the effect of information and communication technologies. The survey focuses on how to use information and communication technology to offer electronic services to society. Its mission is to rank countries according to a sequence in the provision of electronic services depending on the location of the E-government Development Index (EGDI). A report of the survey is issued every two years. Reports had been issued from 2002 to 2016; these reports work on exploring the strength and weakness factors in each country and take benefit from the experience of other countries in order to enhance the provided electronic services to society. The survey includes 193 member states and it occurs once every two years. The EGDI depends on three components, namely online services, technological infrastructure and human capital [11].

2.2.1 E-government Development Index (EGDI)

The E-government Development Index (EGDI) can be defined as a weighted average of normalized scores on the three most significant dimensions of e-government, explicitly scope and quality of online services (Online Service Index, OSI), status of the development of telecommunication infrastructure (Telecommunication Infrastructure Index, TII) and inherent human capital (Human Capital Index, HCI). Each of these sets of indices is in itself a compound measure that can be extracted and analyzed independently, as shown in Figure 5 [12].

$$EGDI = \frac{1}{3}(OSI_{normalized} + TII_{normalized} + HCI_{normalized}) \quad \text{Equation (1)}$$

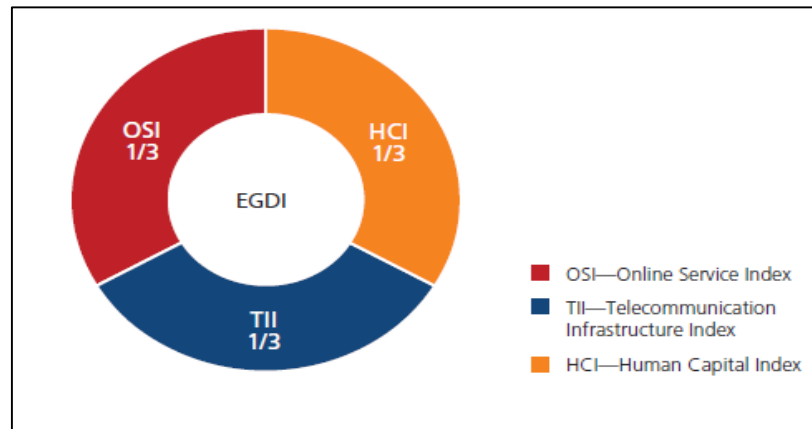


Figure 5: Components of EDGI [12]

Prior to the normalization of the three component indicators, the Z-score standardization procedure is implemented for each component indicator to ensure that the overall EGDI is equally decided by the three component indices, (i.e., each component index presents comparable variances subsequent to the Z-score standardization.) In the Z-score standardization treatment non-appearance, the EGDI would mostly rely on the index of the component with the greatest dispersion. After Z-score standardization, the arithmetic average sum becomes a good statistical indicator, where “equal weights” truly means “equal importance.”

For standard Z-score calculation of each component indicator:

$$X_{new} = \frac{(X - \mu)}{\sigma} \quad \text{Equation (2)}$$

where:

X is a raw score to be standardized;

μ is the mean of the population;

σ is the standard deviation of the population.

Then, the compound value of each component index is normalized to fall within the range of 0 to 1 and the inclusive EGDI is derived by taking the arithmetic average of the three component indices.

As specified, the EGDI is used as a benchmark to deliver a numerical ranking of e-government development via United Nations Member States. The methodological

framework for EGDI has remained reliable through the editions of the survey, each of which has been customized in order to reflect emergent trends of e-government strategies, evolving best practices knowledge in e-government, changes in technology and other factors. Furthermore, the practices of data collection are refined periodically.

Table 1: E-government leaders (Very High EGDI) in 2016 [13]

Country	Region	OSI	HCI	TII	EGDI	EGDI Level	2016 Rank	Ranking Trendline (2003 - 2016)
United Kingdom	Europe	1.0000	0.9402	0.8177	0.9193	Very high	1	
Australia	Oceania	0.9783	1.0000	0.7646	0.9143	Very high	2	
Republic of Korea	Asia	0.9420	0.8795	0.8530	0.8915	Very high	3	
Singapore	Asia	0.9710	0.8360	0.8414	0.8828	Very high	4	
Finland	Europe	0.9420	0.9440	0.7590	0.8817	Very high	5	
Sweden	Europe	0.8768	0.9210	0.8134	0.8704	Very high	6	
Netherlands	Europe	0.9275	0.9183	0.7517	0.8659	Very high	7	
New Zealand	Oceania	0.9420	0.9402	0.7136	0.8653	Very high	8	
Denmark	Europe	0.7754	0.9530	0.8247	0.8510	Very high	9	
France	Europe	0.9420	0.8445	0.7502	0.8456	Very high	10	
Japan	Asia	0.8768	0.8274	0.8277	0.8440	Very high	11	
United States of America	Americas	0.9275	0.8815	0.7170	0.8420	Very high	12	
Estonia	Europe	0.8913	0.8761	0.7329	0.8334	Very high	13	
Canada	Americas	0.9565	0.8572	0.6717	0.8285	Very high	14	
Germany	Europe	0.8406	0.8882	0.7342	0.8210	Very high	15	
Austria	Europe	0.9130	0.8396	0.7098	0.8208	Very high	16	
Spain	Europe	0.9130	0.8782	0.6493	0.8135	Very high	17	
Norway	Europe	0.8043	0.9031	0.7276	0.8117	Very high	18	
Belgium	Europe	0.7101	0.9712	0.6808	0.7874	Very high	19	
Israel	Asia	0.8623	0.8619	0.6175	0.7806	Very high	20	
Slovenia	Europe	0.8478	0.8952	0.5877	0.7769	Very high	21	
Italy	Europe	0.8696	0.8126	0.6469	0.7764	Very high	22	
Lithuania	Europe	0.8261	0.8717	0.6262	0.7747	Very high	23	
Bahrain	Asia	0.8261	0.7178	0.7762	0.7734	Very high	24	
Luxembourg	Europe	0.7174	0.7750	0.8190	0.7705	Very high	25	
Ireland	Europe	0.7246	0.9218	0.6602	0.7689	Very high	26	
Iceland	Europe	0.6232	0.8940	0.7814	0.7662	Very high	27	
Switzerland	Europe	0.6014	0.8579	0.7980	0.7525	Very high	28	
United Arab Emirates	Asia	0.8913	0.6752	0.6881	0.7515	Very high	29	

2.2.1.1 Telecommunication Infrastructure Index (TII)

The TII is an arithmetic average and composition of five indicators:

1. Assessed users of the Internet per 100 inhabitants;
2. Number of main fixed telephone lines per 100 inhabitants;

3. Number of mobile subscribers per 100 inhabitants;
4. Wireless broadband subscriptions number per 100 inhabitants; and
5. Number of fixed broadband subscriptions per 100 inhabitants.

The preliminary source of data in every case is the International Telecommunication Union, as shown in Figure 6.

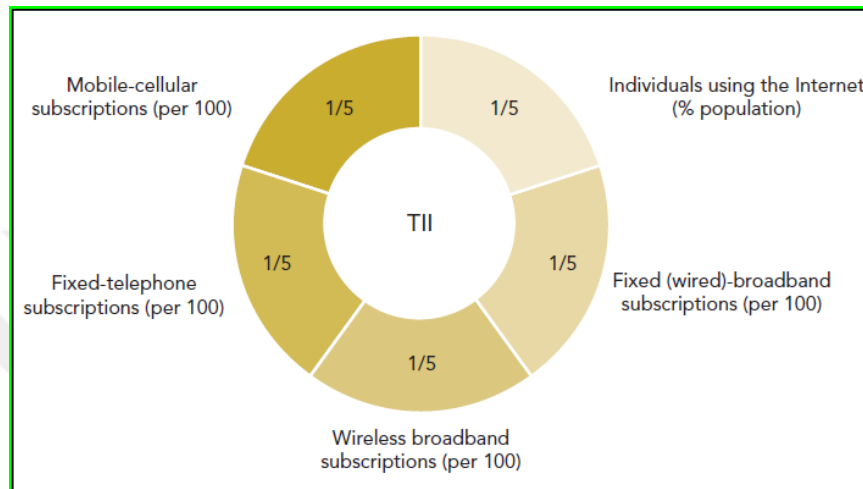


Figure 6: Telecommunication Infrastructure Index (TII) and its components [14]

The five components of TII are as follows:

- 1. Internet users (per 100 inhabitants):** referring to people who have been using an Internet connection in a specific place for the last three months.
- 2. Main fixed telephone lines (per 100 inhabitants):** This term points to the telephone lines that connect customers' terminal equipment (facsimile machine and telephone set, etc.) to the Public Switched Telephone Network (PSTN), which has a devoted port at the telephone exchange. The term is similar to the terms of Direct Exchange Line (DEL) and main station, which are usually used in communication documents; it may not be the same as the access line or subscription.
- 3. Mobile subscribers (per 100 inhabitants):** This term refers to the number of subscriptions to mobile services in the last three months. A cellular (mobile) telephone denotes a portable telephone which is subscribed to public mobile telephone services by using cellular communication technology that delivers

access to the PSTN. This technology comprises digital and analog cellular systems and technologies such as IMT-Advanced and IMT-2000 (3G). This technology includes both prepaid accounts and post-paid subscriptions.

4. **Wireless broadband subscriptions:** This term refers to terrestrial fixed wireless broadband, the sum of satellite broadband and active mobile-broadband subscriptions to the public Internet.
5. **Fixed broadband subscriptions (per 100 inhabitants):** This term refers to fixed subscriptions to high-speed access to the public Internet (a TCP/IP connection), at downstream speeds equal to, or greater than, 256 Kbit/s. It comprises a cable modem, DSL, fiber-to-home building, other fixed (wired)-broadband subscriptions, satellite broadband and terrestrial fixed wireless broadband. This total is measured without taking into consideration the form of payment. It does not include subscriptions which have the ability to access data communications, including the Internet via mobile cellular networks. It must include fixed wireless communication technologies and WiMAX. It comprises organizational and residential subscriptions.

Since 2002, the TII has remained unchanged to some extent except in the replacement of the online population with fixed broadband subscriptions and the exclusion of a number of television sets in 2008, personal computers users replacement with fixed Internet subscriptions in 2012 and the replacement of fixed Internet subscriptions with wireless broadband subscriptions in 2014, as shown in Table 2. Each of these indicators has been standardized across the Z-score procedure to derive the Z-score for each component indicator. The infrastructure of the communication composite value for country “x” represents the simple arithmetic mean of the five standardized indicators derived through the following method:

$$\begin{aligned} \text{Telecommunication infrastructure composite value} & \qquad \qquad \text{Equation (3)} \\ & = \text{Average } (IS + TL + MS + WBS + FB) \end{aligned}$$

where:

IS = Internet user Z – score

TL = Telephone line Z – score

MS = Mobile subscription Z – score

$WBS = \text{Wireless broadband subscription } Z - \text{score}$ and

$FB = \text{Fixed broadband } Z - \text{score}$

Finally, the composite value of the TII is usually normalized by taking its value for a specified country, and subtracting:

$$\begin{aligned} \text{Telecommunication infrastructure index (Country 'x')} &= \frac{[1.3813 - (-1.1358)]}{[2.3640 - (-1.1358)]} && \text{Equation(4)} \\ &= 0.7192 \end{aligned}$$

Table 2: Telecommunication Infrastructure Indices (TIIs) and the changes in their components from 2003 to 2016 [15]

TII (2001)	TII (2003)	TII (2004)	TII (2005)	TII (2008)	TII (2010)	TII (2012)	TII (2014)	TII (2016)
Internet users	Internet users	Internet users	Internet users	Internet users	Internet users	Internet users	Internet users	Internet users
Online population	Online population	Online population	Online population	Fixed-broadband subscriptions	Fixed-broadband subscriptions	Fixed-broadband subscriptions	Fixed-broadband subscriptions	Fixed-broadband subscriptions
Personal computer (PC) users	Personal computer (PC) users	Personal computer (PC) users	Personal computer (PC) users	Personal computer (PC) users	Personal computer (PC) users	Fixed Internet subscriptions	Wireless broadband subscriptions	Wireless broadband subscriptions
Fixed-telephone subscriptions	Fixed-telephone subscriptions	Fixed-telephone subscriptions	Fixed-telephone subscriptions	Fixed-telephone subscriptions	Fixed-telephone subscriptions	Fixed-telephone subscriptions	Fixed-telephone subscriptions	Fixed-telephone subscriptions
Mobile-cellular subscriptions	Mobile-cellular subscriptions	Mobile-cellular subscriptions	Mobile-cellular subscriptions	Mobile-cellular subscriptions	Mobile-cellular subscriptions	Mobile-cellular subscriptions	Mobile-cellular subscriptions	Mobile-cellular subscriptions
Television sets	Television sets	Television sets	Television sets	-	-	-	-	-

The values of the survey will be analyzed and the lowest composite value will be taken and divided by the ranges of all the composite values in every country [16].

2.2.1.2 Human Capital Index (HCI)

The Human Capital Index (HCI) comprises four components (as shown in Figure 7), specifically [17]:

1. Adult literacy ratio;
2. The combined primary, secondary and tertiary gross enrolment ratio;
3. Ordinary years of schooling; and
4. Typical years of schooling.

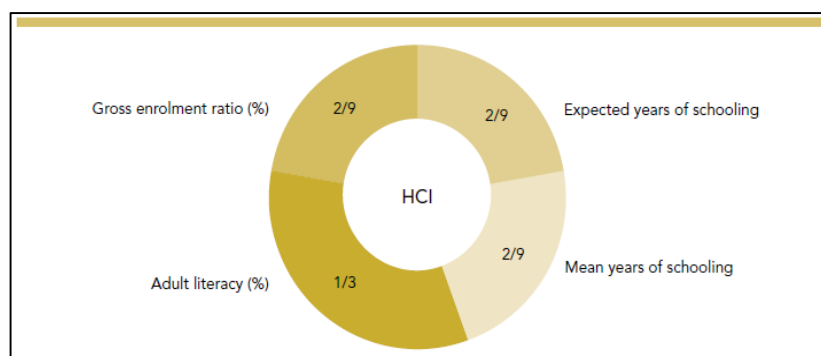


Figure 7: Human Capital Index (HCI) and components [17]

The HCI indicators can be defined as follows:

1. **Adult literacy:** This indicator measures the percentage of people aged 15 years and older and who can read and write a brief statement about their daily life.
2. **Gross enrolment ratio:** This indicator measures the combined primary, secondary and tertiary gross enrolment ratio of the total number of students enrolled at the primary, secondary and tertiary level, irrespective of age, as a percentage of the population of school age for that level.
3. **Expected years of schooling:** This indicator refers to the total number of years of schooling that a child of a certain age can expect to receive in the future, assuming that the possibility of his or her being in school at any specific age is equal to the present enrolment ratio age.
4. **Mean years of schooling:** This indicator indicates the average number of years of education accomplished by a country's adult population (25 years and older), without the years expanded to repeat the same grades.

The first two modules (adult literacy rate and the combined primary, secondary and tertiary gross enrolment ratio) have been used in all of the UN surveys since 2002. Thus, it can be said that education is considered to be a basic pillar in the Human Capital Index. The UN survey conducted in 2014 added to the Human Capital Index two new pillars: predictable years of schooling and mean years of schooling. There was no other new pillar added to the survey conducted in 2016. The initial primary study mandated by DESA/DPADM has validated the use of a new HCL and it was confirmed that the two new components have strengthened the HCL without errors, as shown in Table 3.

Table 3: Human Capital Index and changes of its components (2003 2014) [18]

Components of HCI in past Surveys (2002, 2003, 2004, 2005, 2008, 2010, 2012)	Components of HCI in 2014 Survey
Adult literacy	Adult literacy
Gross enrolment ratio	Gross enrolment ratio
-	Expected years of schooling
-	Mean years of schooling

The Human Capital Index represents a weight average which is divided into four indicators. The process of calculating the HCI is similar to calculating the TII, where each of the four component indicators is first standardized via the Z-score procedure to derive the Z-score value for each component indicator. The human capital composite value for country "x" is the weighted arithmetic mean with a one-third weight assigned to the adult literacy ratio and the two-ninth weight assigned to the gross enrolment ratio, assessed years of schooling and mean years of schooling. It is derived thus:

$$\text{Human capital composite value} = 1 / 3 \times ALR + 2 / 9 \times GER Z - \text{score} + 2 / 9 \times EYS + 2 / 9 \times MYS \quad \text{Equation(5)}$$

where:

ALR = Adult literacy rate Z – score

GER = Gross enrolment ratio Z – score

EYS = Estimated years of schooling

MYS = Mean years of schooling Z – score

Later, the human capital composite value is standardized by taking its composite value for a given country, subtracting the lowest composite value in the survey and dividing by the range of composite values for all countries. For instance, if country “x” has a composite value of 0.8438, and the lowest composite value for all countries is –3.2354 and the highest equal to 1.2752, then the normalized value of the Human Capital Index for country “x” would be:

$$\text{Human Capital Index (Country x)} = \frac{[0.8438 - (-3.2354)]}{[1.2752 - (-3.2354)]} = 0.9044 \quad \text{Equation (6)}$$

2.2.1.3 Online Services Index (OSI)

In order to reach the set of Online Service Index (OSI) values for 2016, there are approximately 111 researchers who belong to the United Nations organization, including experts and volunteers from more than 60 countries and covering more than 88 languages evaluating the national websites of each country in its native language, including electronic portals, in addition to the associated ministries sites and social, environmental, health and financial institutions. The United Nations Volunteers included qualified graduate students and volunteers from universities in the public administration field. To ensure the accuracy and consistency of results, the volunteers underwent strict training by the United Nations experts, who have had long experience in assessment, particularly with regard to e-government. In addition to rigorous training, during the evaluation process, the volunteers received support and guidance from the Data Team Coordinators. Researchers were trained to assume the mindset of an average citizen user in evaluating the sites. Therefore, the evaluation was based on those features on the site that can be accessed easily and not only on the existence of the features on the site. The basic point is that any user can reach the contents of the site easily and discover its contents, information and features in usable form by the ordinary user. The process of collecting data and survey research lasted more than two months, starting from May 2015 and lasting until the end of July 2015. Each country was evaluated by using at least two people for each country using the native language of that country. After the preliminary evaluation, the assessment was taken from the two researchers by the United Nations experts and any contradictions were revised by the researchers. The third phase continued from July to August by the Data Team Coordinators, where the collected data was reviewed and analyzed with high accuracy and the revisions and verification process were applied by using multiple methodologies and sources. Then, the results were sent to the senior researchers for approval. Through the careful analysis of these sites on the Internet by at least three persons, one of whom had long experience in evaluating public online sites, the results were assessed and revised in final form by the Data Team Coordinators. The first draft of the OSI ranking was produced after the completion of the evaluation phase. The

ranking was compared with previous OSI scores and the contradictions were displayed accurately. Each question called for a binary answer. Each positive response produced a new, “more in depth question” inside and through the patterns. The result of this survey was an improved quantitative survey with a wide range of point distributions which reflects the differences in the levels of e-government growth between countries. The complete number of points which were registered for each country was normalized to a range from 0 to 1. The online index value for a specific country was equal to the real total scoreless, the lowest total score divided by the range of total score values for every country. For instance, if country “x” has a score of 114, the lowest score of any country is 0 and the highest equal to 153, the online services value for that country “x” would be [19]:

$$\text{OSI (country 'x')} = \frac{(114 - 0)}{(153 - 0)} = 0.7451 \quad \text{Equation (7)}$$

Country	Online Service Index OSI
United Kingdom of Great Britain and Northern Ireland	1
Australia	0.9783
Singapore	0.9710
Canada	0.9565
Republic of Korea	0.9420
Finland	0.9420
New Zealand	0.9420
France	0.9420
Netherlands	0.9275
United States of America	0.9275
Austria	0.9130
Spain	0.9130
Estonia	0.8913
United Arab Emirates	0.8913
Sweden	0.8768
Japan	0.8768
Italy	0.8696
Israel	0.8623

Figure 8: World leader countries in terms of OSI

2.2.2 E- Participation Index (EPI)

The E-participation index is derived as a supplementary index to the United Nations survey about e-government and it expands the breadth of the survey by focusing on using electronic services to simplify the provision of information by government to citizens (the participation of electronic information) and the interaction with the benefited authorities and collaboration in the decision-making process.

This index is considered to be a supplementary index to study e-government in different countries by the United Nations. Its benefit is to expand the survey by focusing on the use of e-government to facilitate the provision of information from official authorities to the citizen in addition to the interaction of benefited authorities and citizens in the decision-making process. The EPI of the government search in the facilitation of electronic participation is published by the government as compared to other countries and its goal is not only to assume specific facilitation but also to promote a point of view about how different countries can use electronic tools to stimulate interactions between citizens and government. Furthermore, the EPI searches the interaction process of citizens with each other in order to benefit all of them where this index signifies a qualitative assessment that is based on the availability of the online services on official governmental sites. The comparative classification is made with countries for illustrative purposes and it must point out only the comprehensive guidance in promoting the participation of the citizen. EPI does not mean to be an absolute index for the online participation; rather it tries to capture the online participation measurement of countries in proportion to each other at a specific point in time.

The survey study that was conducted in 2016 focused on studying e-participation questions carefully to reflect the current directions and methods about how the government involves their citizens in formulating general policy, implementation and assessment. Additionally, new questions were added to discuss the deployment of data and to share them with governmental agencies. Other characteristics and updates are included to provide special information about citizens to obtain governmental information with the provision of outputs about notes received from citizens. Notes can be submitted by the employees regarding the improvement of electronic services, the provision of tools in order to obtain the opinion of the public to discuss the general

policy across the social media, e-referendums, and tools submitting applications and the e-discussion forums. Although the EPI delivers a useful analytical quality tool when comparing the data and rankings of countries in one year, we must be aware when comparing e-participation with previous versions of the surveys. Mathematically, EPI is normalized by taking the value of the total degree for a specific country and subtracting the least total degree of any country in the survey and dividing it by the number of values of total degrees of all countries. For example, if country 'x' has an e-participation degree of 29 and the minimum value for any country and the highest equals 38, the value of the index normalized for country 'x' is as follows:

$$\begin{aligned} \text{EPI (country 'x')} &= \frac{(29 - 0)}{(38 - 0)} && \text{Equation (8)} \\ &= 0.7632 \end{aligned}$$

In 2014, it was proposed to rank the electronic participation of countries according to the e-participation index through a classification standard competition. In this classification standard competition, countries which have the same EPI receive the same ranking number and leave a gap in the ranking number.

Rank	Country
1	United Kingdom
2	Japan
2	Australia
4	Republic of Korea
5	Netherlands
5	New Zealand
7	Spain
8	Singapore
8	Canada
8	Italy
8	Finland
12	France
12	United States of America
14	Austria
14	Mexico
14	Poland

Figure 9: Order of countries in terms of EPI

This ranking strategy is assumed in interpretation that if two or more countries tie for a position in the ranking, the positions of all those ranked below them are unaffected. For example, if country A ranks ahead of B and C, both of which share the same EPI value and scores ahead of D, then A is ranked first (1st), B and C are ranked second (2nd) and D is ranked fourth (4th). In 2012, for comparison purposes, the modified competition ranking was used and all the rankings were adjusted by using the classification standard competition [20].

Country	Jumps	Ranking in 2016	Ranking in 2014
Saint Kitts and Nevis	25	133	158
Zambia	25	118	143
Austria	26	14	40
Solomon Islands	26	146	172
Angola	28	101	129
Guinea-Bissau	29	157	186
Azerbaijan	30	47	77
Suriname	30	122	152
Ethiopia	31	91	122
Liberia	31	127	158
Mexico	31	14	45
Denmark	32	22	54
Montenegro	32	17	49
Monaco	37	127	164
Bosnia and Herzegovina	40	89	129
Papua New Guinea	43	149	192
Ukraine	45	32	77
Czech Republic	46	76	122
Malta	46	25	71
Slovenia	47	37	84
Afghanistan	48	104	152
Iraq	48	104	152
Paraguay	50	72	122
Poland	51	14	65
Togo	53	111	164
Liechtenstein	57	60	117

Figure 10: Countries having achieved jumps between 2014 and 2016 reports

2.3 EU measurements

One of the pioneer studies in terms of measuring the performance of the public sector is the standard index of e-government for 2010. This is considered to be a cooperative process equipped by European countries and supported by the European Commission and European companies, including International Data Corporation (IDC), Capgemini (a French IT company), Danish Technological Institute (DTI) and Rand Europe and Sogeti. A huge number of results are displayed in the benchmark of 2010 compared with the number of results displayed in previous years since its creation in 2001. The classification system that uses this standard is widespread to identify those European countries with the best electronic services.

The existence of 20 public government services and their difficulty are measured by 14,000 public specific supplier websites at the local, regional and national levels

through 32 contributing European countries, which is proficient through a multi-lingual team of researchers [21]. These services that must be provided by each e-government will be explained in detail in the next stage.

2.3.1 Twenty basic public e-government services as defined by the EU

E-government services are a time-saving way to deliver better services to citizens and businesses. Moreover, e-government brings convenience to citizens and businesses at the same time in order to optimize open and transparent participatory government, thereby contributing to the economic sustainability of a region. The European Commission Directorate General Information Society and Media have defined 20 basic public services. Eight of these services aim to help the business sector and twelve aim to help citizens, as displayed in Table 4.

