Tikrit Journal of Administrative and Economic Sciences, (31/12/2022); Vol. 18, No. 60, Part (1): 721-740
Doi: www.doi.org/10.25130/tjaes.18.60.1.40

Tikrit Journal of Administrativ And Economics Sciences
مجلة تكريت للعلوم الإدارية والاقتصادية
ISSN: 1813-1719 (Print)

Measuring the digital divide from the perspective of the information society: A survey study in Iraqi society

Rasha Duraid Hanna *, Bassam A. Alyouzbaky

College of Administration and Economics, University of Mosul.

Keywords:

Digital divide; information society; accessibility; skills; information technology; communication technology.

A R T I C L E I N F O

Article history:

Received 30 Sep. 2022
Accepted 09 Oct. 2022
Available online 24 Feb. 2023

*Corresponding author:

Rasha Duraid Hanna
College of Administration and Economics, University of Mosul.

Abstract: The study aimed at the following: measuring the digital divide in Iraqi society from the perspective of the information society. The research started from a main problem, which is: What is the size of the digital divide in Iraqi society from the perspective of the information society? The research relied on the descriptive analytical approach, and a questionnaire was designed and distributed to the information society in Iraq, by using the purposive sampling, with 184 questionnaires, and the data were entered into the SPSS program and analyzed. The research also reached a set of conclusions and recommendations, the most important of which are the following: there is large digital divide in the Iraqi society according to the information society view. The research also made the following proposals: Working to reduce the digital divide in Iraq by relying on improving the reality and quality of the services provided in all geographical areas in Iraq, in addition to working on training and developing the technical skills of employees and users of those technologies.

Tikrit Journal of Administrative and Economic Sciences, (31/12/2022); Vol. 18, No. 60, Part (1): 721-740
Doi: www.doi.org/10.25130/tjaes.18.60.1.40

قياس الفجوة الرقمية من منظور مجتمع المعلومات: دراسة مسحية في المجتمع العراقي

رشا دريد حنا
كلية الإدارة والاقتصاد
جامعة الموصل

بسام عبد الرحمن يوسف
كلية الإدارة والاقتصاد
جامعة الموصل

المستخلص

هدفت الدراسة إلى الآتي: قياس الفجوة الرقمية في المجتمع العراقي من منظور مجتمع المعلومات. انطلق البحث من مشكلة رئيسية وهي: ما حجم الفجوة الرقمية في المجتمع العراقي من منظور مجتمع المعلومات؟ اعتمد البحث على المنهج الوصفي التحليلي، وتم تصميم استبيان وتوزيعه على مجتمع المعلومات في العراق، باستخدام العينة الهادفة، بعدد 184 استبانة، وتم ادخال البيانات في برنامج SPSS وتحليلها. كما توصل البحث إلى مجموعة من الاستنتاجات والتوصيات أهمها ما يلي: وجود فجوة رقمية كبيرة في المجتمع العراقي حسب وجهة نظر مجتمع المعلومات. كما قدم البحث المقترحات التالية: العمل على تقليص الفجوة الرقمية في العراق من خلال الاعتماد على تحسين واقع ونوعية الخدمات المقدمة في جميع المناطق الجغرافية في العراق، بالإضافة إلى العمل على تدريب وتطوير المهارات الفنية للموظفين والمستخدمين لتلك التقنيات.

الكلمات الدالة: الفجوة الرقمية، مجتمع المعلومات، سهولة الوصول، المهارات، تكنولوجيا المعلومات، تكنولوجيا الاتصالات.

Introduction:

Through the global technical development in recent decades, digital transformation has become a basic requirement in all sectors. This rapid transformation depends on virtualization and interdependence as an essential demand for what is known the era of the industrial revolution. (Abo Samrah, 2019: 3)

With this development and technical transformation around the world, several technological differences emerged between developed and developing countries, these differences contributed greatly to increasing the knowledge and digital divide between these countries, and from here began the interest in measuring these differences from different points of view, the most important of which is the information society. (Victoria et al., 2020: 9)

The information society is a new concept whose features have not yet crystallized in the global concept of researchers in different continents, and this is not strange because its features are not sufficiently clear even for ordinary citizens who deal with it in their daily lives through some of its aspects such as the Internet, without realizing its theoretical dimensions and scientific, political and cultural results. (Sobegh, 2019: 24)

However, the increasing global economic growth combined with technological development has led to the employment of information as a

primary driver of social change, which led to the emergence of the term "information society" at the beginning of the eighties to denote the new phase that extends throughout human history. It is characterized that it depends mainly on a solid base of Information that constitutes an essential resource for economies based on technological structures. (Ali, 2014: P5)

With the spread of technical and cognitive terms around the world in the last decade, the concept of the digital gap began to be discussed, which refers to the gap between those who have modern technologies and those who do not have around the world. However, it is known that the third world countries, including Arab countries, suffers from a cognitive digital gap with the developed western countries. Despite the attempts of many of these countries to bridge or reduce that gap, the advanced modern technologies are still monopolized by Western countries until this day. Hence, the importance of the research comes by focusing on the digital gap from the perspective of the information in Iraqi society, and showing the amount and method of measuring that gap. (Shenglin etal, 2017: 6). The research includes four main sections: the research methodology, the theoretical side, the practical side, and conclusions and recommendations.

Section One: Research Methodology

1. **research Problems:** Many third world countries focus on improving the reality of their digital services, despite facing many economic problems, as the issue of the digital divide has become one of the most important topics in today's world. Based on previous studies and the importance of the issue of the digital divide.

   The problem of the study can be formulated by the following question: What is the size of the digital gap in Iraqi society from the perspective of the information society? It focuses on the following sub-questions:

- ❖ What is the possibility of accessing information and communication technology in the Iraqi society from the perspective of the information society?
- ❖ What is the possibility of using information and communication