Table 4: E-government Services as defined by the EU [22]

Citizens	Businesses
Income Taxes	Social Contribution for Employees
Job Search	Corporate Tax
Social Security Benefits	Registration of a New Company
Personal Documents	Submission of Data to the Statistical Office
Vehicle Registration	Custom Declaration
Application for Building Permission	Environment-related Permits
Declaration to the Police	Value Added Tax (VAT)
Public Libraries	Public Procurement
Online Certificates	
Enrolment in Higher Education	
Announcement of Moving	
Health-related Services	

Firstly, we shall denote in detail the twelve basic services which aimed to help citizens:

- **Income tax:** assertion and notification of assessment, standard procedures to announce the labor income tax of an employee. Citizens should pay tax electronically at any time. The website of the government should deliver associated information about types of taxes and forms [22].

- **Job search services:** typical procedure to receive job offerings as structured by official job offices. Thus, citizens can seek employment by searching through associated government websites for availability. The complete necessary documents can be submitted online; therefore, a job-seeker need not appear at a government office to submit documentation.

- **Social security benefits:**
 - **Unemployment benefits:** the benefit of social security that can be provided by government to help unemployed and low-income people economically.

 - **Child allowances:** money that can be given by government and received by the parents of children. Requirements to obtain this money vary from one country to another in the EU.

 - **Medical costs:** typical procedure to obtain reimbursement of costs covered by compulsory medical insurance. Citizens can pay the government on a monthly or yearly basis depending on the rules of the country.

 - **Student grants:** grants provided by the government to help students for living and tuition fees to fund higher education.

- **Personal documents:** typical procedures to obtain necessary personal documents electronically, such as passports and driver's licenses for the personal vehicles but not for professional issues.

- **Vehicle registration:** typical procedures to purchase and register new, used or imported vehicles from websites of the associated government. Currently, citizens

are able to submit their different relevant documents online concerning vehicles without the need to progress to the vehicles registration office.

- **Application for building permission:** Currently, citizens are able to obtain building or renovation permission for personal building (regular, initial request) by online submission. All the related documents and information associated with a building must be received by government websites. The citizen who submits the application can receive an e-mail as a response if the government website offers transactional services.
- **Declaration to police:** typical procedure to report publicly the theft of personal goods including burglary of cars or homes to a local police office on the Internet. Citizens have the capability to access national information across the police network, including online theft declarations, databases of terrorists and organized crime groups as well as the detection of criminals from criminal records and databases.
- **Public libraries:** typical procedure to obtain online catalogs of public libraries to search for and acquire precise information in different media formats, including books, CDs, etc.
- **Online certificates:** citizens can submit appropriate documents online through a government portal or from a mobile device and submit an order to obtain birth, marriage or death certificates.
- **Enrolment in Higher Education:** students can register at a university or any other institution of higher education in the country. Universities can offer their own websites and through these websites, students can enroll or select courses without paper-based work as the processes are online.
- **Announcement of moving:** the online announcement of a person's change of address or moving to another place in the same country.
- **Health related services:** the government can deliver a website which contains different information about doctors and hospitals. Patient appointments can be made online easily or patients can be informed about the locations of nearby hospitals and pharmacies.

In the following steps, we address in detail the eight basic services that are allocated for business determinations:

- **Social contributions of employees:** This is a system of employee medical and social payment and pension insurance. This payment can be made for those employees who work either in the public or private sector to receive assistance for medical and social costs. After retirement, they receive monthly pension payments. Relevant information can be offered on digital platforms.
- **Corporate tax:** The submission of forms and payments can be done electronically. Functionalities follow up the status in tax offices, check account balances and find information about regulations and updates across the Internet [22].
- **Registration of a new company:** The companies registration service and the storing of any relevant documents electronically can be considered one of the most important services provided by electronic government portals.
- **Submission of data to the statistical office:** The typical objective of the procedure is to find how the government can easily submit online statistical data and reduce the amount of company bureaucratic procedures across an interoperability of datasets.
- **Customs declaration:** Customs declaration is associated with the regular actions of a corporation and it can be fully submitted in an electronic environment.
- **Environment-related permits:** obtaining online permission for subjects associated with the environment. An environmental permit or request for exemption may be considered necessary if a business in some manner affects the environment.
- **Value Added Tax (VAT):** VAT is a tax on purchase prices. It represents a value that can be added to the price of a service or product. Commercial businesses or enterprises must have the ability to submit and pay online.
- **Public procurement:** the procurement of products and services on behalf of the public sector. A government website must deliver different forms of information associated with public procurement requirements.

2.4 United Kingdom of Great Britain and Northern Ireland as a world leader of e-government

As stated by the survey conducted by the United Nations, the United Kingdom of Great Britain and Northern Ireland ranked first in the 2016 Online Service Index, as the country counted fine in all the stages and areas of offering online services. Its initial implementation of Electronic Government and the significant development since then has comprised many course corrections to assimilate lessons learned, which has contributed to this accomplishment. In the previous decade, the British Government has constantly worked in order to create the necessary infrastructure as well as secure government gateways, interoperability principles, authentication and the accessibility of broadband while also deregulating the telecommunications sector.

With basic infrastructure in place, attention has been resolved to confirm quicker and more inventive embracing of new techniques to offer online services. E-government service development went from publishing information in basic ways to delivering simple interactions including forms to full transactional competency such as filing and processing tax returns, welfare benefits, passports, etc. and to a complete transformation and reform of public sector online operations and public services distribution. The governance of online public service delivery changed with the introduction of the Chief Information Officers (CIOs) Council between the e-Government Unit of the Cabinet Office and the Office of Government Commerce. This team was established to transform online services delivery and become citizen-centered, self-service, accessible and enabling. This marked a Whole-of-Government approach in online service delivery, where services would be available in a more integrated fashion from various departments at local and central government levels. Digital authentications, in addition to secure access to the full spectrum of services, have been ensured along with the struggles to stimulate digital inclusion [23].

2.5 Iraq Country Profile

Iraq (Figure 11) is a federal preliminary republic according to the constitution of Iraq. It contains 18 governorates and its capital is Baghdad. Iraq is one of the West Asian countries overlooking the Arab Gulf. In the south, it is bounded by Kuwait and the Kingdom of Saudi Arabia, in the north by the Republic of Turkey, in the west by Syria and Jordan and in the east by the Islamic Republic of Iran. The Iraqi population in

2016 numbered 37,547,686 inhabitants. A monarchy was established in 1921, and the kingdom received independence from Great Britain in 1932. In 1958, the monarchy was overthrown and the Republic of Iraq was established [24].



Figure 11: Iraqi map [25]

2.5.1 Iraqi E-government current status

Before discussing the current status of the Iraqi government, there are some facts about the usage of the Internet in Iraq [26] [27]:

1. In 2000, the number of users was 12,500 in a population of 26,628,187, which constitutes less than 0.1% of the total estimated population of Iraq.
2. In 2002, the number of users was 25,000 in a population of 26,095,283, which constitutes less than 0.1% of the total estimated population of Iraq.
3. In 2008, the number of users was 275,000 in a population 28,221,181, which constitutes less than 1.0% of the total estimated population of Iraq.
4. In 2009, the number of users was 300,000 in a population 28,945,569, which constitutes more than 1.0% of the total estimated population of Iraq.
5. In 2010, the number of users was 325,000 in a population 29,671,605, which constitutes approximately 1.1% of the total estimated population of Iraq.

6. In 2012, the number of users jumped to 2,211,860 in a population of 31,129,225, which constitutes approximately 7.1% of the total estimated population of Iraq.
7. In 2016, the number of users was 14,000,000 in a population of 37,547,686, which constitutes approximately 37.3% of the total estimated population of Iraq.

The UN details of the surveys of the Iraqi profile for the years 2014 and 2016 are explained in detail in Table 5.

Table 5: Iraqi country profile according to the united nation survey [9], [10]

Years	Rank	EGDI	OSI	TII	HCI	Level of income
2014	134	0.3141	0.1969	0.2173	0.5283	Upper Middle
2016	141	0.3334	0.3551	0.1647	0.4803	Upper Middle

The details of TII and its components for Iraq according to the United Nations survey of 2014 and 2016, respectively, are shown in Table 6. Furthermore, the HCI and OSI indices are shown in Table 7 and Table 8, respectively.

Table 6: TII and its components in the Iraqi environment

Years	Use of Internet	Fixed telephone subscriptions per 100 inhabitants	Mobile cellular telephone Subscriptions per 100 inhabitants	Fixed (wired)-broadband subscriptions per 100 inhabitants	Wireless broadband subscriptions per 100 inhabitants
2014	7.10	5.71	81.63	0.00	37.14
2016	11.30	5.60	94.91	0.01	3.60

Table 7: HCI indicators for Iraq from 2003 to 2016

Years	2003	2005	2008	2010	2012	2014	2016
HCI value	0.93	0.93	0.6922	0.69556	0.61509	0.5283	0.4803

Table 8: Details of HCI for Iraq

HCI												0.4803
Adult literacy rate			Gross enrolment ratio			Estimated years of schooling			Mean years of schooling			
Index value	Year	source	Index value	year	Source	Index value	year	source	Index value	Year	source	
79.69	2015	UNESCO	54.48	2000	UNESCO	10.08	2004	UNESCO	5.60	2012	UNDP	

Table 9: OSI indicators for Iraq from 2003 to 2016

Years	2003	2005	2008	2010	2012	2014	2016
OSI value	0	0.0538	0.1070	0.1523	0.2875	0.1969	0.3551

According to Tables 5, 6, 7 and 8, it is clear that Iraq lacks the ability to keep pace with other countries in e-government development in spite of the progress made in the TII value. This report shows that Iraq has indeed stepped into e-government development, but not at the required level. We can see that Iraq still falls behind in the rankings of e-government development, which is a key issue in Iraq for research and e-government success and failure factors. However, it must be mentioned that the e-participation index for Iraq in 2014 was 0.13725, while for 2016 it was 0.4237. Moreover, from 2014 to 2016, Iraq jumped 48 stages in terms of HCI, as shown in Table 10.

Table 10: HCI rankings for Iraq (2005-2016)

EPART Rank	2016	2014	2012	2010	2008	2005
Iraq	104	152	101	135	60	151

If we compare the services mentioned by the European Union that must be made available by governments through the Internet, we can see that according to our knowledge of the Iraqi Government, some of these services are in fact available. In terms of customer service, there are many websites that are made available through the Internet through which we can search for any available jobs in both the public and private sectors. In addition, some Iraqi institutions, and especially in the private sector, provide the service of applying for jobs using the Internet. Furthermore, in terms of documents, in Iraq, the service of receiving passport applications can be performed through the Internet on the website belonging to the passports office according to each governorate. The Iraqi Traffic Institution also provides services to register cars online and through this website, users can provide details about the car, including its type, and model. Moreover, there are a number of public and private online libraries that provide to their members the possibility of downloading and uploading books online. In terms of job services and according to our knowledge, there is a system to receive the salaries of employees and retirees in addition to the social assistance by using an electronic card known as the (Q-Card).

2.5.1.1 The work plan of Iraqi E-government

The strategic work plan of e-government focuses on ten basic elements which are necessary to address in order to highlight the transformative impact of information and communication technology. The ten elements that are covered by the work plan are associated closely, thereby allowing the opportunity to implement the priority areas in an integrated manner. The main activities of priority are identified for each element based on the consultations between multi-stockholders and the ten elements. These include:

1. Awareness, communication, and commitment
2. Constructing human capacity
3. Conversational interface and standards

4. Institutions and change management
5. The legal framework
6. Communications infrastructure
7. Financial resources management
8. Evaluation and controlling
9. The delivery of services to citizens
10. Data and information systems

The work plan developed is also guaranteed to acquire genuine commitment from political leaderships in all parts of Iraq. Notifying the leaderships in e-government practice and the value brought by e-government to the process of government makes a difference in promoting the commitment of leaders and to push-ups, the invertible process of transformation for institutions. These leaders must be able to commit in front of the community. However, there is a need for a strong coordination mechanism supported by committed leadership in the e-government center to coordinate the process between different ministries and administrations and between different levels of government at the central and local level.

At other levels, communication with citizens is considered to be a duty and necessity for governments. Therefore, it is necessary for all stakeholders to accept and understand e-government in order to guarantee the flow of its benefits to all of the community. It is also necessary to preserve the security of any electronic information transfer so as to guarantee that e-government precedes any change in the legal system to protect information and privacy in the digital environment. Additionally, intellectual property rights must be modified to include the protection of intellectual property. Iraq must certainly adopt a legal framework to apply the electronic equivalent of traditional paper procedures, such as personal identity, signatures, and deposits [28].

2.6 Heeks Factor Model and its ITPOSMO Approach

Professor Richard Heeks developed the Heeks Factor Model in 2003 at the University of Manchester for Development Information Exchange (EDIE) as an e-government assessment framework. It is considered to be an e-government evaluation framework. The model contains two sides: the left and right sides, as shown in Figure 12. The left

side refers to the items which are perceived in order to encourage failure, while the right side refers to the items encouraging the success.

The Heeks Factor Model was selected for our study due to its focus on the factors of human principles which are known to be critical to e-government project success and failure. Moreover, the model was used previously by scholars in order to determine and prioritize a list of e-government project success and failure factors according on the stakeholders in DCs.

The Heeks Factor Model is considered to be a simple and subjective technique depending on analyzing lists of success and failure factors for e-government projects. The model is a reworking of the ITPOSMO (information, technology, process, objectives, & values, staffing & skills, Management systems & structures and other resources) Checklist for the Design-Reality Gap (DRG), especially extending the 'objectives and values' dimension into elements on drivers, strategy and change management.

The Heeks Factor Model is a general set of success and failure factors that affect e-government projects. It basically rates the presence and/or absence of any critical success factors. Nevertheless, the Design-Reality Gap model emphasizes testing the information system execution status in e-government in order to measure the gap that exists between 'where we wanted to be' and 'where we are now'. In summary, the Heeks Factor Model focuses on both planning (planning to start) and initially implements (started), whereas the DRG model is focused more on executing e-government projects.

The Heeks Factor Model is grounded on analyzing the list of factors, as shown in Figure 12, and include (1) drivers (external pressure and internal pressure/will); (2) enablers (strategy, management, design, competencies, technology and others); and constraints (considered to be the negative principles of the drivers and enablers). For instance, the factor 'project management' changes to 'poor project management' as a constraint.

This study will focus on using the Heeks Factor Model and it will analyze each factor in the highlights of the survey results which were collected through an online

questionnaire. Accordingly, we will examine the success and failure factors when implementing e-government according to the opinions of the participants.

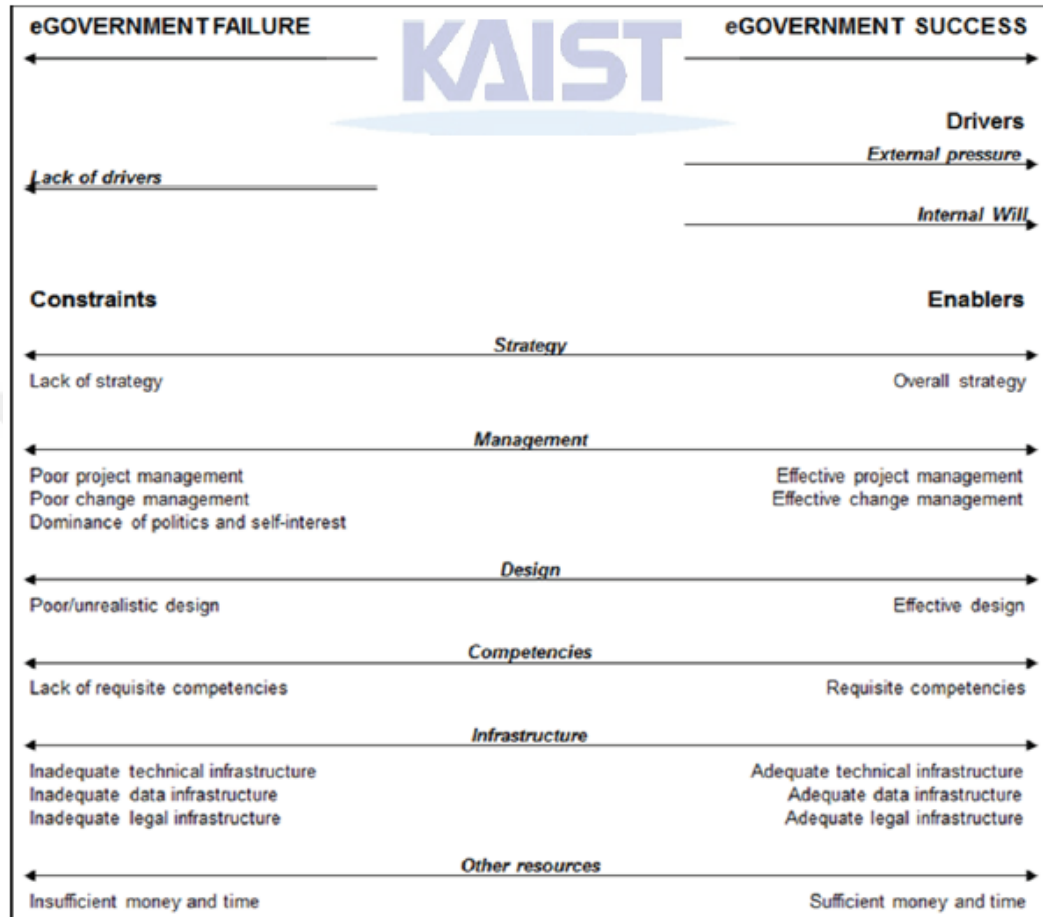


Figure 12: Heeks Factor Model framework

The Heeks Factor Model can be defined as follows:

- *External pressure:* relays in order to support the reform and achievement of e-government projects goals outside government, such as from aid donors, stakeholders, civil society, etc.
- *Internal pressure:* relays to support from key internal government officials to reform and achieve e-government project goals.
- *Strategy:* relays on the availability of the entire vision and master plan for good governance and for the implementation of e-government projects.

- *Management*: relays on three factors, namely project management (clear roles and planning), change management (use of incentives to create commitment) and politics and self-interest (change agents for projects).
- *Design*: relays to the availability of the active modular and incremental, stockholders participatory involvement at the project's inception.
- *Competencies*: relays on the availability of minimum information and communication technology skills, and knowledge (human resources IT skills) in the ICT project.
- *Technology*: relays on the availability of the minimum Information Communication Technology such as hardware and software.
- *Others*: relays on the availability of adequate budgets, long-term implementation environment [29].

2.6.1 Other studies applying the Heeks Factor Model and e-government success and failure factors

Many studies have been conducted using the Heeks Factor Model in order to evaluate the success and failure factors of specific research in various countries. Therefore, we will mention those studies that were conducted depending on this model because it will be a practical foundation of this study and it will depend on e-government in Iraq. Chowdhury et al. (2011) presented a scientific paper on the success and failure factors of e-government in Bangladesh by using the Heeks Factor Model. The research included a survey concerning the recent concept and initiatives of e-government in Bangladesh and the electronic services provided to the people. The scientific paper clarified the relationship between awareness and the effect of awareness creation on the value towards the e-government initiatives of Bangladeshi government employees as follows:

- More than two-thirds of the officials in the government who were covered in this study did not have a clear idea about the e-government initiatives in Bangladesh.
- The percentage of governmental officials who believed that e-government initiatives provided services to citizens was about 95 percent.

- The statistical results showed that the process of implementing e-government falls entirely on the government with the possibility of taking help from international organizations.
- The participants showed that the most important factors that helped to implement e-government in Bangladesh were political desire, overall strategic vision, and the infrastructure.
- The participants showed that the most important factors that led to failure in implementing e-government in Bangladesh were the lack of political will, poor infrastructure and the lack of overall strategic vision.
- The study concluded that the most important factors leading to implementing e-government in Bangladesh were the overall strategic vision, adequate technological infrastructure and internal political will [30].

Danish Dada (2012) published a scientific paper about the failure of e-government in developing countries. He performed a literature review to demonstrate how e-government fails in developing countries. Given the aforementioned focus of his article, the criticism of the implementation of e-government in developing countries in addition to the identification of a set of solutions to common problems in this field were beyond his current scope. Instead, the paper served as a study of what often goes wrong when e-government is presented in developing countries, thereby consenting to those in the field to use this knowledge to expect probable problems and produce more robust and actual plans. The literature review which was provided in that study includes a summary of many reasons that led to the failure of e-government projects in developing countries. In general, the main problem was seen to be the gaps that exist between the design and the reality of the system. Furthermore, he stated that the topic of e-government is still quite new and perspectives are quite likely to change over time. There is scope for further study in both the areas of success and failure of e-government in developing countries and certainly as more real-world cases come forth, so will new interpretations [31].

2.7 Summary

A literature survey is presented in this chapter to each term with regard to e-government in different environments, especially the Iraqi environment. Therefore, firstly the nature of e-government and the definition of e-government by different researchers and institutions are clarified. Measurements used by the United Nations are mentioned to identify the technological class that is achieved by each country in terms of e-government where there are different measures that are used by the United Nations in this regard (as shown and explained in detail in this chapter). Furthermore, the European Union measurements regarding e-government where the European Union gave 20 services must be provided by each government to apply successful e-government. The EU measurement gives 12 services belonging to citizens and 8 services belonging to the business world. These services mentioned by the European Union have been explained in detail. Later, the experiments in e-government were performed by many countries, including the United Kingdom of Great Britain and Northern Ireland. Additionally, the application of e-government in Iraq is the basis of our study and we present a brief summary of Iraq, its geography and detailed information about it followed by the current status of its e-government in addition to the efforts of the Iraqi Government to shift towards e-government and a work plan in this regard.

Finally, the Heeks Factor Model is explained in detail, which is the base of this study and a few examples about studies using the Heeks Factor Model belonging to e-government are given. According to the literature survey, there is a lack of concern about e-government success and failure factors in Iraq, which is one of the most important reasons that motivated us to conduct this study. Therefore, we hope throughout this study to make our way towards deeper studies and reach the desired results in this context.

CHAPTER 3

METHODOLOGY

3.1 Research Design

The current study provides a comprehensive framework for the foundations and factors to construct e-government successfully in Iraq and in most developing countries in general because it determines the necessary foundations for the failure and success factors of e-government. In order to ensure a purity of research, a survey including a large sample of Iraqi employees was adopted. The questionnaire of this study was designed according to the Heeks Factor Model because of its focus on the human aspect factors, which are considered critical to the failure and success of an e-government project.

3.2 Participation

The sample of study that was selected included employees in different Iraqi ministries. They were accessed via e mail in order to participate in the survey. Moreover, the researcher distributed 23 hard copies of the questionnaire to three different and important organizations, these being Smart Card, the Passports Department and the Computer and Internet Center at Al Anbar University. It must be mentioned that the number of published emails about the questionnaire accessed was 163 and the number of participants who responded to our online survey was 116. Therefore, the total number of participants in the survey was 139. At the beginning of the questionnaire, all the participants have been informed that their information and answers would be anonymous. Hence they were free to express their opinions comfortably. Moreover, it enables us to obtain honest and detailed responses.

3.3 Data Collection Instrument Survey

The data were collected by a survey and hosted on the Internet between 26 December 2016 and 30 January 2017. The link was sent to participants by e-mail and via different social media tools in addition to direct calls to the targeted people. The basic data that were collected from different specialists comprised 15 ICT officials, 14 project managers, 59 ICT employees and 51 other jobs.

The survey was divided into nine sections. The first section included personal information about the participant such as the functional specialist, gender and age category. The age category in the survey was divided into five age categories. It included other questions about the participants' understanding and their awareness about e-government projects in Iraq. (Awareness was measured using a five-scale Likert.) The second to eighth sections included measuring success and failure factors according to the Heeks Factor Model (FMs were measured through a ten-scale Likert). It must be mentioned that we have used mean value as the basis for calculating the failure or success of each factor from the ten factors that distributed in these sections. The mean value has been calculated by using the SPSS program according to the following equation:

$$\bar{x} = \frac{\sum fx}{\sum f} \quad \text{Equation (9)}$$

The second section included three questions and it discussed the perceptions and trends of change towards e-government in the institutions where the participants worked. The third section was the strategy evaluation and it consisted of four questions and a discussion of the availability of governmental strategic vision in terms of e-government projects in the participant institution. The fourth section was the evaluation of management and included three subsections each being divided into many questions. The first subsection, which included seven questions, discussed the quality of e-government project management in the participant institution, while the second subsection included four questions which discussed the quality of change management for e-government projects in the participant institution. The final subsection included four questions which discussed the perception about donors' focus on self-interest and political practice in e-government projects in the participant institution.

The fifth section was the design evaluation and included six questions which pertained to the effectivity and reality of designing an e-government project in the participant institution. The sixth section was the evaluation of the efficiencies and it includes three questions regarding the perception about the extent of the available required efficiencies in e-government projects at the participant institution.

The seventh section was the technology evaluation and included six questions. It discussed the extent of the adequacy of the technological infrastructure of an e-government project at the participant institution. The eighth section included another evaluation which included four questions and discussed the other factors that probably caused the failure of e-government projects in the real institution.

The ninth section contained other questions, including two questions, such as who should take the lead to implement e-government in Iraq, while the other question was to write any project towards e-government that had been implemented at their institution.

The participants were asked to select a number between 0 and 10 for all of the questions that were asked. The indicator 0 refers to the most dangerous factors likely to fail and the number 10 refers to the index likely to succeed. The percentage ratio and the mean for each factor were extracted. For a mean with a value of less than 5, we express by (“It seems to fail”), and for a mean value that is greater or equal to 5, we express by (“Possible to succeed”). Moreover, we calculated the overall rating of an e-government project out of 100 to show whether an e-government project was closer to success or failure depending on the results of the survey.

The tool used in this study was the Statistical Program for Social Sciences (SPSS) version 22.

CHAPTER 4

RESULTS AND ANALYSIS

The subject of this study is the failure and success factors of e-government in Iraq. A high percentage of the targeted participant work lies in the ICT sectors and the other percentage work lies in other governmental and private sectors. The following sections include details of the study and the analysis of the collected results throughout our study that we wish to be the foundations of deep studies in terms of e-government in Iraq and work on developing this framework in practical ways with the assistance of our study results and other studies.

4.1 Demographic analysis

This section includes personal information about the participants of the survey. Figure 13 shows the positions that were occupied by the participants according to their gender. The occupations of the participants included ICT employee, Project Manager, ICT official and other jobs. The number of female participants who worked as ICT employees was 15 at a percentage of 10.79%, while the number of males was 44 at a percentage of 31.65%.

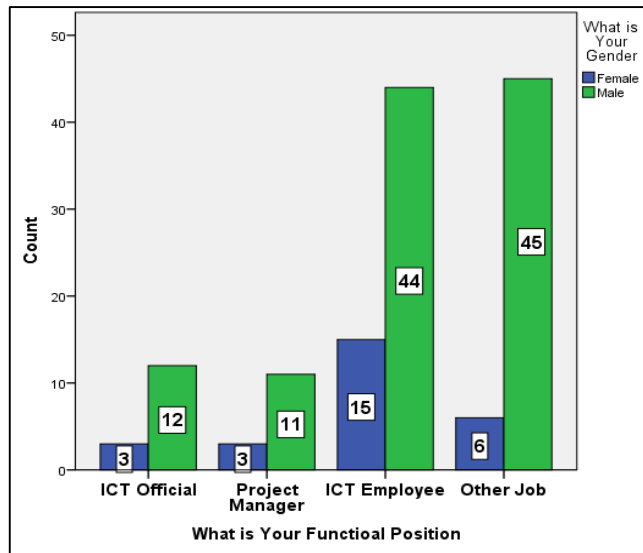


Figure 13: Position of participants according to gender (Questions 1, 2)

Participant age distribution is shown in Figure 14. The highest age category is 25-34 at a percentage of 54% with 75 persons from 139 persons in total.

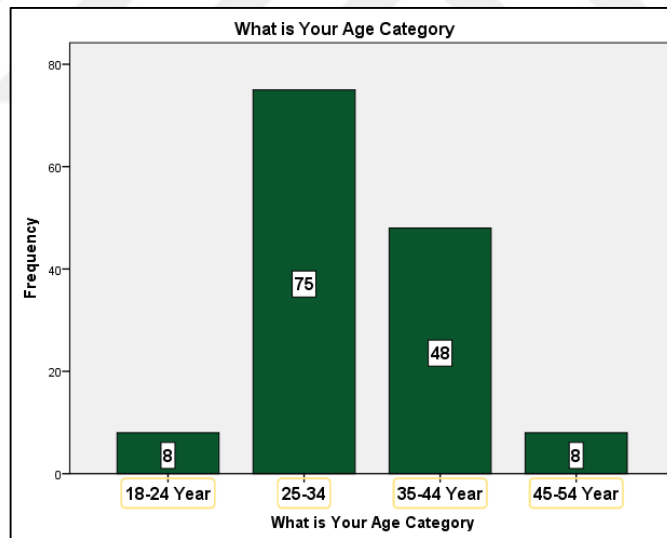


Figure 14: Participants' age category (Question 3)

4.2 Awareness

The awareness dimension is explored with these questions:

Q4: I fully understand the benefits of e-government for citizens.

Q5: The Government has an Official Gate (One Place for All the Governmental Information).

Q6: All governmental ministries have a website as a part of the E-government Project.

Q7: All local authorities (governorates) have a website as a part of the E-government Project.

Q8: I can access general information (upload useful documents) and perform basic services across the Internet on the Website (blog, e-mail, short message services).

Q9: There are a number of successful examples of ICT projects (e-government) in Iraq.

Figure 15 explains the awareness of e-government of those who participated in the survey.

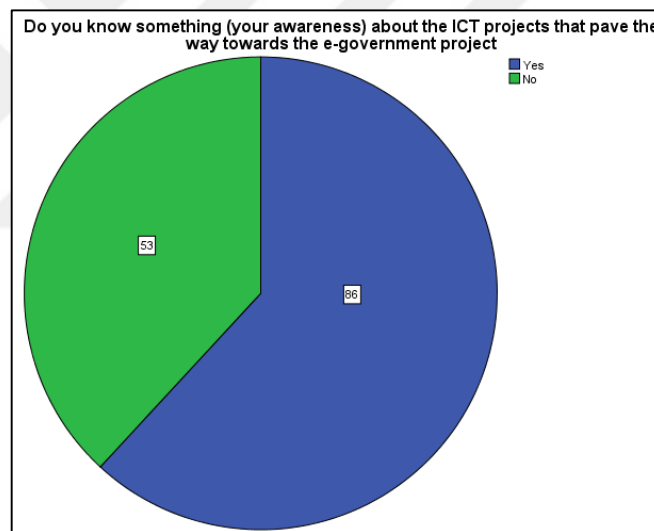


Figure 15: Awareness about e-government initiative (Question 10)

61.9% of the participants have awareness about the e-government project, which corresponds to 86 persons, followed by 38.1% who do not have any awareness of the e-government project. For the question stating that e-government projects that have been realized by the participants, 58 persons and many projects were mentioned, as seen in Figure 16.

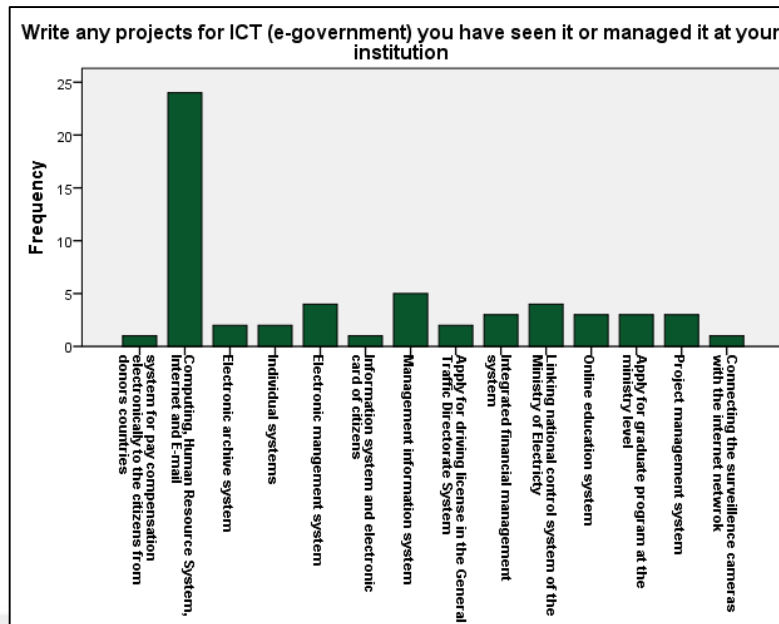


Figure 16: Some e-government projects in different Iraqi institutions as mentioned by the participants (Question 11)

However, 81 persons did not mention any e-government projects, which could be due to two reasons: the first being a possible lack of awareness of e-government projects and the second, a lack of e-government projects at their institutions. Furthermore, we asked about the status of these projects mentioned by the participants, which numbered around 15 projects. The status of these projects varied (Figure 17) in which 32 participants stated that the mentioned project were implemented, 23 participants stated that the project was in the implementation phase and 19 participants stated that the mentioned projects were in the design phase.

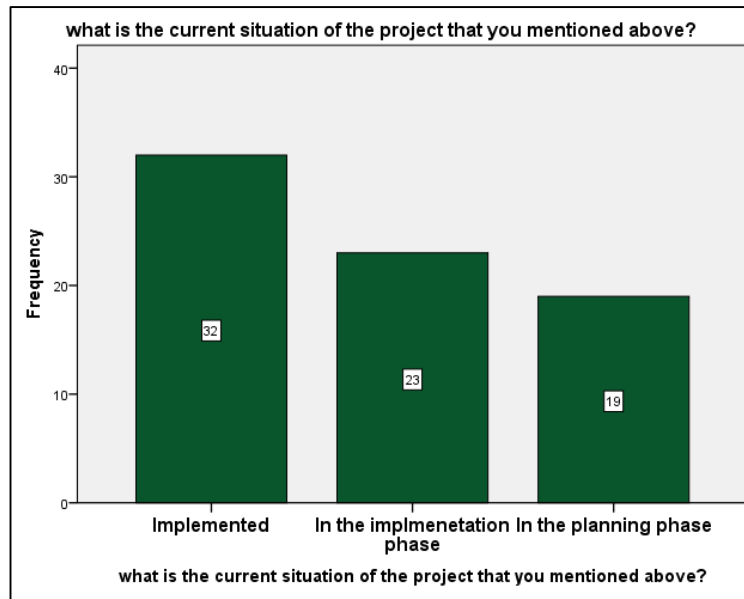


Figure 17: Status of the mentioned projects (Question 12)

Additionally, the awareness dimension includes other questions that were answered by the participants. The answers to these questions and their evaluations are explained in Table 11 and the percentage ratios for each of them are shown in Figures 18 to 23.

Table 11: Awareness of e-government as stated by the participants

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
I fully understand the benefits of e-government for citizens	54%	41%	4.3%	0.7%	0%
The government has an official portal (one place for all governmental information)	30%	55.4%	8.6%	2.2%	2.9%
All governmental ministries have a website as a part of the e-government project	48.2%	43.2%	6.5%	2.2%	0%

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
I can access the general information (upload useful documents) and perform basic services across the Internet on the website (blog, e-mail, short message services)	43.9%	39.6%	11.5%	4.3%	0.7%
There are some successful examples of ICT projects (e-government) in Iraq	19.4%	46.8%	22.3%	9.4%	2.2%

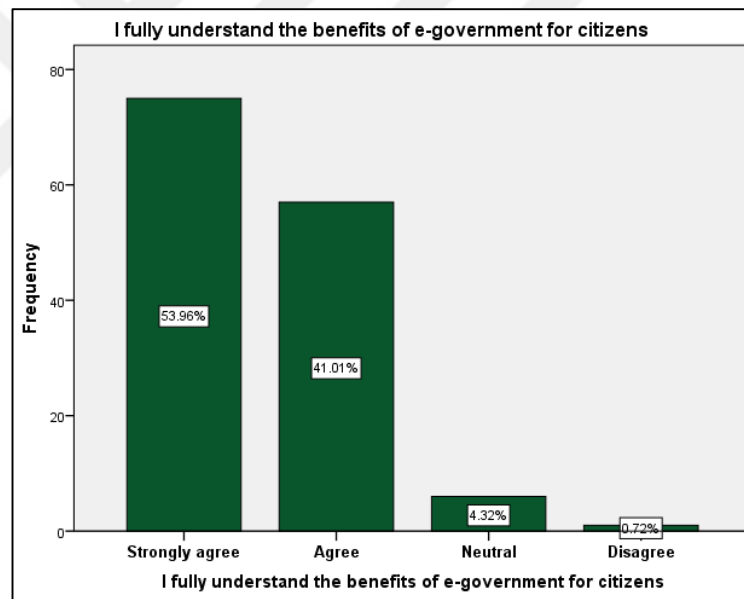


Figure 18: Understanding the benefits of e-government (Question 4)

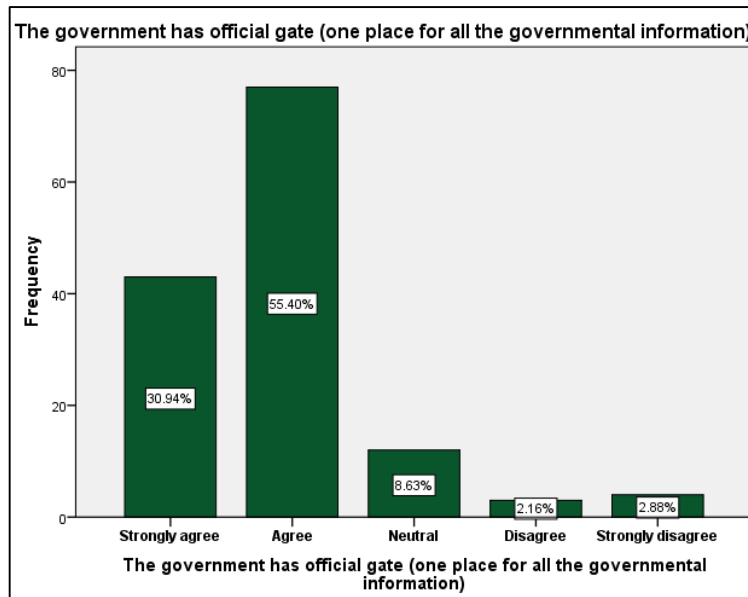


Figure 19: Official e-government portal as expected by participants (Question 5)

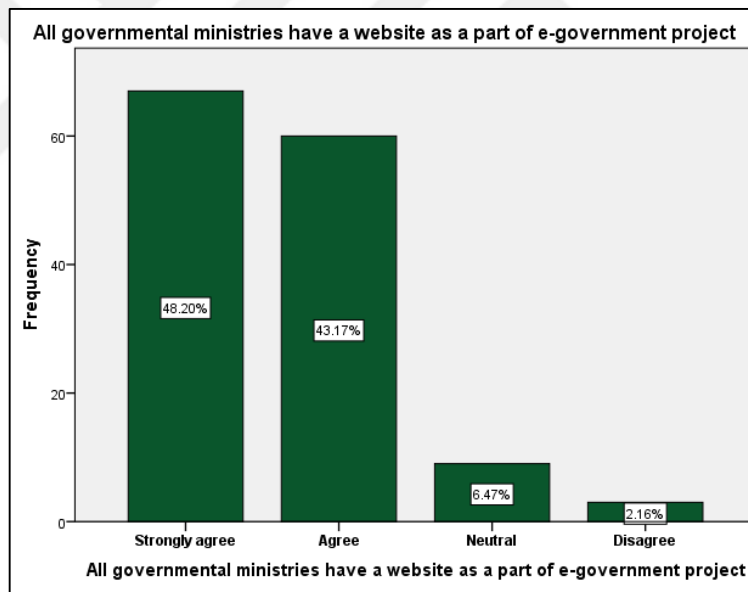


Figure 20: Ministry websites as stated by participants (Question 6)

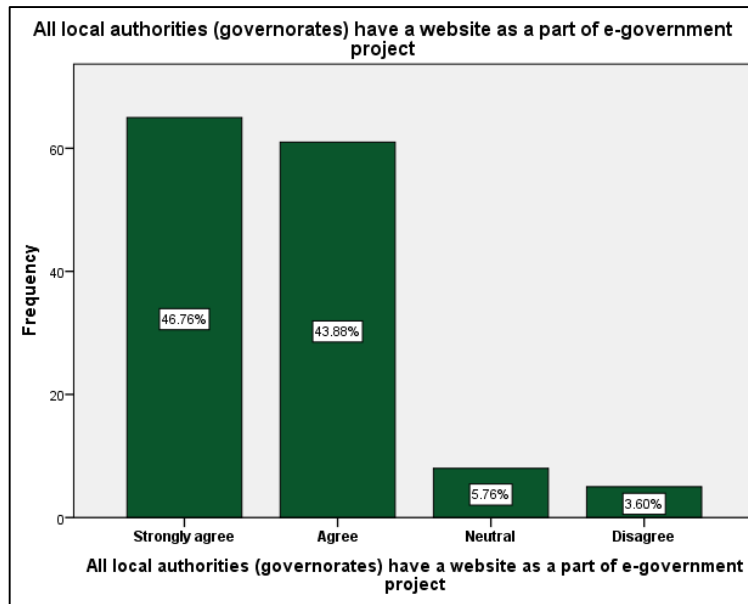


Figure 21: Governmental authority websites as stated by participants (Question 7)

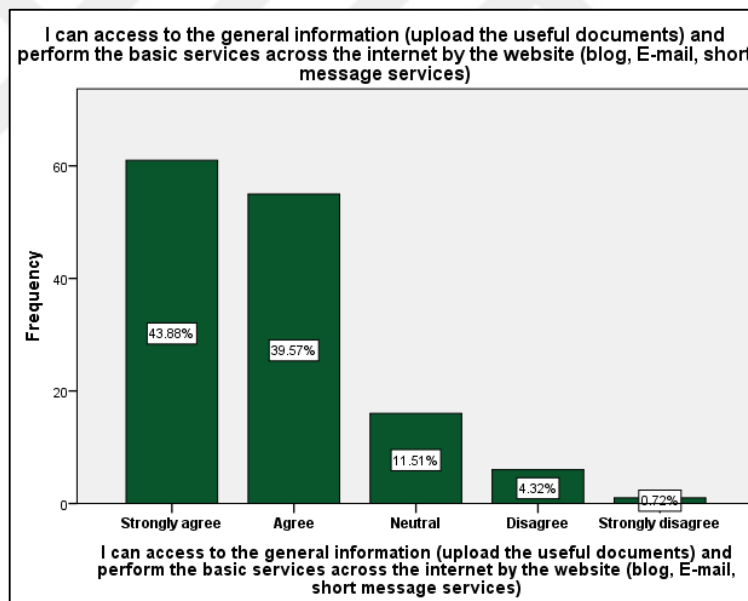


Figure 22: Access to general information, downloading and uploading documents (Question 8)

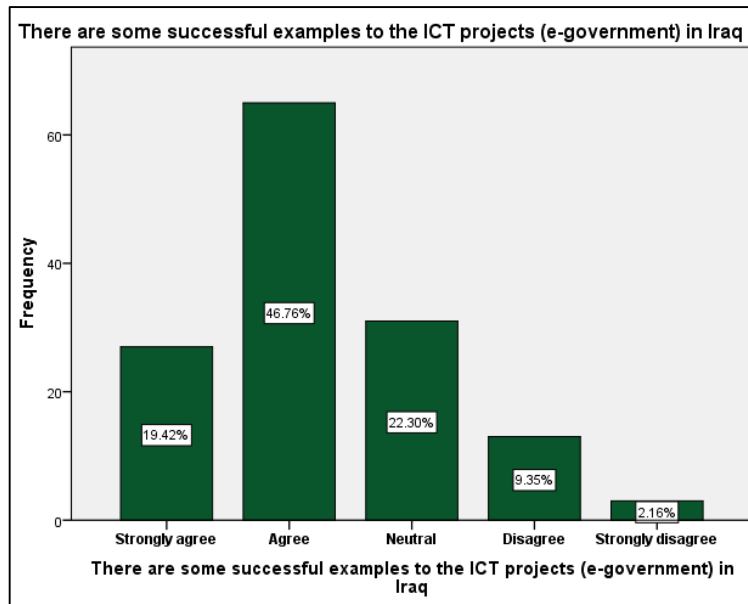


Figure 23: The existence of some successful examples of e-government projects in Iraq (Question 9)

According to the results, 53.96% of the participants strongly agree that they understand the benefits of e-government for citizens, which numbered 75 participants out of 139. Additionally, 55.40% of the participants agree that the government has an official portal which is one place or site containing all the information, with 77 participants out of 139. In terms of the websites that are available for each ministry, 48.20% of the participants strongly agree that there is a website for each ministry as a part of the e-government project in Iraq. In terms of the websites that exist for local authorities, 46.76% of the participants strongly agree that there is a website for each local authority as a part of the e-government project in Iraq. In terms of the ability to access information from government websites and to upload and download documents, 43.88% of the participants strongly agree that they can access information that is available on government websites and are able to upload and download documents. Finally, for the question about successful examples of e-government projects in Iraq, 46.76% of the participants agree about the availability of successful examples of e-government in Iraq.

4.3 Drive

In this section, we evaluate the drive towards e-government. This section includes three questions:

Q13: Strong drive for change towards e-government from outside which represents *external pressure*.

Q14: Strong drive by senior officials for reform and achieving goals.

Q15: The availability of laws and systems for e-government projects (ICT).

Q14 and Q15 pertain to *internal pressure*. The questions were answered and evaluated by the participants, as explained in Table 12. Figures 24, 25 and 26 explain in detail the answers of the participants.

Table 12: Results for Drive factor towards e-government project

		Mean	0	1	2	3	4	5	6	7	8	9	10
External pressure	Q13	5.77	7	7	7	8	12	22	15	18	17	13	13
	Q14	4.53	16	11	12	12	16	26	11	12	5	6	12
Internal pressure	Q15	4.68	11	15	11	13	17	21	12	12	11	3	13

0=Does not exist ,10=Strongly exist

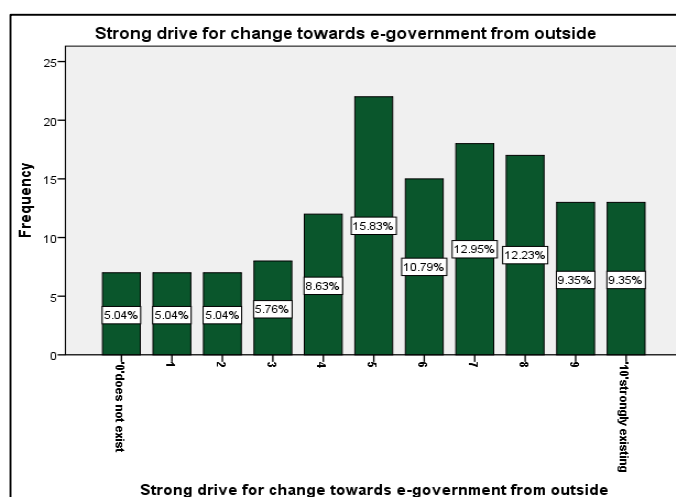


Figure 24: Strong drive for change towards e-government project (Question 13)

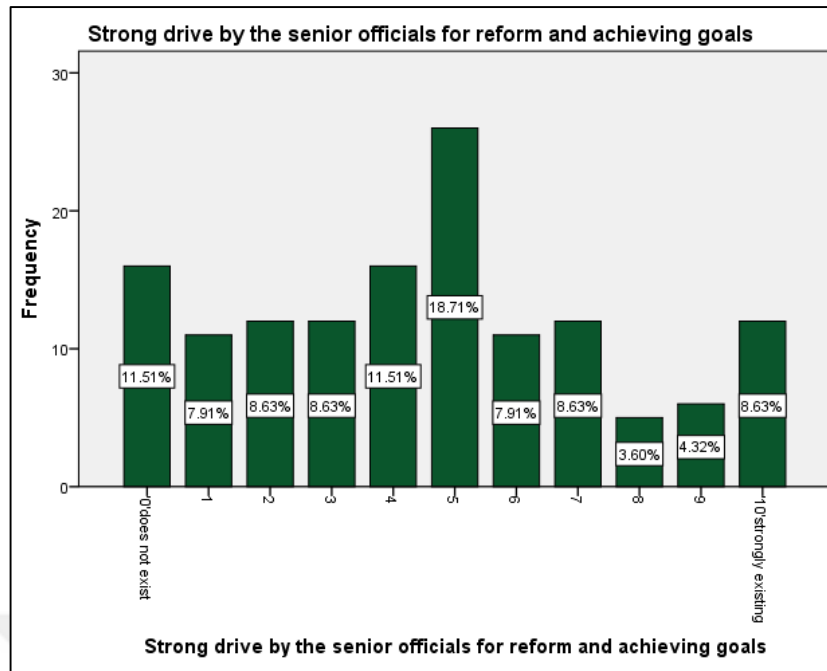


Figure 25: Strong drive by senior officials for reform and achieving goals (Question 14)

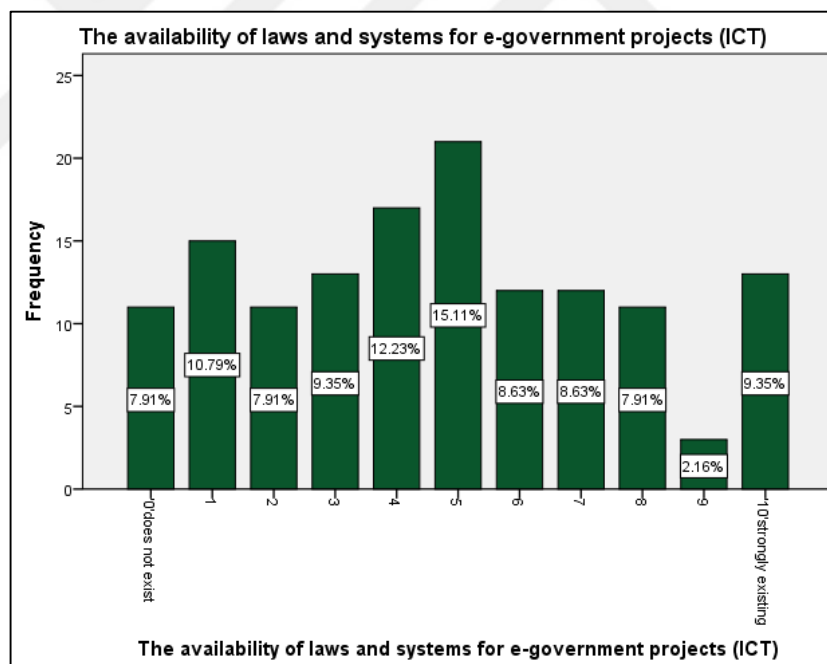


Figure 26: Availability of laws and systems for e-government projects (ICT) (Question 15)

As shown in Table 10 and Figures 24 to 26, and after calculating the mean for each drive according to the opinions of the participants in the survey, it is clear that there is a strong drive for change towards e-government from outside with a value of 5.77/10.

This previous factor can succeed as a step towards e-government. The mean towards the question of strong drive by senior officials for reform and achieving goals is 4.53/10, which points to a factor that cannot succeed in the light of the weak trends towards senior officials. Finally, the mean for the availability of laws and systems for e-government projects (ICT) is 4.8, which points to the lack of success of these factors according to the opinion of the participants.

4.4 Strategy Drive

In this section, we will evaluate the strategy towards e-government. This section includes four questions and each one of them is interesting in a specific area. The four questions are:

Q16: There is a national policy for e-government (ICT).

Q17: There is a major plan for e-government (ICT).

Q18: There is a strategic plan for e-government (ICT).

Q19: There is participation for stakeholders in the development processes of e-government strategy.

The questions were answered and evaluated by the participants and they are explained in Table 13. Figures 27 to 30 explain in detail the answer of the participants about the strategy towards e-government.

Table 13: Results for drive towards e-government strategy

	Mean	0	1	2	3	4	5	6	7	8	9	10
Q16	4.25	15	12	9	18	17	32	11	8	5	3	9
Q17	4.25	18	12	10	21	13	25	9	7	11	2	11
Q18	4.24	18	12	11	22	13	23	9	6	11	2	12
Q19	4.60	14	8	13	11	16	32	15	8	6	5	11

0=Does not exist ,10=Strongly exist

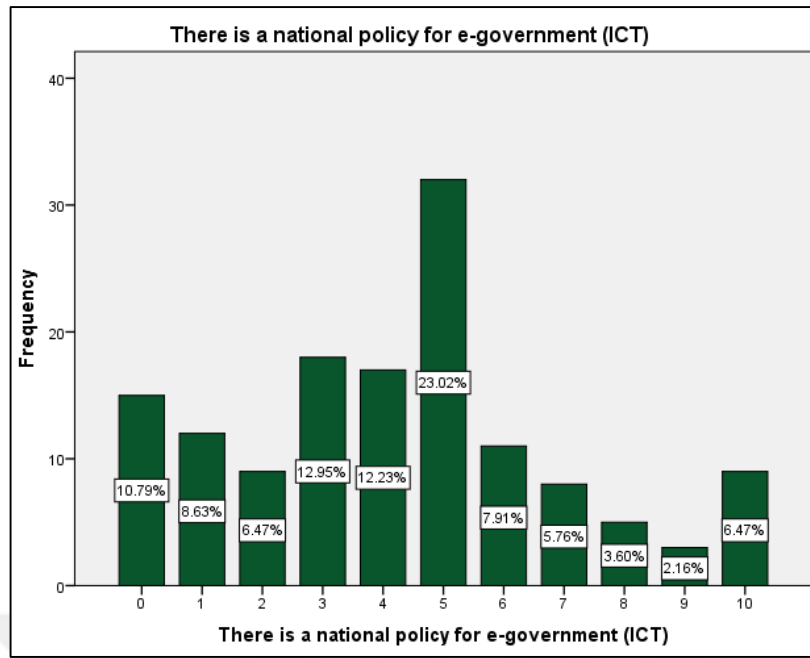


Figure 27: National policy for e-government (Question 16)

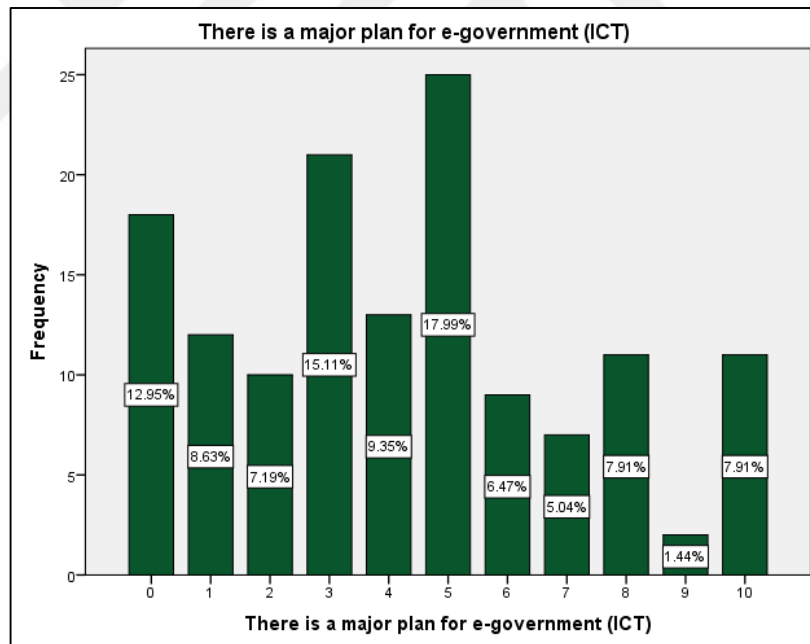


Figure 28: Major plan for e-government (Question 17)

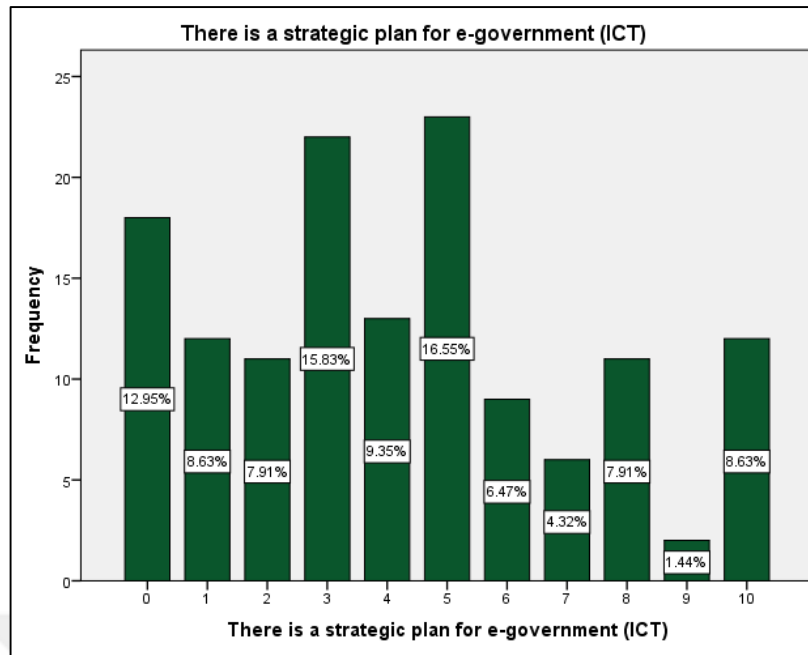


Figure 29: Strategic plan for e-government (Question 18)

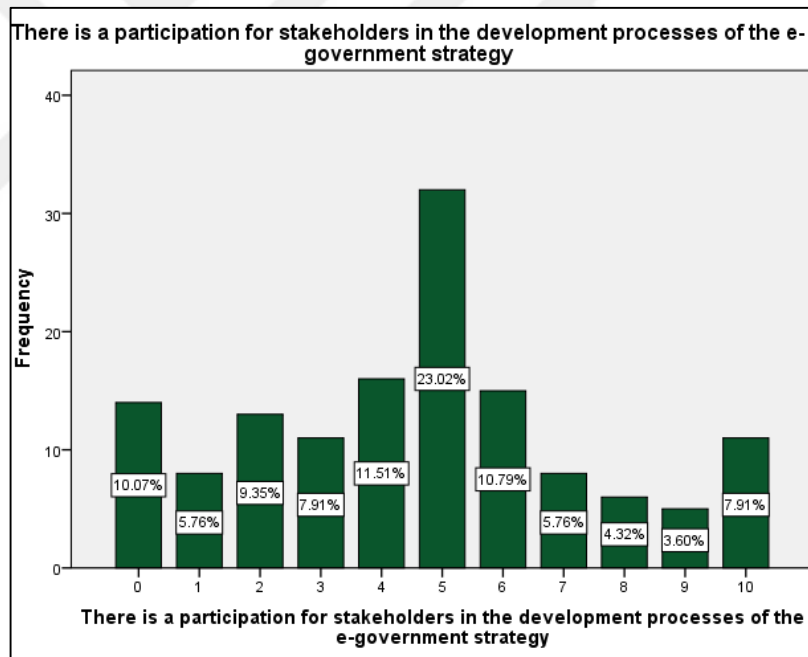


Figure 30: Participation of stockholders in the development process of e-government strategy (Question 19)

As shown in Table 13 and in Figures 27 to 30, and after calculating the mean for each question separately, we can see that 23.2% of the participants see that there is a national plan policy for e-government, approximated as 5 from 10. Additionally, 17.99% see that there is a major plan for e-government, approximated as 5 from 10. In terms of

the strategic plan toward e-government, 16.55% see that there is a strategic plan towards e-government, approximated as 3 from 10. Finally, in terms of the participation of stockholders in the development process of the e-government strategy, 23.02% of the participants see that there are participant stakeholders in the development process of e-government, approximated as 5 from 10.

4.5 Management Drive

In this section, we evaluate management of e-government. This section includes three subsections, the first being project management including the following seven questions:

Q20: There are clear responsibilities of projects.

Q21: There is support (motivation) led by the individual or group to implement an e-government project (ICT).

Q22: There are risks that must be taken into account in the project.

Q23: There is a good monitoring and controlling system.

Q24: There are well-regulated resources including staff.

Q25: There is good administration for partnership with other public and private institutions.

Q26: There is effective insurance for the project materials.

All of these questions were answered and evaluated by the participants, as explained in Table 14. Figures 31 to 37 explain in detail the answers of the participants regarding the evaluation of management towards e-government.

Table 14: Results for drive towards e-government project management

	Mean	0	1	2	3	4	5	6	7	8	9	10
Q20	4.86	11	8	8	15	13	26	21	14	12	5	6
Q21	5.85	3	9	4	7	12	21	24	20	22	8	9
Q22	5.23	11	5	4	10	16	26	26	15	13	5	8
Q23	4.29	21	9	7	8	22	33	14	5	10	3	7
Q24	4.66	16	4	12	13	18	20	17	21	7	6	5
Q25	4.36	21	7	11	13	13	22	22	13	7	3	7
Q26	4.65	19	6	8	12	13	29	13	14	15	5	5

0=Too bad ,10=Very good

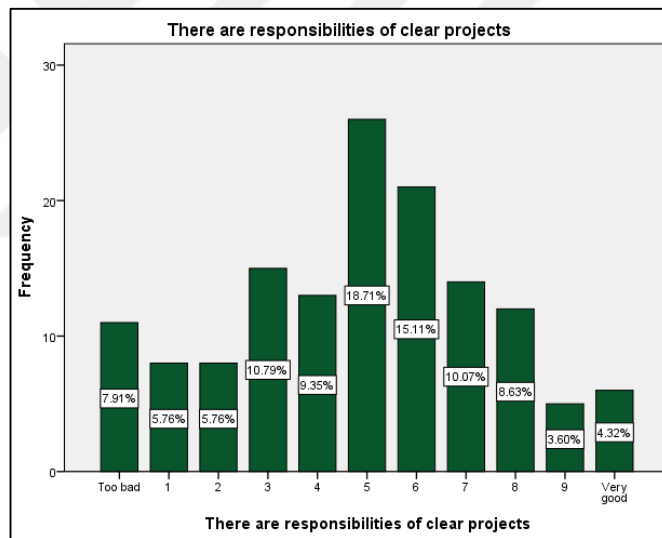


Figure 31: Clear responsibilities of projects (Question 20)

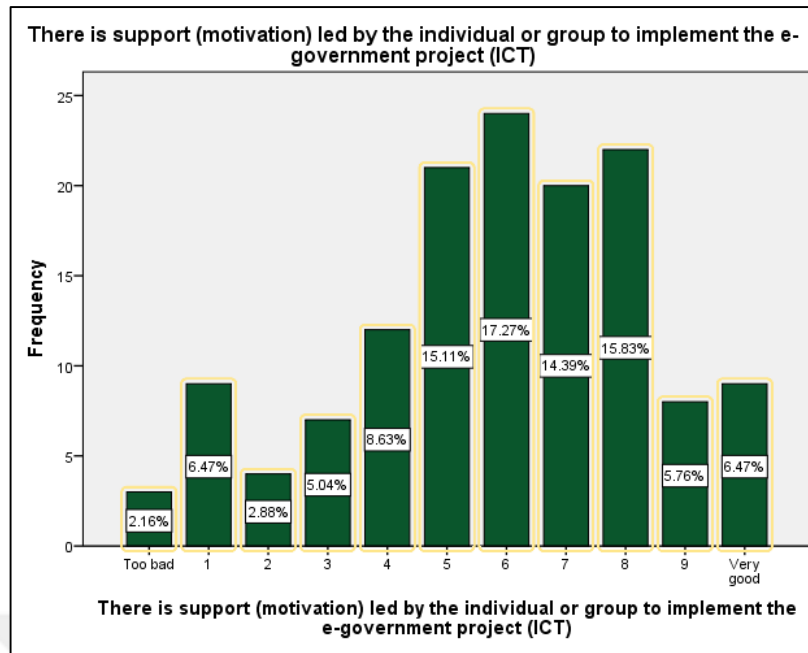


Figure 32: Support led by the individual or group to implement e-government (Question 21)

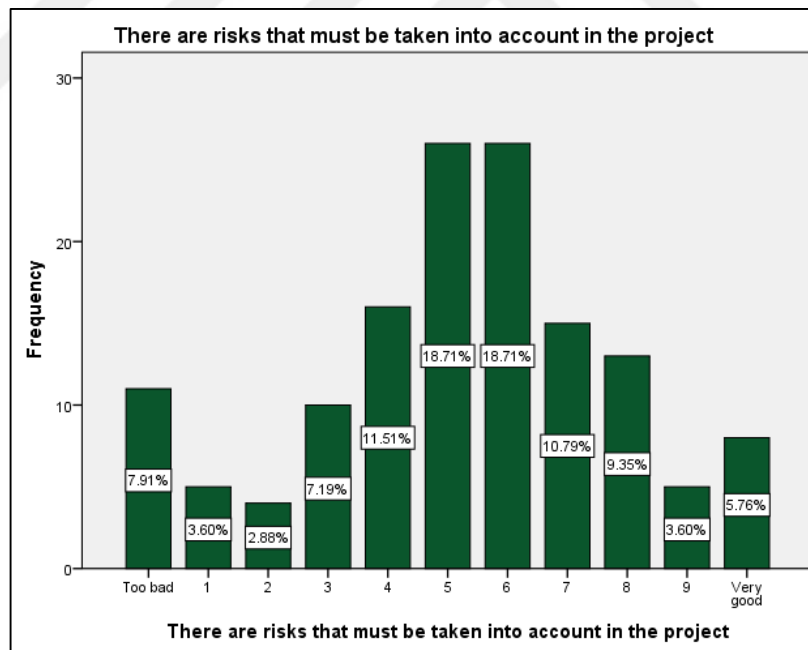


Figure 33: Risks that must be taken into account in the project (Question 22)

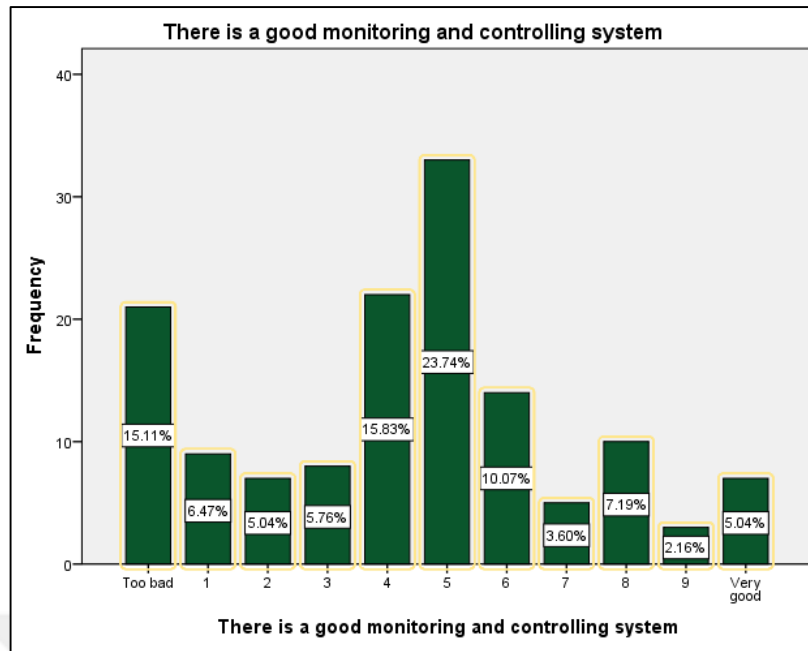


Figure 34: Good monitoring and controlling system (Question 23)

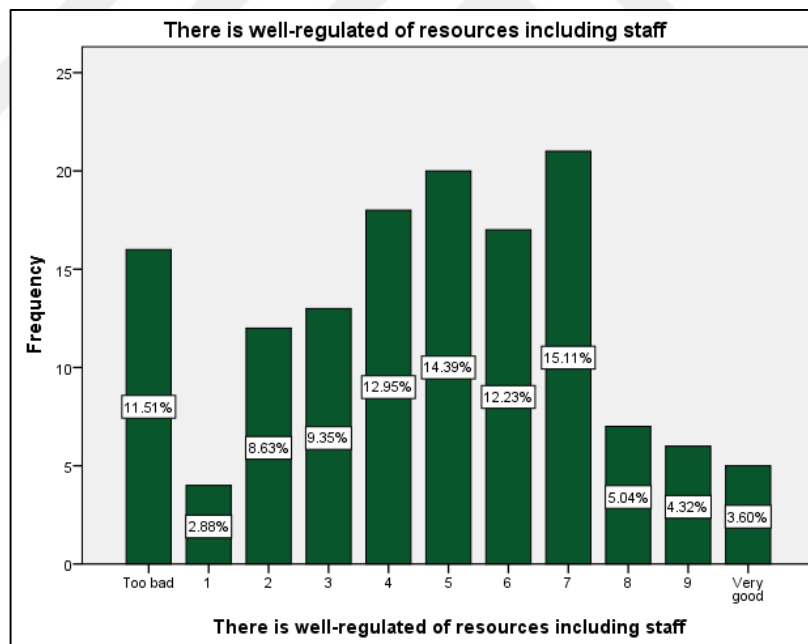


Figure 35: Well-regulated resources including staff (Question 24)

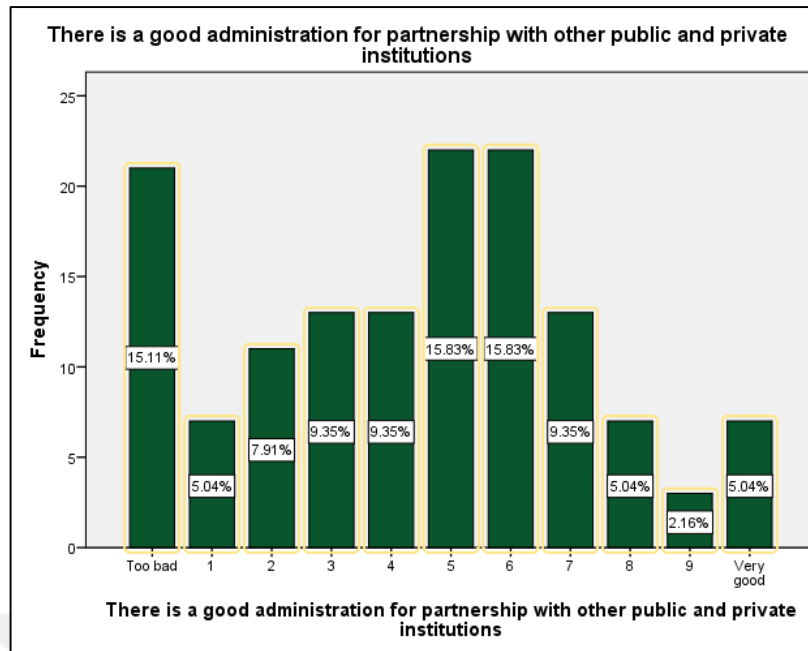


Figure 36: Good administration for partnership with other public and private institutions (Question 25)

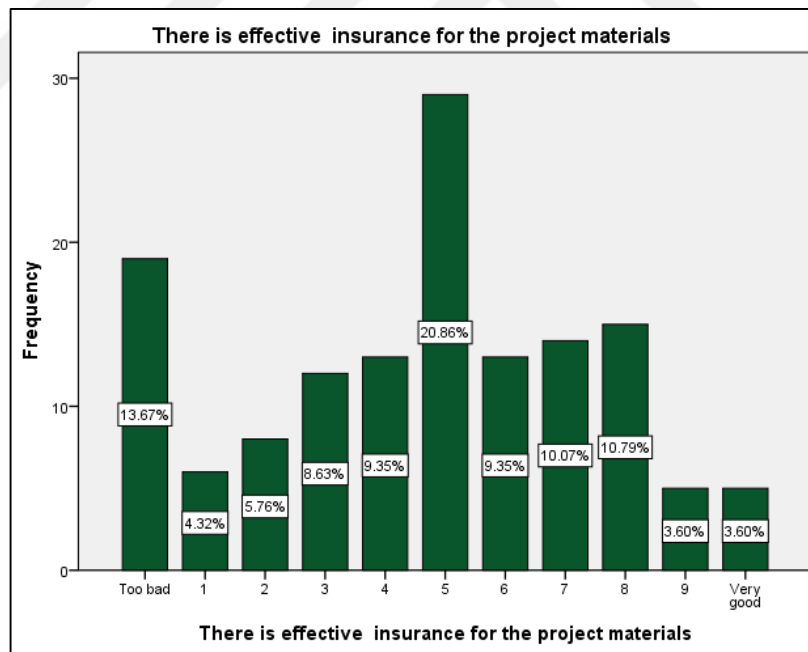


Figure 37: Effective insurance for the project materials (Question 26)

As shown in Table 14 and in Figure 31 to Figure 37, and after calculating the mean for each question distinctly, we can see that 18.71% of the participants see that there are clear responsibilities of projects for e-government approximated of 5 from 10. Additionally, 17.2% see that there is support led by an individual or group to implement e-government as approximately 6 from 10. Moreover, in terms of the risks that must be taken into account toward e-government, 18.71% see that there are risks that must be taken into account towards e-government, approximated as 5 from 10 and 6 from 10. In terms of the availability of good monitoring and controlling systems, 23.74% of the participants see that there is good monitoring and controlling system towards e-government, approximated as 5 from 10. 15.11% see that there are well-regulated resources in including staff to manage e-government, approximated as 7 from 10. In terms of good administration for partnership with other public and private institutions, 15.83% of the participants see that there is good administration for partnership with other public and private institutions of e-government, approximated as 6 from 10. Finally, in terms of effective insurance for project materials, 20.86% of the participants see that there is effective insurance for project materials for e-government, approximated as 5 from 10.

The second subsection is change management. In this section, we will evaluate the quality of change management for an e-government project. It includes four questions and it is an extension of the management drive for the questionnaire results that have been acquired. The four questions are as follows:

Q27: There is strong administration for the project (individual or group leadership).

Q28: There is support from senior managers and other affected stakeholders.

Q29: There are preliminary steps to make commitments and property rights among stakeholders (including working staff).

Q30: There is strong involvement of stakeholders that promote support.

The questions have been answered and evaluated by the participants and they are explained in Table 15. Furthermore, Figures 38 to 41 clarify in detail the answers of participants regarding the evaluation of the quality of management change towards e-government.

Table 15: Results for Change Management Quality factor

	Mean	0	1	2	3	4	5	6	7	8	9	10
Q27	4.86	14	9	11	9	16	15	15	24	17	6	3
Q28	4.06	18	9	17	15	19	20	17	8	8	2	6
Q29	4.02	20	13	9	14	14	29	21	6	4	5	4
Q30	4.08	18	8	20	18	15	25	5	8	7	7	8

0=Too bad ,10=Very good

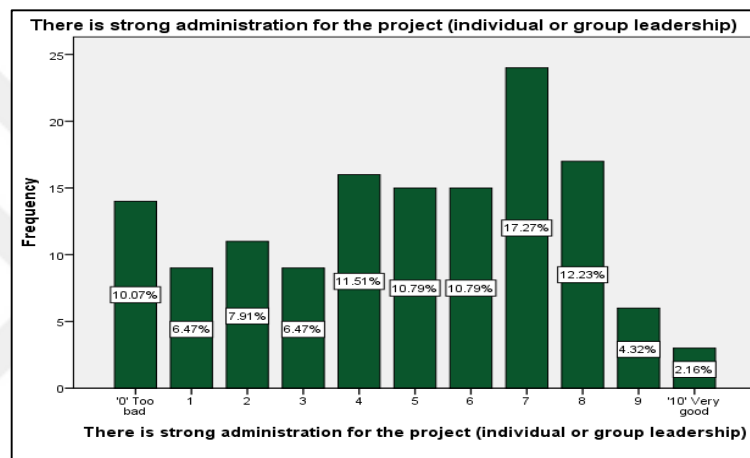


Figure 38: Strong administration for the project (Question 27)

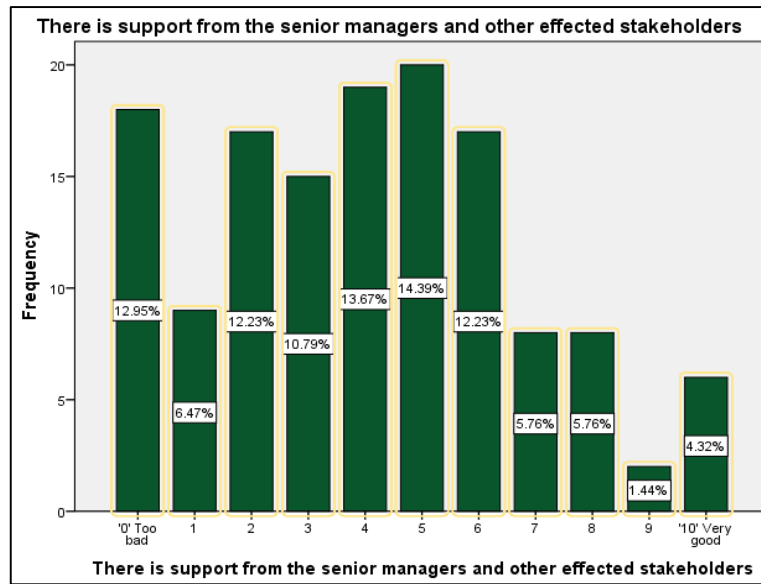


Figure 39: Support from senior managers and other affected stakeholders (Question 28)

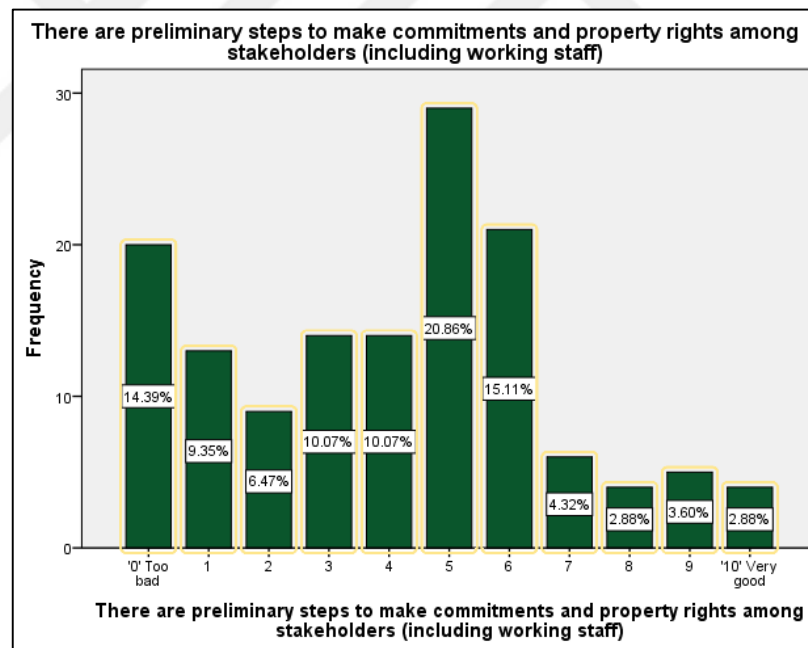


Figure 40: Preliminary steps for commitments and property rights among stakeholders (Question 29)

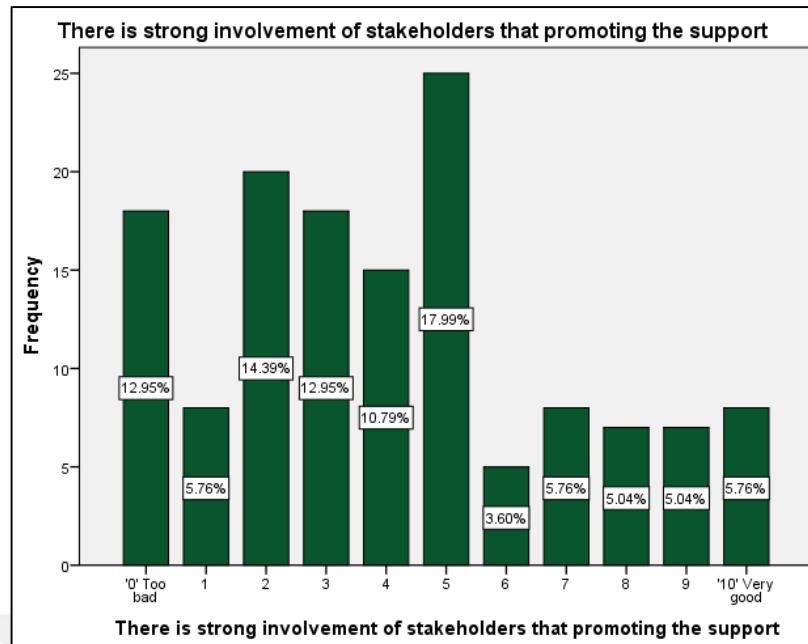


Figure 41: Strong involvement of stakeholders promoting support (Question 30)

As shown in Table 15 and in Figures 38 to 41, and after calculating the mean for each question separately, we can see that 17.27% of the participants see that there is strong administration for the e-government project, approximated as 7 from 10. Additionally, 14.39% see that there is support from senior managers and other affected stakeholders towards e-government, approximated as 5 from 10. Furthermore, 20.86 % see that there are preliminary steps to make commitments and have property rights among stakeholders towards e-government, approximated as 5 from 10. Finally, in terms of involvement of stakeholders that promote support, 17.99% see that there is strong involvement of stakeholders promoting the support of e-government, approximated as 5 from 10.

The final section in evaluating the management of e-government is politics of self-interest. In this section, we will evaluate the focus of effective parties on self-interest and political practices in e-government projects. It includes four questions and it is also an extension of the management drive for the questionnaire results that were acquired. The four questions are:

Q31: There is internal rivalry in an e-government project (ICT).

Q32: There is resistance to change (fear of losing power).

Q33: Exploiting the subject of e-government for propaganda purposes.

Q34: It is obsessed with a positive effect in the short term.

The questions were answered and evaluated by the participants, as explained in Table 16. Figures 42 to 45 explain in detail the answers of the participants regarding the evaluation of the focus of effective parties on self-interest and political practices in an e-government project.

Table 16: Results for focus of effective parties on self-interest and political practices

	Mean	0	1	2	3	4	5	6	7	8	9	10
Q31	4.12	18	8	20	18	15	25	5	8	7	7	8
Q32	4.98	25	18	12	14	10	21	7	4	10	6	12
Q33	4.73	19	10	17	10	9	14	14	15	8	6	17
Q34	5.10	20	8	7	6	9	26	12	14	14	9	14

0=Too many ,10=Very few

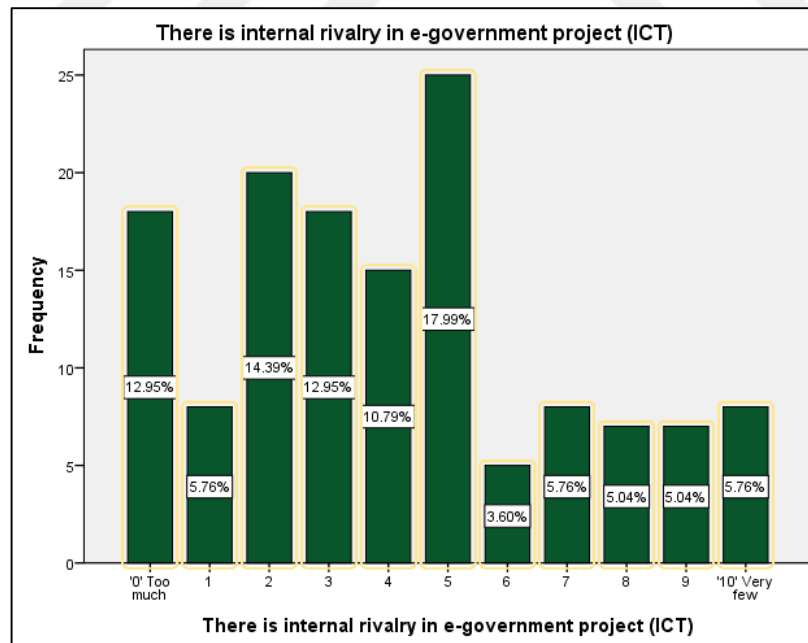


Figure 42: There is internal rivalry in the e-government project (ICT) (Question 31)

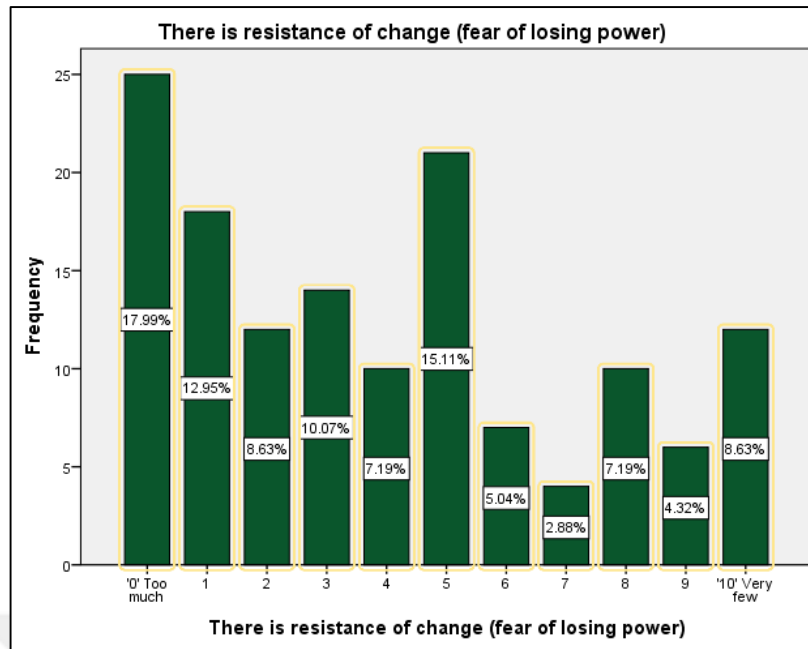


Figure 43: There is resistance to change (fear of losing power) (Question 32)

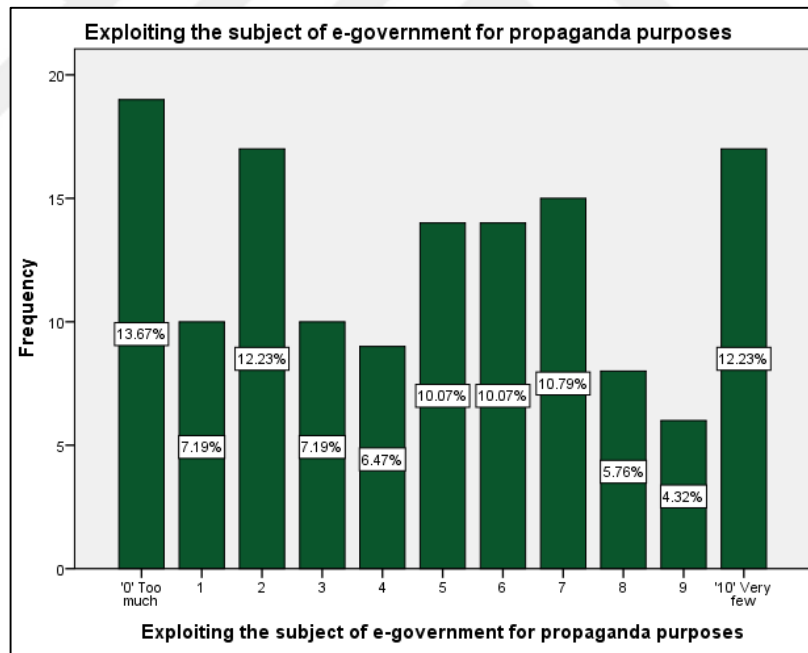


Figure 44: Exploiting the subject of e-government for propaganda purposes (Question 33)

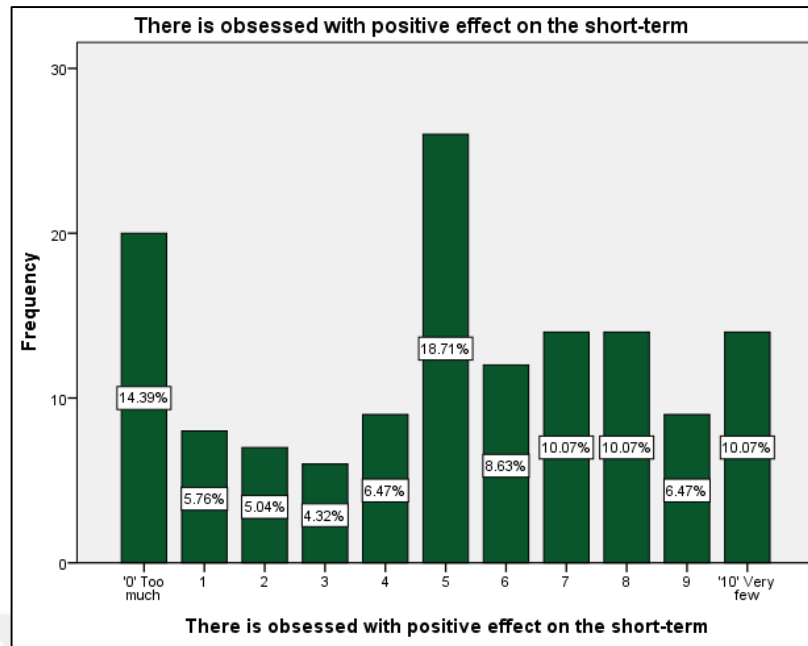


Figure 45: Obsession with positive effects in the short-term (Question 34)

As shown in Table 16 and in Figures 42 to 45, and after calculating the mean for each question separately, we can see that 17.99% of the participants see that there is an internal rivalry in the e-government project (ICT), approximated as 7 from 10. Additionally, 17.99% of the participants see that there is a resistance to change (fear of losing power) towards e-government, approximated as 0 from 10. In terms of exploiting the subject of e-government for propaganda purposes, 13.67% see that there is exploitation of the subject of e-government for propaganda purposes, approximated as 0 from 10. Finally, in terms of obsession with a positive effect in the short term, 18.71% see that obsession with a positive effect in the short-term, approximated as 5 from 10.

4.6 Design Drive

In this section, we will evaluate the design towards e-government. This section includes six questions:

Q35: The design is convergent theoretically/practically.

Q36: There are rapid and practical goals.

Q37: There is strong participation of stakeholders which guarantees the design that fulfills actual needs.

Q38: There is satisfaction among employees with the current organization of the project.

Q39: There is acceptance from employees of the current organization of the project.

Q40: The employees welcome the organizational changes of the project.

All of these questions were answered and evaluated by the participants and explained in Table 17. Figures 46 to 51 explain in detail the answers of the participants about the evaluation of design towards e-government.

Table 17: Results for Design factor towards e-government

	Mean	0	1	2	3	4	5	6	7	8	9	10
Q35	5.35	5	6	6	12	14	30	25	20	7	2	12
Q36	5.44	4	9	10	10	16	20	17	22	14	5	12
Q37	5.09	6	8	10	13	20	19	24	14	9	8	8
Q38	5.56	7	6	6	11	10	21	23	21	22	4	8
Q39	5.79	8	4	7	7	12	18	19	24	24	6	10
Q40	6.63	5	4	2	4	8	15	19	27	22	15	18

0= Ineffective & unrealistic, **10=** Effective & realistic

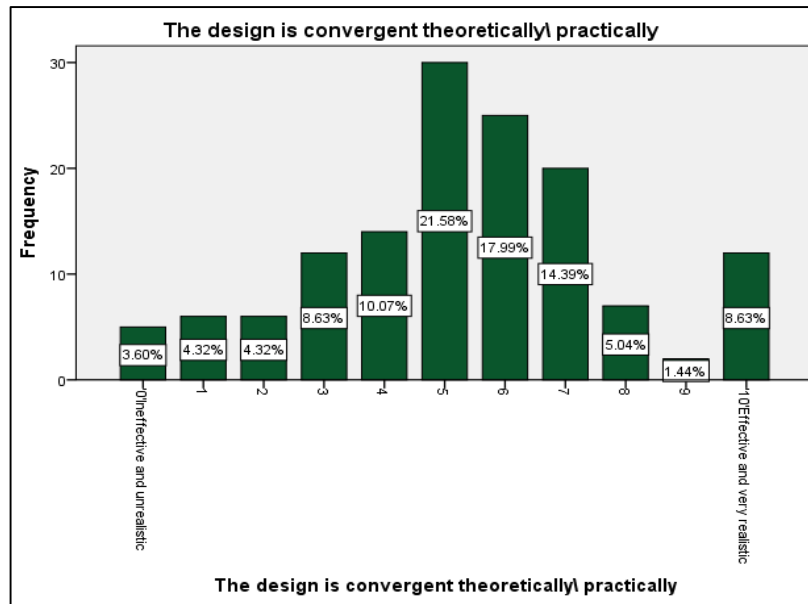


Figure 46: Design is convergent theoretically/practically (Question 35)

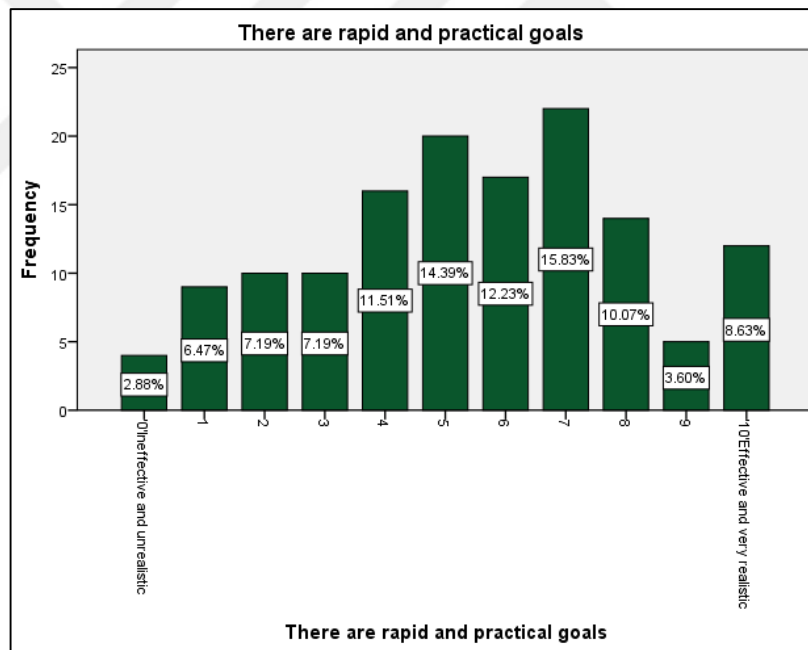


Figure 47: Rapid and practical goals (Question 36)

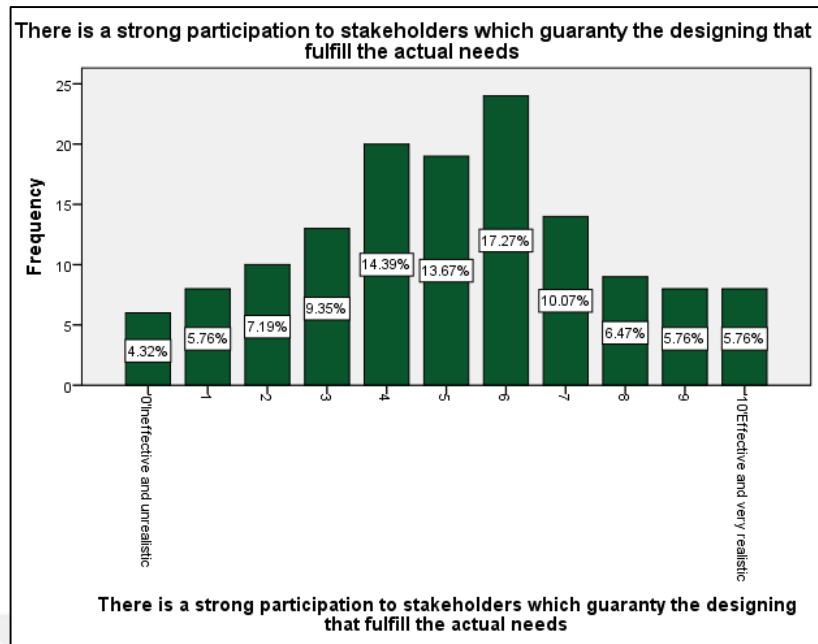


Figure 48: Strong participation of stakeholders which guarantees the design that fulfills actual needs (Question 37)

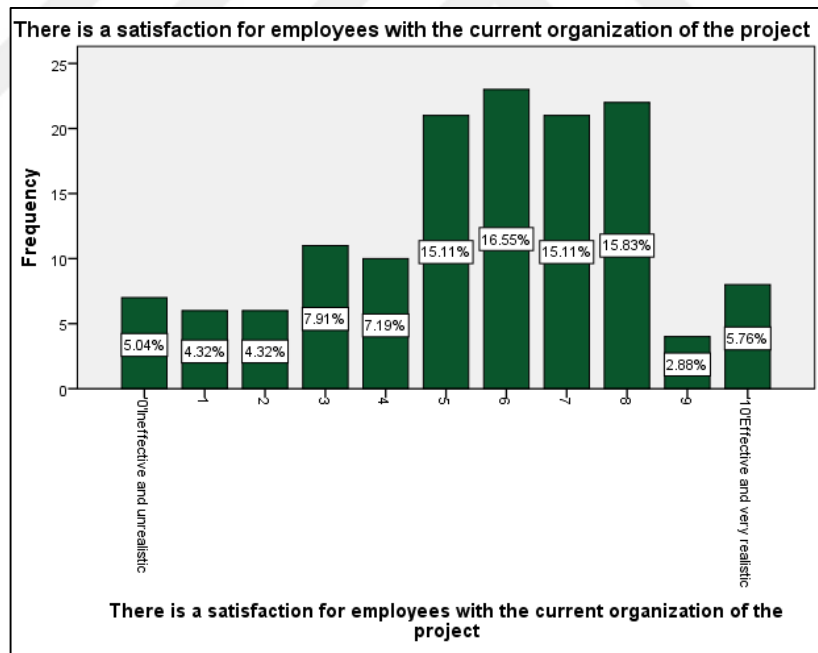


Figure 49: Satisfaction of employees in the current organization of the project (Question 38)

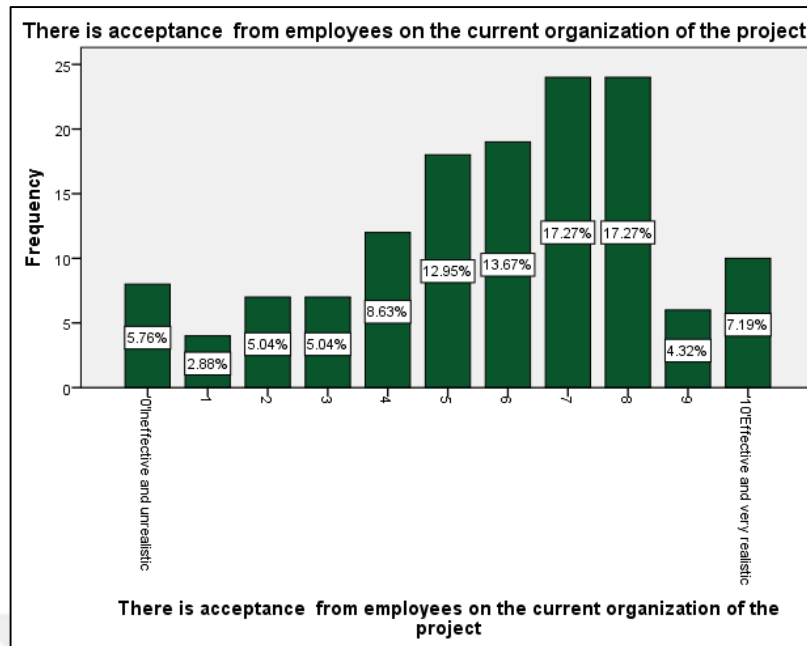


Figure 50: Acceptance from employees regarding the current organization of the project (Question 39)

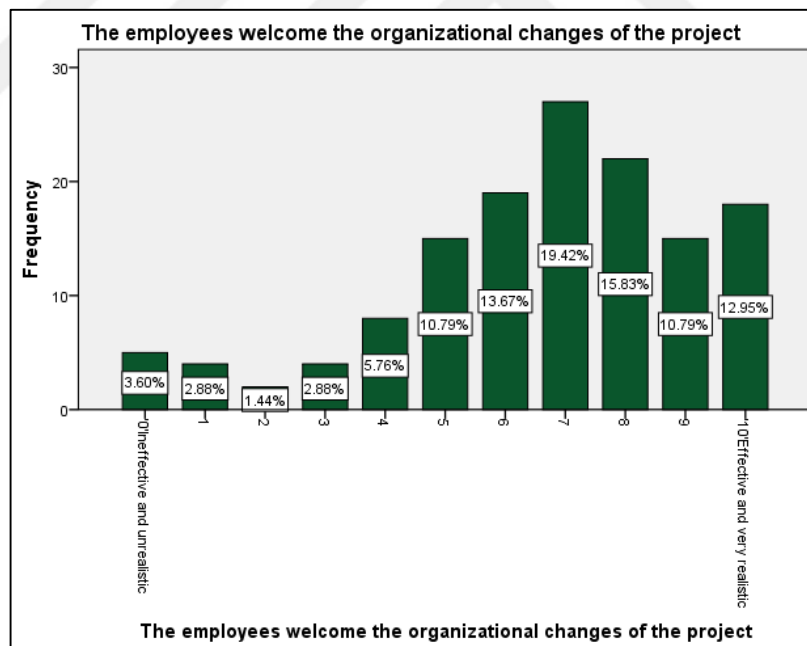


Figure 51: Employees welcome the organizational changes of the project (Question 40)

As shown in Table 17, and in Figures 46 to 51 and after calculating the mean for all the questions separately, we can see that 21.58% of the participants see that the design

of e-government is convergent theoretically/practically, approximated as 5 from 10. Additionally, 15.83% see rapid and practical goal design of e-government, approximated as 7 from 10.

Furthermore, in terms of strong participation as stakeholders, which guarantees the design of e-government to fulfill actual needs, 17.27% see that there is strong participation by stakeholders, which guarantees the design of e-government to fulfill actual needs, approximated as 6 from 10. Moreover, in terms of satisfaction for employees with the current organization of the project, 16.55% see that there is satisfaction for employees with the current organization of the project, approximated as 6 from 10. Additionally, in terms of acceptance by employees regarding the current organization of the project, 17.27% see that there is acceptance from employees for the current organization of the project, approximated as 8 from 10. Finally, for the last section that embodies the welcoming of employees for the organizational changes of the project, we can see that 19.42% of the participants see that that employees welcome organizational changes of the project, approximated as 7 from 10.

4.7 Competencies Drive

In this section, we will evaluate the competencies drive towards e-government. This section includes three questions, as follows:

Q41: The possibilities of ICT users (skills and knowledge)

Q42: The educational level of ICT and system staff (managers, developers, operators and users)

Q43: The professional level of ICT specialists (strategy, management of change, project management, development and management of information systems)

All of these questions were answered and evaluated by the participants and they are explained in Table 18. Figures 52, 53 and 54 explain in detail the participants' answers about the evaluation of competencies towards e-government.

Table 18: Results for Competencies factor toward e-government

	Mean	0	1	2	3	4	5	6	7	8	9	10
Q41	6.63	4	2	6	6	13	13	13	21	22	18	21
Q42	6.67	2	3	3	6	10	16	18	28	20	14	19
Q43	6.46	3	5	2	6	12	19	15	24	21	18	14

0= Completely absent, 10= Quite enough

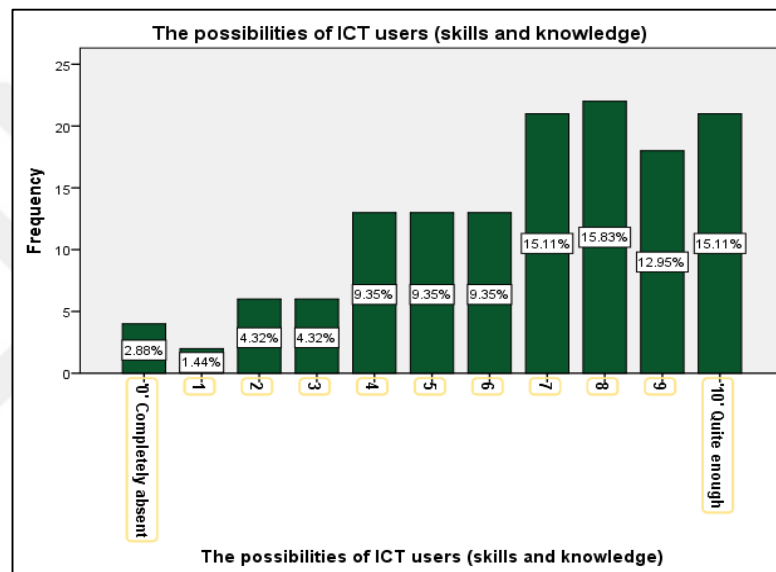


Figure 52: Possibilities of ICT users (Question 41)

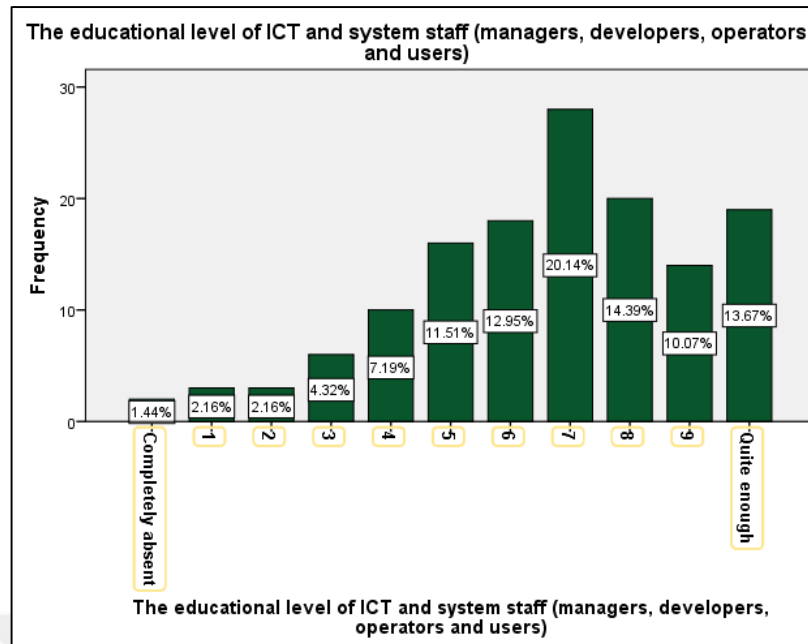


Figure 53: Educational level of ICT system staff (Question 42)

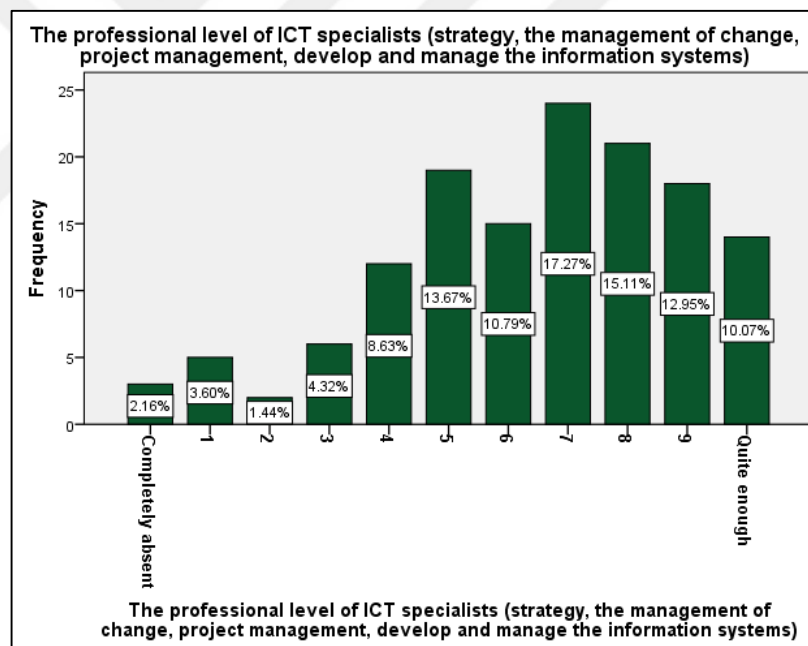


Figure 54: Professional level of ICT specialists (Question 43)

As shown in Table 18, and in Figures 52, 53 and 54, and after calculating the mean for all questions separately, we can see that 15.83% of the participants see that there are possibilities of ICT users, approximated as 8 from 10. Additionally, 20.14% of the participants see that the educational level of ICT system staff is approximated as 7 from 10. Finally, in terms of the level of professionalism for ICT specialists, 17.27%

of the participants see that the level of professionalism for ICT specialist staff is approximated as 7 from 10.

4.7 Infrastructure Drive

In this section, we will evaluate the infrastructure drive towards e-government. This section includes six questions:

Q44: Devices, software and network technologies that are suitable for e-government projects (ICT).

Q45: Systems and developed networks.

Q46: The actual possibilities of operating systems.

Q47: Guarantee and reliability of technology.

Q48: Dealing with unauthorized access to information and the loss of confidence.

Q49: Security procedures in terms of data, protecting devices, transfer of data across networks, and safety of electronic procedures.

All of these questions were answered and evaluated by the participants, as explained in Table 19. Figures 55 to 58 explain in detail the answers of the participants regarding the evaluation of infrastructure towards e-government.

Table 19: Results for Infrastructure factor for e-government projects

	Mean	0	1	2	3	4	5	6	7	8	9	10
Q44	5.96	6	5	4	11	5	16	25	31	18	8	10
Q45	5.53	6	6	11	7	13	14	28	24	15	9	6
Q46	5.55	4	6	8	12	13	22	19	29	10	6	10
Q47	5.42	4	11	6	9	18	20	24	18	10	8	11
Q48	4.97	9	7	7	19	17	23	16	20	6	4	11
Q49	4.68	14	11	11	14	13	23	13	11	16	5	8

0= Not enough, **10=** Quite enough

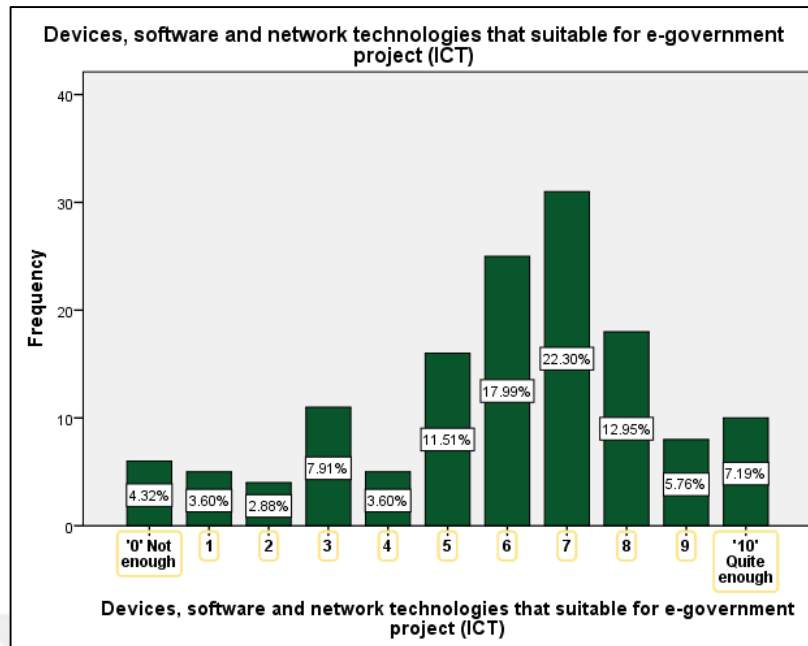


Figure 55: Technologies suitable for e-government projects (Question 44)

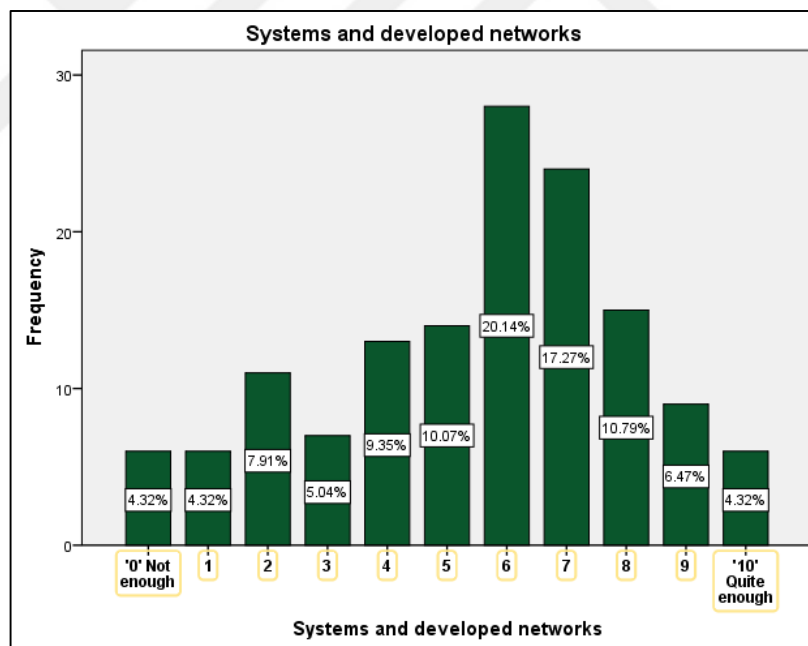


Figure 56: Systems and developed networks (Question 45)

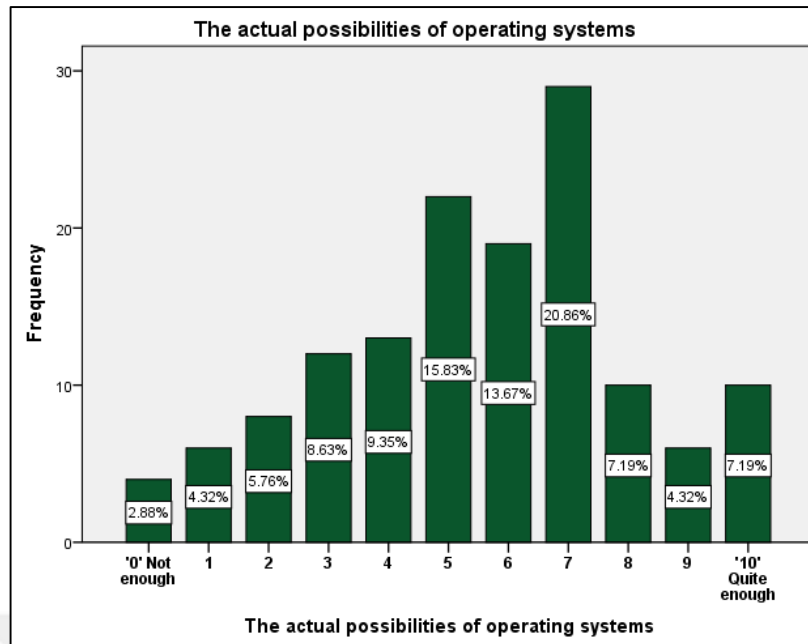


Figure 57: Actual possibilities of operating systems (Question 46)

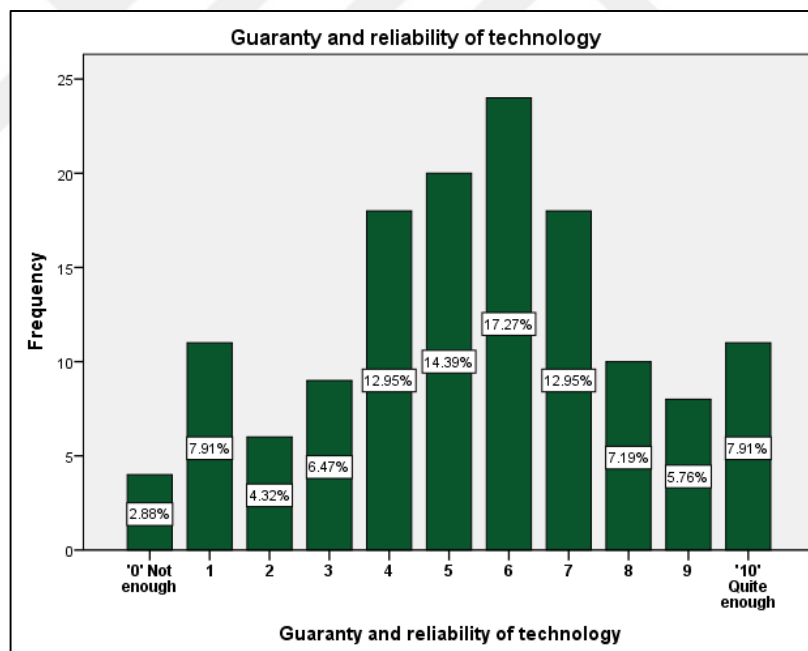


Figure 58: Guarantee and reliability of technology (Question 47)

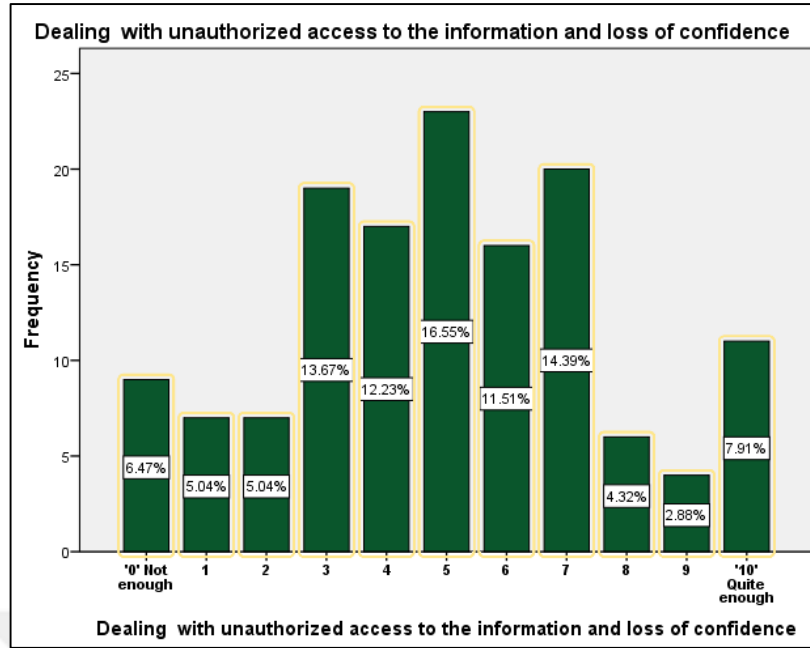


Figure 59: Dealing with unauthorized access to information and loss of confidence (Question 48)

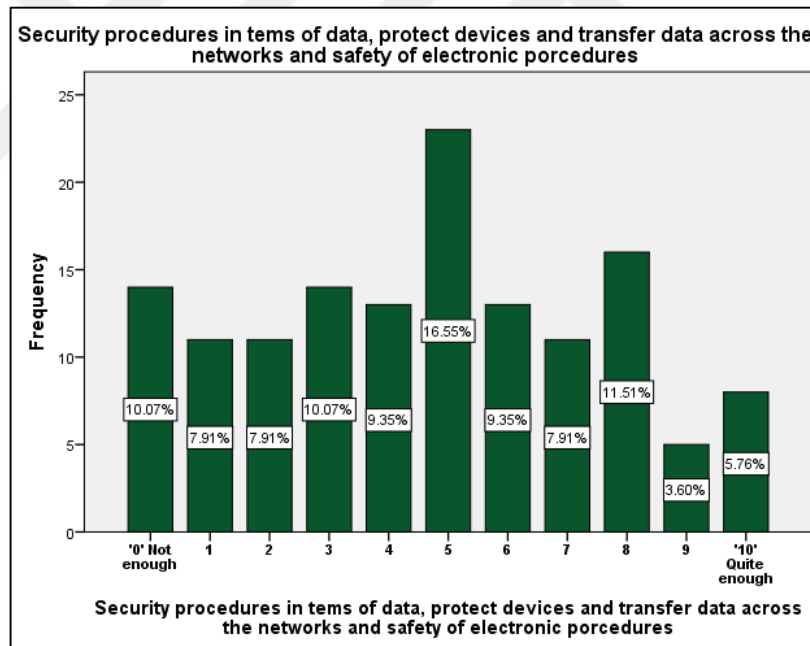


Figure 60: Security procedures and data, project devices and transfer data (Question 49)

As shown in Table 19, and in Figures 55 to 60, and after calculating the mean for every question separately, we can see that 22.30% of the participants see that technologies are suitable for e-government projects, approximated as 7 from 10. Additionally, 20.14% of the participants see that the systems and developed networks are

approximated as 6 from 10. In terms of the actual possibilities of operating systems, 20.86% of the participants see that the actual possibilities of operating systems are approximated as 7 from 10. Finally, in terms of the guarantee and reliability of technology, 17.27% of the participants see that the guarantee and reliability of technology are approximated as 6 from 10. Moreover, 14.5% of the participants see that dealing with unauthorized access to information and loss of confidence is approximated as 7 from 10. Finally, in terms of security procedures and data, project devices and transfer of data, 16.5% of the participants see that security procedures and data, project devices and transfer of data are approximated as 5 from 10.

4.8 Other Resources

In this section, we evaluate the other resources drive towards e-government. This section includes four questions:

Q50: The existence of a suitable environment for the project.

Q51: Perseverance by implementing.

Q52: The availability of financial resources for e-government.

Q53: The Availability of a Long-Term Budget for the E-Government project.

All of these questions were answered and evaluated by the participants, as explained in Table 20. Figures 59 to 62 explain in detail the answers of the participants regarding the evaluation of other resources towards e-government.

Table 20: Results for Other resources of e-government projects

	Mean	0	1	2	3	4	5	6	7	8	9	10
Q50	4.73	15	10	10	14	13	23	13	11	16	5	9
Q51	4.98	9	7	13	14	18	21	15	12	14	6	10
Q52	4.76	14	13	10	15	15	21	10	7	12	7	15
Q53	5.32	12	4	9	8	13	32	17	7	13	13	11

0= Not enough, **10=** Quite enough

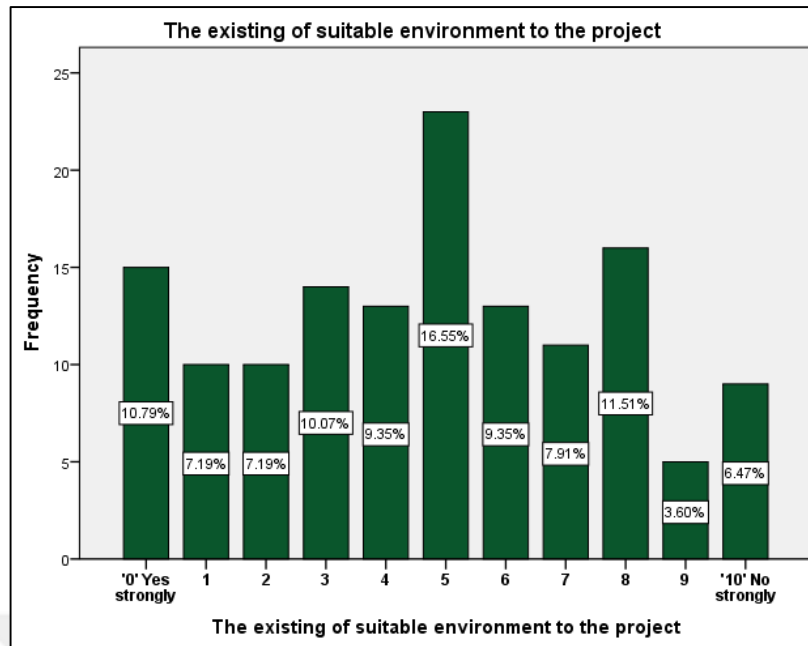


Figure 61: The existence of a suitable environment for the project (Question 50)

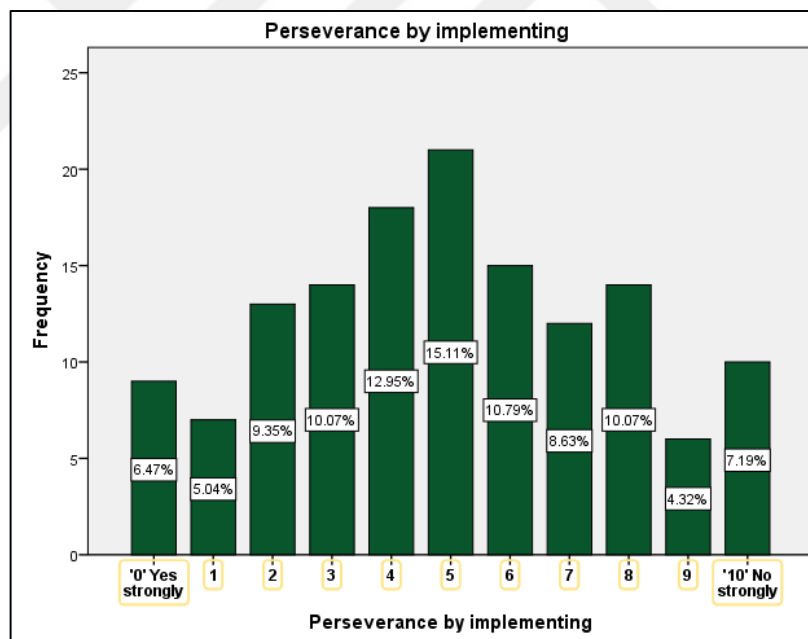


Figure 62: Perseverance by implementing (Question 51)

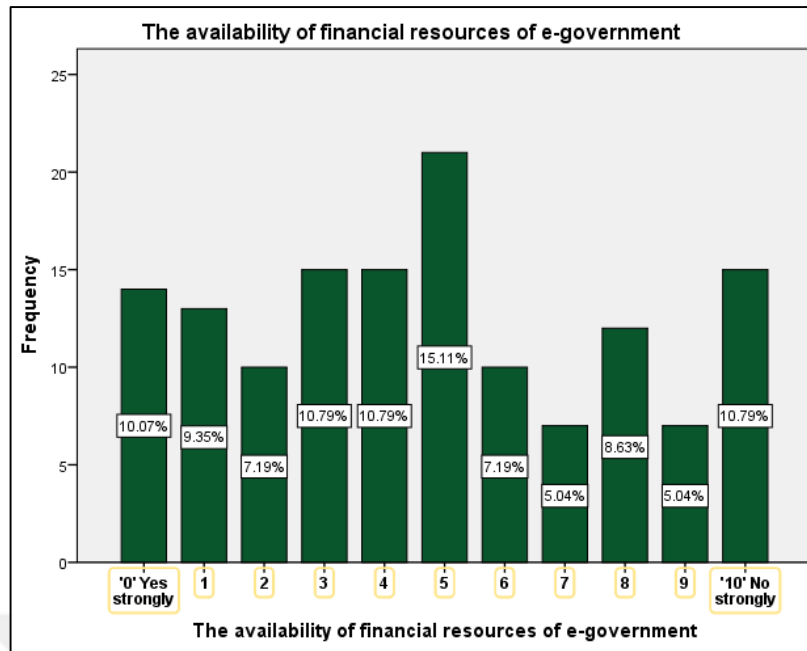


Figure 63: Availability of financial resources for e-government (Question 52)

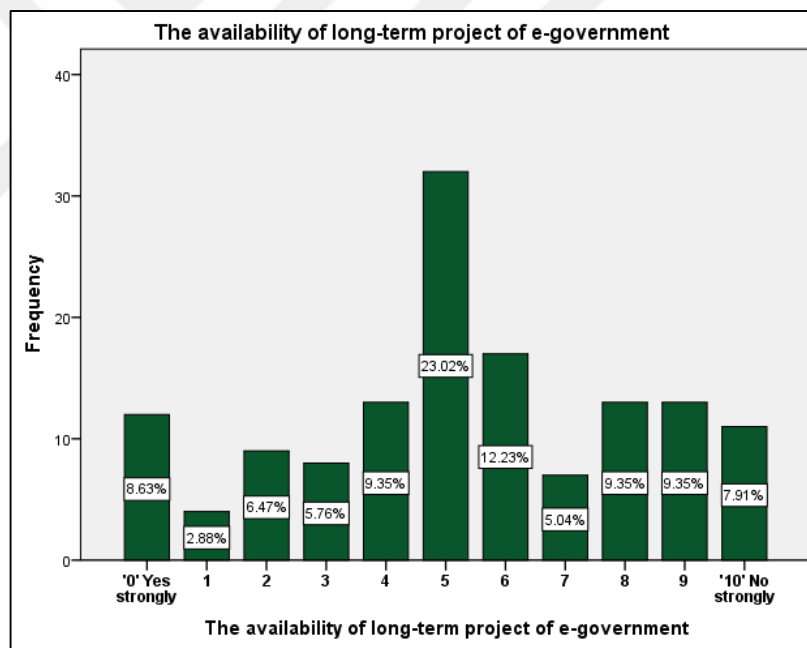


Figure 64: Availability of Long-Term Budget for E-Government (Question 53)

As shown in Table 20, and in Figures 59, 60, 61 and 62, and after calculating the mean for all the questions separately, we can see that 16.55% of the participants see that the existence of a suitable environment for the project is approximated as 5 from 10. Additionally, 15.11% of the participants see that perseverance by implementing is approximated as 5 from 10. In terms of the availability of financial resources of

e-government, 15.11% of the participants see that the availability of financial resources of e-government is approximated as 5 from 10. Finally, in terms of the Availability of Long-Term Budget for E-Government project. 23.02% of the participants see that the availability of the long-term project of e-government is approximated of 5 from 10.

4.9 Other Questions

The questions included in this section do not belong to the Heeks Factor Model and they have been added by the researcher in order to increase the comprehensiveness of the study to form a strong framework for current and future studies. It contains two questions:

Q54: Who should take responsibility for implementing the e-government project in Iraq?

Q55: Your general opinion and vision towards e-government or ICT, which was known by the participants?

The answer to Q45 is shown in Figure 51. 55 questions were not compulsory but were answered by many participants who gave different projects and ideas, which will be explained briefly.

As shown in Figure 63, we can see that 41.73% of the participants see that the responsibility to implement an e-government project must lie with the governmental agencies, which numbered 58 participants. The responsibility to implement e-government lies with the partnership between the private and public sectors at a ratio of 30.94%, which numbered 43 participants.

For the other question answered by 45 of the 139 participants, the answers were varied and differentiated. The answers to the questions are listed and we took the importance of them and deleted any repeated answers and recorded every answer on a separate Excel file sheet. “The e-government project is a good project and useful in organizing the internal deal for all the governmental and non-governmental institutions and in my institution its partial implementation has great role in implementing the compensation transactions of employees”, “Many projects have succeeded and reduced greatly the

time and routine of transactions”, “It is an excellent and successful project and because of the bad economic situation in Iraq, it prevented the evolution of the project”, “Work to put an end to fraud operations depending on fingerprint and different techniques”, “It is a successful project and needs global support and education at a high level”, “It needs to join the efforts of the workforce, especially programmers, to accomplish its implementation” and “It is difficult to implement it without the availability of educated persons in most of the ministries”.

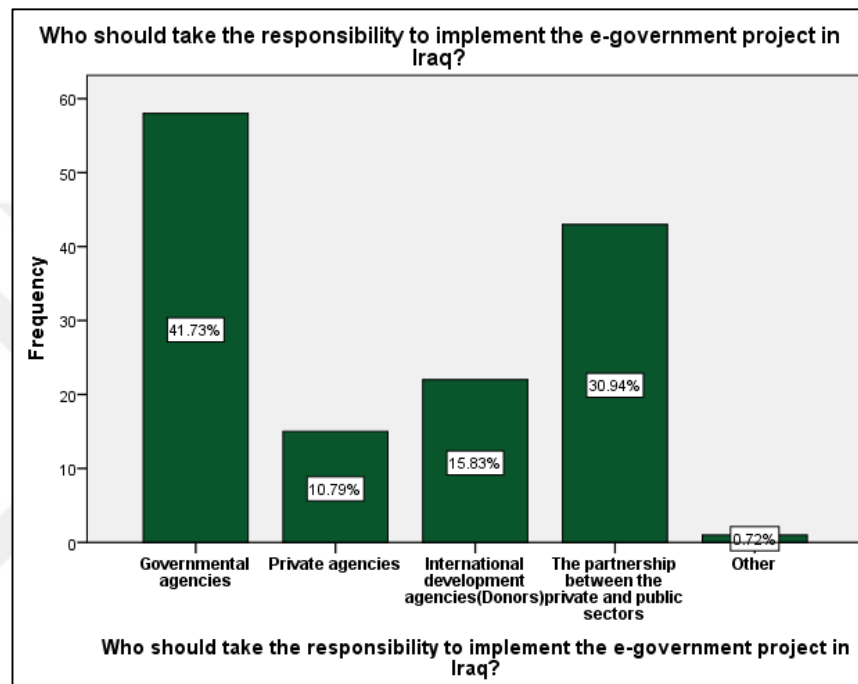


Figure 65: Responsibility that must be taken by different authorities to implement e-government (Question 54)

4.10 Overall e-government awareness

In term of overall awareness towards e-government stated by the participants in Table 11, the differing answers of the respondents towards the six elements confirm that they might not have been certain about their responses. This means that awareness of e-government is insufficient in the project implementation process since some respondents have different definitions of e-government.

4.11 Discussion of the overall assessment

After analyzing the results which were obtained by using Statistical Program for Social Sciences (SPSS), we evaluated and showed the extent of success and failure

for each of the drives and factors mentioned above by evaluating each factor depending on the mean value. A mean greater than or equal to 5/10 means that the factors towards the implementation of e-government are likely to succeed and if less than 5/10, they are likely to fail.

4.11.1 Overall Assessment of Drive

The questions used to evaluate this drive are:

Q13: Strong drive for change towards e-government from outside located under external pressure.

Q14: Strong drive by senior officials for reform and achievement of goals.

Q15: The availability of laws and systems for e-government projects (ICT).

Q14 and Q15 are located under internal pressure.

The possibility of success and failure of this drive is explained in Table 21 according to the mean values which were calculated during the evaluation process. The mean value was separated into two sections, namely the internal pressure and external pressure according to the Heeks Factor Model.

Table 21: Possibility of success and failure for drive

Pressure	Questions	Mean	Rating of success and failure
External pressure	Q13	5.77	Possible to succeed
		Overall Mean: 5.77	
Internal pressure	Q14	4.53	It seems to fail
	Q15	4.68	It seems to fail
		Overall Mean: 4.61	

As shown in Table 21, it is clear that the external pressure factor represents a success factor which is represented by strong drive for change towards e-government From outside and other factors that are the internal pressures represented by strong drive by

the senior officials for reform and achieving goals and the availability of laws and systems for e-government projects (ICT) will fail.

4.11.2 Overall Assessment of Strategy

The questions used to evaluate this drive are:

Q16: There is a national policy for e-government (ICT).

Q17: There is a major plan for e-government (ICT).

Q18: There is a strategic plan for e-government (ICT).

Q19: There is participation for stakeholders in the development processes of the e-government strategy.

The possibility of success and failure of the strategy drive is explained in Table 22 according to the mean values which were obtained during the evaluation process.

Table 22: Possibility of success and failure for strategy drive

Questions	Mean	Rating of success and failures
Q16	4.25	It seems to fail
Q17	4.25	It seems to fail
Q18	4.24	It seems to fail
Q19	4.60	It seems to fail
	Overall mean: 4.33	

As shown in Table 22, it is clear that there is no factor that will succeed through the strategy drive assessment and according to that, it seems that the whole drive failed.

4.11.3 Overall Assessment of Management

The possibility of success and failure of this drive can be classified into three sections. The overall assessment of the first section which evaluates the success and failure of project management quality is shown in Table 23 and contains many questions, including:

Q20: There are clear responsibilities for the projects.

Q21: There is support (motivation) led by the individual or group to implement the e-government project (ICT).

Q22: There are risks that must be taken into account in the project.

Q23: There is a good monitoring and control system.

Q24: There are well-regulated resources, including staff.

Q25: There is good administration for partnership with other public and private institutions.

Q26: There is effective insurance for the project materials.

The second section evaluates the overall assessment of change management quality, which is shown in Table 22 and contains the following questions:

Q27: There is strong administration for the project (individual or group leadership).

Q28: There is support from senior managers and other affected stakeholders.

Q29: There are preliminary steps to make commitments and property rights among stakeholders (including working staff).

Q30: There is strong involvement of stakeholders that promote support.

Finally, the overall assessment of the focus of effective parties on self-interest and political practices in an e-government project is shown in Table 23 and includes the following questions:

Q31: There is internal rivalry in an e-government project (ICT).

Q32: There is resistance to change (fear of losing power).

Q33: Exploiting the subject of e-government for propaganda purposes.

Q34: There is an obsession with positive effects in the short-term.

Table 23: Possibility of success and failure for project management quality

Questions	Mean	Rating of success and failures
Q20	4.86	It seems to fail
Q21	5.85	Possible to succeed
Q22	5.23	Possible to succeed
Q23	4.29	It seems to fail
Q24	4.66	It seems to fail
Q25	4.36	It seems to fail
Q26	4.65	It seems to fail
	Overall mean: 4.84	

Table 24: Possibility of success and failure of change in management quality

Questions	Mean	Rating of success and failures
Q27	4.86	It seems to fail
Q28	4.06	It seems to fail
Q29	4.02	It seems to fail
Q30	4.08	It seems to fail
	Overall mean: 4.84	

Table 25: Possibility of success and failure for the focus of effective parties on self-interest and political practices

Questions	Mean	Rating of success and failures
Q31	4.12	It seems to fail
Q32	4.98	It seems to fail
Q33	4.73	It seems to fail
Q34	5.10	Possible to succeed
	Overall mean: 4.73	

As shown in Tables 23 to 25, and after calculating the overall mean, it is clear that for the section of project management quality, only two sections will succeed according to the results, which are “There is a major plan for e-government (ICT)” and “There is a strategic plan for e-government (ICT)” and the overall section will fail. In the second section, which is change management quality, no section will succeed according to the results which we obtained, and the overall section will fail accordingly. The final section, which is the focus of effective parties on self-interest and political practices, only one section will succeed, which is “There is obsession with a positive effect in the short-term” and the overall section will fail accordingly.

4.11.4 Overall Assessment of Design

The possibility of success and failure of this drive is explained in Table 26 according to the mean values acquired during the evaluation process. The questions used to evaluate this drive include:

Q35: The design is convergent theoretically/practically.

Q36: There are rapid and practical goals.

Q37: There is a strong participation of stakeholders which guarantees that the design fulfills actual needs.

Q38: There is satisfaction among employees with the current organization of the project.

Q39: There is acceptance from employees on the current organization of the project.

Q40: Employees welcome the organizational changes of the project.

Table 26: Possibility of success and failure for design drive

Questions	Mean	Rating of success and failures
Q35	5.35	Possible to succeed
Q36	5.44	Possible to succeed
Q37	5.09	Possible to succeed
Q38	5.56	Possible to succeed
Q39	5.79	Possible to succeed
Q40	6.63	Possible to succeed
	Overall mean: 5.64	

As shown in Table 26, it is clear that the design factor represents a success factor through the design drive assessment and according to that, it appears that the whole drive will succeed with an overall mean value of 5.64.

4.11.5 Overall Assessment of Competencies

The possibility of success and failure of this drive is explained in Table 27 according to the mean values obtained during the evaluation process. The questions used to evaluate this drive include:

Q41: Possibilities for ICT users.

Q42: Educational level of ICT system staff.

Q43: The professional level of ICT specialists.

Table 27: Possibility of success and failure for competencies drive

Questions	Mean	Rating of success and failure
Q41	6.63	Possible to succeed
Q42	6.67	Possible to succeed
Q43	6.46	Possible to succeed
	Overall mean: 6.59	

As shown in Table 27, it is clear that every factor will succeed through the competencies drive assessment, and according to that, it appears that the whole drive will succeed with an overall mean value of 6.59.

4.11.6 Overall Assessment of Infrastructure

The possibility of success and failure of this drive is explained in Table 28 according to the mean values during the evaluation process. The questions used to evaluate this drive include:

Q44: Devices, software and network technologies suitable for e-government project (ICT).

Q45: Systems and developed networks.

Q46: The actual possibilities of operating systems.

Q47: Guarantee and reliability of technology.

Q48: Dealing with unauthorized access to information and loss of confidence.

Q49: Security procedures in terms of data, protection of devices, transfer of data across networks, and safety of electronic procedures.

Table 28: Possibility of success and failure for infrastructure drive

Questions	Mean	Rating of success and failure
Q44	5.96	Possible to succeed
Q45	5.53	Possible to succeed
Q46	5.55	Possible to succeed
Q47	5.42	Possible to succeed
Q48	4.97	It seems to fail
Q49	4.68	It seems to fail
	Overall mean: 5.35	

As shown in Table 28, it is clear that every factor will succeed through the infrastructure drive assessment and according to that, it appears that the whole drive will succeed with an overall mean value of 5.35.

4.11.7 Other Resources Overall Assessment

The possibility of success and failure of this drive is explained in Table 29 according to the mean values which were acquired during the evaluation process. The questions used to evaluate this drive include:

Q50: The existence of a suitable environment for the project.

Q51: Perseverance by implementing.

Q52: The availability of financial resources for e-government.

Q53: The Availability of a Long-Term Budget for E-Government project.

Table 29: Possibility of success and failures for other resources drive

Questions	Mean	Rating of success and failures
Q50	4.73	It seems to fail
Q51	4.98	It seems to fail
Q52	4.76	It seems to fail
Q53	5.32	Possible to succeed
	Overall mean: 4.95	

As shown in Table 29, it is clear that there is only one factor that succeeds through the other resources drive assessment and according to that, it seems that the whole drive will fail at this overall mean value, valued at 4.95.

4.12 Overall E-government Project Assessment

After analyzing the survey results and evaluating each factor separately and showing the possibility of failure/success, we will evaluate the extent of the success/failure of e-government in Iraq by finding the summation of the mean for all factors mentioned and analyzed. Before starting the analysis process, we must show the curriculum that followed the Heeks Factor Model to measure the extent of the failure and success factor of e-government in specific countries. The measurement includes many ranges, and according to the mean value of that country, the failure or success factors of e-government is determined. Table 30 shows the risk assessment layout of the Heeks Factor Model.

While the lowest and highest degree to measure the Heeks Factor Model falls between 0 and 100, we can say that success depends on that summation of the mean value where if the summation is greater than 60, e-government in Iraq may partially fail unless action is taken according to the participants' opinions. The values of each factor and the summation of those values are explained in Table 31.

Table 30: Risk assessment layout of the Heeks Factor Model

Overall Rating	Likely Outcome
0-20	Your e-government project will almost certainly fail unless action is taken.
21-40	Your e-government project may well fail unless action is taken.
41-60	Your e-government might fail totally or might well be a partial failure unless action is taken.
61-80	Your e-government project might be a partial failure unless action is taken.
81-100	Your e-government project may well succeed.

Table 31: Overall assessment of the e-government project in Iraq

Factors	Rating score (Mean)	Possibility of failure/success
External pressure	5.77	Possible to succeed
Internal pressure	4.61	It seems to fail
Strategy	4.33	It seems to fail
Project Management	4.84	It seems to fail
Change management	4.84	It seems to fail
Self-interest and political practices	4.73	It seems to fail
Design	5.64	Possible to succeed
Competencies	6.59	Possible to succeed
Infrastructure	5.35	Possible to succeed
Other resources	4.95	It seems to fail
	Overall: 50.65	

As shown in Table 31, there are four factors from ten that can succeed when implementing e-government in Iraq, namely external pressure, design, competencies,

and infrastructure according to the mean value. However, there are six factors that may fail when implementing e-government in Iraq, namely internal pressure, strategy, project management, change management, and self-interest and political practices. However, the overall rating of the mean value is 50.65, which means that e-government in Iraq might fail totally or might well be a partial failure unless action is taken in accordance with participant opinions. Table 32 explains in detail the factors that failed with the factors that succeeded in this study according to the overall mean value in terms of the failure and success factors for e-government in Iraq.

Table 32: Failed and successful factors in terms of e-government in Iraq according to this study

Failure Factors	Success Factors
Internal pressure	External pressure
Strategy	Design
Project Management	Competencies
Change management	Infrastructure
Self-interest and political practices	
Other resources	



Figure 66: Failure and success factors

4.13 Correlations

At this section, we will explain the correlation coefficient which measures the association or the statistical relationship between two continuous variables. Also, it is considered the best method to measure the association between the interest variables because it is based on the covariance method where it gives information about the correlation or association magnitude in addition to the direction of the relationship. In this thesis, we have calculated correlation coefficient to ensure that the questions belonging to a specific factor are correlated or related to measure that factor. The factor average correlations for the different factors are shown in Table 33. The average correlations in descending order is as follows: competencies 0.844, design 0.629, external pressure 0.579, self-interest and political practices 0.538, infrastructure 0.452, change management 0.444, project management 0.406, strategy 0.374, other resources 0.335 and internal pressure 0.191. It must be mentioned that the factors with the highest correlations make the highest impact and thus, they must take the highest priority. Consequently, competencies must be addressed first followed by the design down to internal pressure in order to provide countermeasures of the e-government project.

Table 33: Factor Average Correlations

Factor	Mean	Correlations
External pressure	5.77	0.579
Internal pressure	4.61	0.191
Strategy	4.33	0.374
Project management	4.84	0.406
Change management	4.84	0.444
Self-interest and political practices	4.73	0.538
Design	5.64	0.629
Competencies	6.59	0.844
Infrastructure	5.35	0.452
Other resources	4.95	0.335

CHAPTER 5

CONCLUSION AND FUTURE WORK

5.1 Conclusion

This study aimed to explore the failure and success factors of e-government in Iraq from the points of view of a large sample of employees with various specialties in the ICT domain and other jobs who work in different ministries in the Iraqi Government. The assessment is based on the Heeks Factors Model because it is considered one of the simplest and dependable models in analyzing gaps in huge projects, including e-government projects, and it can be applied in any study. In this study, failure and success factors of e-government in Iraq were analyzed in order to understand the insufficiency of these factors. The results that were collected through this study confirm that the Government must build a good strategy and a major plan and provide the necessary laws and regulations for the project. Furthermore, the involvement of stakeholders should be significant to meet the real needs of the project. The Iraqi Government should build a long-term budget plan to finance the project and maintain it. Moreover, the results suggest that government agencies should take the leadership role to a successful implementation of the e-government project followed by partnerships between the public and private sectors. The factors that failed and required to be maintained in correct ways are the strategy drive, project management, and change management. Strategy drive which expresses the reality and must be planned and processed in a more accurate way because according to the participants, there is no clear national policy, no major plan that must be followed in order to succeed this factor and not even a participation by the stockholders in order to be developed. Also, the management drive suffers from a great weakness according to the participants' perceptions because there are no clear responsibilities for projects, no good control on the system, no qualified staff and no successful management for the companies and the public and private institutions and thus, these factors must be taken

into consideration when implementing the e-government project. Finally, for the change management factor, there is no strong administration of the project, there is no support from the senior managers and no preliminary steps to make commitments and property rights between the stakeholders.

5.2 Limitations and Future Work

This study has great importance in order to reap the benefits of the failure and success factors of e-government in Iraq. If there are more participants, the current results can be analyzed in a more accurate and comprehensive manner and revive the e-government project that already exists in different Iraqi ministries. Therefore, the results obtained cannot be generalized in Iraq as a whole. Moreover, this study can be the foundation for future projects where this study depends on an online survey reaching 139 participants from Iraqi government ministries. Here, we must point out that we were not able to conduct interviews with the participants because this procedure requires obtaining approvals from the responsible authorities at these ministries to enter and interview their employees (this procedure requires a great amount of time). In the future, studies can include interviews with those persons face to face, especially those people who work in the field of ICT in order to obtain the benefit of their opinions in more detailed and realistic ways for insights about problems so as to build an actual and realistic model of these models to be a standard of the studies in this area.

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APENDIX A

QUESTIONNAIRE

الحكومة الألكترونية في العراق، عوامل النجاح والفشل

الغرض من هذا الاستبيان هو لدراسة عوامل نجاح وفشل مشروع الحكومة الألكترونية في العراق تعتمد هذه الدراسة وجهة نظر المتخصصين في مجال تكنولوجيا المعلومات والاتصالات وغيرها من التخصصات المرتبطة بتنفيذ مشروع الحكومة الألكترونية في العراق لتحديد عوامل نجاح وفشل المشروع. سيتم التعامل مع الإجابات بسرية تامة. الباحث فقط سيتمكن من رؤية إجابتك. اختر الإجابة المناسبة لك اعتمادا على الإرشادات المعطاة. و انقر على التالي للانتقال الى الصفحة الأخرى وبعد الانتهاء من ملئ الاستبيان انقر على إرسال.

الإجابة على الأسئلة يستغرق أقل من 10 دقائق من وقتك. شاركين مشاركتك في هذه الدراسة للتواصل مع الباحث من خلال البريد الإلكتروني omarmidhatabdulsalam86@gmail.com

* Required

القسم الأول: المعلومات الشخصية ومعلومات عن حالة الوعي حول الحكومة الإلكترونية.

السؤال الأول: ما هو موقعك الوظيفي؟ *

- مسؤول تكنولوجيا المعلومات والاتصالات
- مدير مشروع تكنولوجيا المعلومات والاتصالات
- موظف تكنولوجيا المعلومات والاتصالات
- وظيفة أخرى

السؤال الثاني: ما هو جنسك؟ *

- ذكر
- انثى

السؤال الثالث: ما هي فئتك العمرية؟*

- 18-24 سنة
- 25-34 سنة
- 35-44 سنة
- 45-54 سنة
- 55 سنة وأكثر

السؤال الرابع: العبارات التالية هي أسئلة حول فهمك الحكومة الإلكترونية (تكنولوجيا المعلومات والاتصالات) في العراق.

"تقييم الإجابة: من "أوافق بشدة" مرورا بـ "محايد" وصولا إلى "لا أوافق بشدة" (يمكنك اختيار من بين جميع الخيارات وفقا لحكمك)

انا أتفهم تماما فوائد الحكومة الإلكترونية للمواطنين.*

- أوافق بشدة
- أوافق
- محايد
- لا أوافق
- لا اوافق بشدة

الحكومة لديها البوابة الرسمية (مكان واحد لجميع المعلومات الحكومية). *

- أوافق بشدة
- أوافق
- محايد
- لا أوافق
- لا اوافق بشدة

جميع الوزارات الحكومية لديها موقع إلكتروني كجزء من مشروع الحكومة الإلكترونية. *

- أوافق بشدة
- أوافق
- محايد
- لا أوافق
- لا اوافق بشدة

جميع السلطات المحلية (المحافظات) لديها موقع إلكتروني كجزء من مشروع الحكومة الإلكترونية. *

- أوافق بشدة
- أوافق
- محايد
- لا أوافق
- لا اوافق بشدة

يمكنني الوصول إلى المعلومات العامة (تحميل الوثائق المفيدة) وإداء الخدمات الأساسية عبر الإنترنت من خلال الموقع الإلكتروني (مدونة، البريد الإلكتروني، خدمات الرسائل القصيرة). *

- أوافق بشدة
- أوافق
- محايد
- لا أوافق
- لا اوافق بشدة

هناك بعض الأمثلة الناجحة لمشاريع تكنولوجيا المعلومات والاتصالات (الحكومة الإلكترونية) في العراق. *

- أوافق بشدة
- أوافق
- محايد
- لا أوافق
- لا اوافق بشدة

السؤال الخامس: هل تعرف سئ (لديك واعي) عن مشاريع تكنولوجيا المعلومات والاتصالات التي تمهد لمشروع الحكومة الإلكترونية؟ *

إذا كانت إجابتك (نعم) يرجى الإجابة على السؤالين السادس والسابع.

- نعم
- لا

السؤال الخامس: هل تعرف شيء (لديك وعي) عن مشاريع تكنولوجيا المعلومات والاتصالات التي تمهد لمشروع الحكومة الإلكترونية؟ *
إذا كانت إجابتك (نعم) يرجى الإجابة على السؤالين السادس والسابع.

- نعم
 لا

السؤال السادس: أكتب أي مشاريع تكنولوجيا المعلومات والاتصالات (الحكومة الإلكترونية) أنت مطلع عليه أو أدركته في مؤسستك. (على سبيل المثال تنصيب شبكات LAN/WAN، تطوير موقع الكتروني، الحوسبة، الإنترنت والبريد الإلكتروني، نظام معلومات الإدارة المالية المتكاملة، نظام الموارد البشرية ... الخ)

Your answer

السؤال السابع: ما هو الوضع الحالي للمشروع الذي ذكرته اعلاه؟

- تم تنفيذه (أنجز)
 في مرحلة التنفيذ
 في مرحلة التخطيط

القسم الثاني: تقييم التوجهات

هذا القسم يهدف إلى جمع بيانات حول تصورك عن التوجهات من أجل التغيير وتحقيق أهداف الحكومة الإلكترونية من قبل (الحكومة المركزية، الجهات المانحة، المواطنين، كبار المسؤولين الحكوميين) وفقاً لحكمك

السؤال التام: العبارات التالية هي أسئلة حول تصورك عن التوجهات نحو التغيير من قبل (الحكومة، الجهات المانحة، المواطنين وكذلك لتحقيق الأهداف من قبل المسؤولين الرئيسيين في مشروع الحكومة الإلكترونية (تكنولوجيا المعلومات والاتصالات) في مؤسستك.

"تقييم الإجابة: من 0 لـ "عدم وجود" مروراً بـ 5 لـ "معتدل" وصولاً إلى 10 لـ "موجود بقوة (جميع الأرقام من 0 إلى 10 ممكنة وفقاً لحكمك)

* توجه قوي من الخارج من أجل التغيير نحو الحكومة الإلكترونية.

0 1 2 3 4 5 6 7 8 9 10

عدم وجود

موجود بقوة

توجه قوي من كبار المسؤولين الحكوميين من أجل الإصلاح وتحقيق أهداف الحكومة الإلكترونية.*

0 1 2 3 4 5 6 7 8 9 10

عدم وجود

موجود بقوة

* توافر القوانين والأنظمة لمشاريع الحكومة الإلكترونية (تكنولوجيا المعلومات والاتصالات).

0 1 2 3 4 5 6 7 8 9 10

عدم وجود

موجود بقوة

القسم الثالث: تقييم الإستراتيجية

يهدف هذا القسم إلى جمع بيانات عن تصورك حول توافق رؤية وإستراتيجية من أجل التغيير وتحقيق أهداف الحكومة الإلكترونية

السؤال التاسع: العبارات التالية هي الأسئلة حول تصورك عن توافق رؤية وإستراتيجية حكومية في مشروع الحكومة الإلكترونية (تكنولوجيا المعلومات والاتصالات) في مؤسستك.

تقييم الإجابة: من 0 لـ 10 "لا توجد" مرورا بـ 5 لـ "معتدل" وصولا إلى 10 "توجد" (جميع الأرقام من 0 إلى 10 ممكنة وفقا لحكمك)

* هناك سياسة وطنية للحكومة الإلكترونية (تكنولوجيا المعلومات والاتصالات)

0 1 2 3 4 5 6 7 8 9 10

لا توجد توجد

* هناك خطة رئيسية للحكومة الإلكترونية (تكنولوجيا المعلومات والاتصالات).

0 1 2 3 4 5 6 7 8 9 10

لا توجد توجد

* هناك خطة إستراتيجية للحكومة الإلكترونية (تكنولوجيا المعلومات والاتصالات)

0 1 2 3 4 5 6 7 8 9 10

لا توجد توجد

* وجود مشاركة للجهات المعنية في عمليات تطوير إستراتيجية الحكومة الإلكترونية

0 1 2 3 4 5 6 7 8 9 10

لا توجد توجد

القسم الرابع: تقييم الإدارة

هذا القسم يهدف إلى جمع البيانات حول تصورك عن إدارة المشاريع وإدارة التغيير في مشروع الحكومة الإلكترونية وكذلك التزام الجهات الفاعلة الرئيسية في العملية برمتها.

السؤال العاشر: العبارات التالية هي تساؤلات حول تصورك عن جودة إدارة مشروع الحكومة الإلكترونية (تكنولوجيا المعلومات والاتصالات) في مؤسستك.

تقييم الإجابة: من 0 لـ "سيئة للغاية" مروراً بـ 5 لـ "معتلة" وصولاً إلى 10 لـ "جيدة جداً" (جميع الأرقام من 0 إلى 10 ممكنة وفقاً لحكمك)

هناك وجود مسؤوليات مشاريع واضحة *

0 1 2 3 4 5 6 7 8 9 10

سيئة للغاية

جيدة جداً

هناك تأييد (دافع) يقوده الفرد أو المجموعة لتنفيذ مشروع الحكومة الإلكترونية (تكنولوجيا المعلومات والاتصالات) *

0 1 2 3 4 5 6 7 8 9 10

سيئة للغاية

جيدة جداً

هناك مراعاة للمخاطر في المشروع *

0 1 2 3 4 5 6 7 8 9 10

سيئة للغاية

جيدة جداً

* هناك نظام مراقبة وتحكم جيد

0 1 2 3 4 5 6 7 8 9 10

سيئة للغاية

جيدة جدا

* هناك تنظيم جيد للموارد (بما في ذلك الموظفين)

0 1 2 3 4 5 6 7 8 9 10

سيئة للغاية

جيدة جدا

* هناك إدارة جيدة للتشراكة مع المؤسسات العامة والخاصة الأخرى

0 1 2 3 4 5 6 7 8 9 10

سيئة للغاية

جيدة جدا

* هناك تأمين فعال لمواد المشروع

0 1 2 3 4 5 6 7 8 9 10

سيئة للغاية

جيدة جدا

السؤال الحادي عشر: العبارات التالية هي أسئلة حول تصورك عن جودة إدارة التغيير لمشروع الحكومة الإلكترونية (تكنولوجيا المعلومات والاتصالات) في مؤسستك.

التقييم الإيجابي: من 0 لـ "سيئة للغاية" مروراً بـ 5 لـ "معتلة" وصولاً إلى 10 لـ "جيدة جداً" (جميع الأرقام من 0 إلى 10 ممكنة وفقاً لحصتك)

* هناك قيادة قوية للمشروع (قيادة فردية أو مجموعة)

0 1 2 3 4 5 6 7 8 9 10

سيئة للغاية جيدة جداً

* هناك دعم من كبار المسؤولين والجهات المعنية المؤثرة الأخرى.

0 1 2 3 4 5 6 7 8 9 10

سيئة للغاية جيدة جداً

هناك خطوات تمهيدية لعمل تعهدات التزام وحقوق الملكية فيما بين الجهات المعنية (بما في ذلك الكوادر العاملة) *

0 1 2 3 4 5 6 7 8 9 10

سيئة للغاية جيدة جداً

* هناك اشتراك قوي للجهات المعنية بما يعزز الدعم.

0 1 2 3 4 5 6 7 8 9 10

سيئة للغاية جيدة جداً

السؤال الثاني عشر: العبارات التالية هي اسئلة حول تصورك عن تركيز الجهات الفاعلة الرئيسية على المصلحة الذاتية (الشخصية) والممارسات المياسية في مشروع الحكومة الالكترونية (تكنولوجيا المعلومات والاتصالات) في مؤسستك.

*تقييم الاجابة: من 0 لـ كثير جدا" مرورا بـ 5 لـ معتدل" وصولا إلى 10 لـ قليل جدا (جميع الأرقام من 0 إلى 10 ممكنة وفقا لحكمك)

* هناك تناحر داخلي في مشروع الحكومة الالكترونية (تكنولوجيا المعلومات والاتصالات).

0 1 2 3 4 5 6 7 8 9 10

كثير جدا

قليل جدا

* هناك مقاومة للتغيير (تخوف من فقدان السلطة).

0 1 2 3 4 5 6 7 8 9 10

كثير جدا

قليل جدا

* استغلال موضوع الحكومة الالكترونية لاغراض دعائية.

0 1 2 3 4 5 6 7 8 9 10

كثير جدا

قليل جدا

* هناك هاجس لتأثير إنتخابي وإشادة على المدى القصير (مجد).

0 1 2 3 4 5 6 7 8 9 10

كثير جدا

قليل جدا

القسم الخامس: تقييم التصميم

هذا القسم يهدف إلى جمع بيانات حول تصورك عن مدى فعالية وواقعية تصميم مشروع الحكومة الالكترونية (تكنولوجيا المعلومات والاتصالات).

السؤال الثالث عشر: العبارات التالية هي أسئلة حول تصورك عن مدى الفعالية والواقعية في تصميم مشروع الحكومة الالكترونية (تكنولوجيا المعلومات والاتصالات) في مؤسستك.

*تقييم الاجابة: من 0 لـ "غير فعال وغير واقعي" مرورا ب 5 لـ "معتدل" وصولا إلى 10 لـ "فعال واقعي جدا (جميع الأرقام من 0 إلى 10 ممكنة وفقا للحكمك)

* التصميم متقارب نظريا/ عمليا .

0 1 2 3 4 5 6 7 8 9 10

غير فعال وغير
واقعي

فعال وواقعي جدا

* هناك أهداف سريعة و عملية *

0 1 2 3 4 5 6 7 8 9 10

غير فعال وغير
واقعي

فعال وواقعي جدا

* هناك مشاركة قوية للجهات المعنية بما يضمن تصميم يلبي الاحتياجات الفعلية *

0 1 2 3 4 5 6 7 8 9 10

غير فعال وغير
واقعي

فعال وواقعي جدا

* هناك رضا للموظفين مع التنظيم الحالي للمشروع.

0 1 2 3 4 5 6 7 8 9 10

غير فعال وغير
واقعي

فعال وواقعي جدا

* هناك تكفل للموظفين على التنظيم الحالي للمشروع.

0 1 2 3 4 5 6 7 8 9 10

غير فعال وغير
واقعي

فعال وواقعي جدا

* الموظفين يرحبون بالتغييرات التنظيمية للمشروع

0 1 2 3 4 5 6 7 8 9 10

غير فعال وغير
واقعي

فعال وواقعي جدا

القسم السادس: تقييم الكفاءات

يهدف هذا القسم إلى جمع بيانات حول تصورك عن توافر جوانب الموارد البشرية من حيث المهارات والمعرفة والمواقف تجاه مشروع (الحكومة الإلكترونية) تكنولوجيا المعلومات والاتصالات.

السؤال الرابع عشر: العبارات التالية هي أسئلة حول تصورك عن مدى توفر الكفاءات المطلوبة في مشروع الحكومة الإلكترونية (تكنولوجيا المعلومات والاتصالات) في مؤسستك.

"تقييم الاجابة: من 0 لـ"غائبة تماما" مرورا بـ 5 "بعض الحضور" وصولا إلى 10 لـ"كافية تماما (جميع الأرقام من 0 إلى 10 ممكنة وفقا للحكمتك)

إمكانات مستخدمي تكنولوجيا المعلومات والاتصالات (المهارات والمعرفة) *

0 1 2 3 4 5 6 7 8 9 10

غائبة تماما

كافية تماما

المستوى التعليمي لموظفي تكنولوجيا المعلومات والاتصالات (مدراء ومطوري ومسغلي ومستخدمي) الأنظمة. *

0 1 2 3 4 5 6 7 8 9 10

غائبة تماما

كافية تماما

مستوى حرفة متخصصي تكنولوجيا المعلومات والاتصالات (الاستراتيجية، إدارة التغيير، إدارة المشروع، تطوير وإدارة نظم المعلومات) *

0 1 2 3 4 5 6 7 8 9 10

غائبة تماما

كافية تماما

القسم السابع: تقييم التكنولوجيا

يهدف هذا القسم إلى جمع بيانات حول تصورك عن كفاءة جوانب البنية التحتية التكنولوجية في مشروع الحكومة الإلكترونية

السؤال الخامس عشر: العبارات التالية هي أسئلة حول تصورك عن مدى كفاءة البنية التحتية التكنولوجية في مشروع الحكومة الإلكترونية (تكنولوجيا المعلومات والاتصالات) في مؤسستك

التقييم الاجابة: من 0 لـ "غير كافية" مرورا بـ 5 لـ "معتدلة" وصولا إلى 10 لـ "كافية تماما" (جميع الأرقام من 0 إلى 10 ممكنة وفقا للحكمك)

الأجهزة والبرمجيات وتغذيات الشبكة الملائمة لمشروع الحكومة الإلكترونية (تكنولوجيا المعلومات والاتصالات) *

0 1 2 3 4 5 6 7 8 9 10

غير كافية

كافية تماما

* أنظمة وشبكات متطورة

0 1 2 3 4 5 6 7 8 9 10

غير كافية

كافية تماما

* الإمكانيات الفعلية لأنظمة التشغيل

0 1 2 3 4 5 6 7 8 9 10

غير كافية

كافية تماما

*** ضمان وموثوقية التكنولوجيا**

0 1 2 3 4 5 6 7 8 9 10

غير كافية

كافية تماما

*** التعامل مع الدخول الغير المصرح به إلى المعلومات الحساسة وفقدان الثقة**

0 1 2 3 4 5 6 7 8 9 10

غير كافية

كافية تماما

الإجراءات الأمنية من حيث البيانات وحماية الأجهزة، ونقل البيانات عبر الشبكات وسلامة المعاملات الإلكترونية *

0 1 2 3 4 5 6 7 8 9 10

غير كافية

كافية تماما

القسم الثامن: تقييمات أخرى

هذا القسم يهدف إلى جمع بيانات حول تصورك عن توافر العوامل الأخرى التي يحتمل أن تسبب في فشل ونجاح مشروع الحكومة الإلكترونية.

السؤال السادس: العبارات التالية هي الأسئلة على العوامل الأخرى التي يحتمل أن تسبب فشل مشروع الحكومة الإلكترونية (تكنولوجيا المعلومات والاتصالات) في مؤسستك

تقييم الاجابة: من 0 "نعم بقوة" مرورا ب 5 "ربما" إلى 10 "لا بقوة"
(جميع الأرقام من 0 إلى 10 ممكنة وفقا لحكمتك)

* وجود بيئة مناسبة للمشروع.

0 1 2 3 4 5 6 7 8 9 10

نعم بقوة لا بقوة

* المتابعة من قبل المنفذين

0 1 2 3 4 5 6 7 8 9 10

نعم بقوة لا بقوة

* توافر الموارد المالية للحكومة الإلكترونية

0 1 2 3 4 5 6 7 8 9 10

نعم بقوة لا بقوة

* وجود خطة ميزانية طويلة الأمد للحكومة الإلكترونية

0 1 2 3 4 5 6 7 8 9 10

نعم بقوة لا بقوة

القسم التاسع: اسئلة اخرى

من الذي ينبغي أن يأخذ زمام المسؤولية لتنفيذ مشروع الحكومة الإلكترونية في العراق؟ *

- الوكالات الحكومية
- الوكالات خاصة
- وكالات التنمية الدولية (المانحين)
- الشراكة بين القطاعين الخاص والعام
- أخرى

ما هو رأيك وتصورك العام عن الحكومة الإلكترونية او مشروع تكنولوجيا المعلومات والاتصالات انت على معرفة به في مؤسستك؟ هذا السؤال ليس إلزامياً إلا إذا كان لديك تعليق نهائي.

Your answer

APPENDIX B

QUESTIONNAIRE TRANSLATED TO ENGLISH

E-GOVERNMENT IN IRAQ: FAILURE AND SUCCESS FACTORS

This questionnaire aims to explore failure and success factors of e-government project in Iraq. This study is based on the perception of ICT staff and other jobs that related to the implementation of the e-government project in Iraq. Your answer will be treated confidentially, only the researcher will be able to see it. To connect with the researcher through e-mail: omarmidhatabdulsalam86@gmail.com

* Required

Section 1: Include personal information and other information about awareness toward e-government

Question 1: What is your functional position? *

- ICT official
- ICT project Manager
- ICT employee
- Other job

Question 2: What is your gender *

- Male
- Female

Question 3: What is your age category? *

- 18-24 years
- 25-34 years
- 35-44 years
- 45-54 years
- more than 54

These statements about your awareness toward e-government in Iraq

Response Rating: from 'Strongly agree' through 'Neutral' to 'Disagree'(choose a possible opinion according to your judgment).

Question 4: I fully understand the benefits of e-government for citizens. *

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

Question 5: The Government has Official Portal (One Place for All the Governmental Information). *

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

Question 6: All governmental ministries have a website as a part of the E-government Project. *

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

Question 7: All local authorities (governorates) have a website as a part of the E-government Project. *

- Strongly agree
- Agree
- Neutral

Question 8: I can access general information (upload useful documents) and perform basic services across the Internet on the Website (blog, e-mail, short message services). *

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

Question 9: There are a number of successful examples of ICT projects (e-government) in Iraq. *

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

Question 10: Do you know something (your awareness) about the ICT projects that pave the way towards the e-government project? *

- Yes
- No

Question 10: Do you know something (your awareness) about the ICT projects that pave the way towards the e-government project? *

- Yes
- No

Question 11: Write any projects for ICT (e-government) you have seen it or managed it at your institution.

Your answer

Question 12: What is the current situation of the project that you mentioned above?

- Implemented
- In the implementation phase
- In the planning phase.

Driver Assessment

This section aims to collect data on how you perceive the drive for change and the achievement of e-government goals from (central government, aid donors and key government officials) according to your judgment.

Question 13: Strong drive for change towards e government from outside which represents external pressure. *

0 1 2 3 4 5 6 7 8 9 10

does not exist strongly exist

Question 14: Strong drive by senior officials for reform and achieving goals. *

0 1 2 3 4 5 6 7 8 9 10

does not exist strongly exist

Question 15: The availability of laws and systems for e government projects (ICT). *

0 1 2 3 4 5 6 7 8 9 10

does not exist strongly exist

Strategy Assessment

This section aims to collect data on how you perceive the availability of e-government's vision and strategy in the e-government in your institution.

Question 16: There is a national policy for e government (ICT). *

0 1 2 3 4 5 6 7 8 9 10

does not exist exist

Question 17: There is a major plan for e government (ICT). *

0 1 2 3 4 5 6 7 8 9 10

does not exist exist

Question 18: There is a strategic plan for e government (ICT). *

0 1 2 3 4 5 6 7 8 9 10

does not exist exist

Question 19: There is participation for stakeholders in the development processes of e government strategy. *

0 1 2 3 4 5 6 7 8 9 10

does not exist exist

Management Assessment

This section aims to collect data on how good you perceive the project management and change management of e-government project as well as the commitment of key players in the whole process.

Project Management

Question 20: There are clear responsibilities of projects. *

0 1 2 3 4 5 6 7 8 9 10

Too bad very good

Question 21: There is support (motivation) led by the individual or group to implement an e government project (ICT). *

0 1 2 3 4 5 6 7 8 9 10

Too bad very good

Question 22: There are risks that must be taken into account in the project. *

0 1 2 3 4 5 6 7 8 9 10

Too bad very good

Question 23: There is a good monitoring and controlling system.

*

0 1 2 3 4 5 6 7 8 9 10

Too bad

very good

Question 24: There are well-regulated resources including staff.

*

0 1 2 3 4 5 6 7 8 9 10

Too bad

very good

Question 25: There is good administration for partnership with other public and private institutions. *

0 1 2 3 4 5 6 7 8 9 10

Too bad

very good

Question 26: There is effective insurance for the project materials. *

0 1 2 3 4 5 6 7 8 9 10

Too bad

very good

Change Management

Question 27: There is strong administration for the project (individual or group leadership). *

0 1 2 3 4 5 6 7 8 9 10

Too bad very good

Question 28: There is support from senior managers and other affected stakeholders. *

0 1 2 3 4 5 6 7 8 9 10

Too bad very good

Question 29: There are preliminary steps to make commitments and property rights among stakeholders (including working staff). *

0 1 2 3 4 5 6 7 8 9 10

Too bad very good

Question 30: There is strong involvement of stakeholders that promote support. *

0 1 2 3 4 5 6 7 8 9 10

Too bad very good

Self-interest and Politics

Question 31: There is internal rivalry in an e government project (ICT). *

0 1 2 3 4 5 6 7 8 9 10

Too many very few

Question 32: There is resistance to change (fear of losing power). *

0 1 2 3 4 5 6 7 8 9 10

Too many very few

Question 33: Exploiting the subject of e government for propaganda purposes. *

0 1 2 3 4 5 6 7 8 9 10

Too many very few

Question 34: It is obsessed with a positive effect in the short term. *

0 1 2 3 4 5 6 7 8 9 10

Too many very few

Design Assessment

This section aims to collect data about how effective and realistic the design of the e-government project (ICT) in your institution.

Question 35: The design is convergent theoretically/practically. *

0 1 2 3 4 5 6 7 8 9 10

very ineffective and nrealistic very effective and realistic

Question 36: There are rapid and practical goals. *

0 1 2 3 4 5 6 7 8 9 10

very ineffective and nrealistic very effective and realistic

Question 37: There is strong participation of stakeholders which guarantees the design that fulfills actual needs. *

0 1 2 3 4 5 6 7 8 9 10

very ineffective and nrealistic very effective and realistic

Question 38: There is satisfaction among employees with the current organization of the project. *

0 1 2 3 4 5 6 7 8 9 10

very ineffective and nrealistic very effective and realistic

Question 39: There is acceptance from employees of the current organization of the project. *

0 1 2 3 4 5 6 7 8 9 10

very ineffective and unrealistic very effective and realistic

Question 40: The employees welcome the organizational changes of the project. *

0 1 2 3 4 5 6 7 8 9 10

very ineffective and unrealistic very effective and realistic

Competencies Assessment

This section aims to collect data on your perceptions of availability of the human resource competencies in terms of skills, knowledge and attitudes towards the e-government project (ICT).

Question 41: The possibilities of ICT users (skills and knowledge) *

0 1 2 3 4 5 6 7 8 9 10

completely absent Quite Enough

Question 42: The educational level of ICT and system staff (managers, developers, operators and users) *

0 1 2 3 4 5 6 7 8 9 10

completely absent Quite Enough

Question 43: The professional level of ICT specialists (strategy, management of change, project management, development and management of information systems) *

0 1 2 3 4 5 6 7 8 9 10

completely absent Quite Enough

Infrastructure Assessment

This section aims to collect data on your perception of the adequacy of the technological infrastructure aspects of the e-government project in your institution.

Question 44: Devices, software and network technologies that are suitable for e government projects (ICT). *

0 1 2 3 4 5 6 7 8 9 10

Not enough Quite enough

Question 45: Systems and developed networks. *

0 1 2 3 4 5 6 7 8 9 10

Not enough Quite enough

Question 46: The actual possibilities of operating systems. *

0 1 2 3 4 5 6 7 8 9 10

Not enough Quite enough

Question 47: Guarantee and reliability of technology. *

0 1 2 3 4 5 6 7 8 9 10

Not enough Quite enough

Question 48: Dealing with unauthorized access to information and the loss of confidence. *

0 1 2 3 4 5 6 7 8 9 10

Not enough

Quite enough

Question 49: Security procedures in terms of data, protecting devices, transfer of data across networks, and safety of electronic procedures. *

0 1 2 3 4 5 6 7 8 9 10

Not enough

Quite enough



Other factors Assessment

This section aims to collect data on your perception of the availability of other factors likely to cause the failure or success of the e-government project.

Question 50: The existence of a suitable environment for the project. *

0 1 2 3 4 5 6 7 8 9 10

Not enough Quite Enough

Question 51: Perseverance by implementing. *

0 1 2 3 4 5 6 7 8 9 10

Not enough Quite Enough

Question 52: The availability of financial resources for e government. *

0 1 2 3 4 5 6 7 8 9 10

Not enough Quite Enough

Question 53: The Availability of a Long-Term Budget for the E-Government project. *

0 1 2 3 4 5 6 7 8 9 10

Not enough Quite Enough

Other questions

Question 54: Who should take responsibility for implementing the e government project in Iraq? *

- governmental agencies
- private agencies
- International Development Agencies (donors)
- partnership between the private and public sectors
- Other:

Question 55: Your general opinion and vision towards e government or ICT, which was known by the participants?

Your answer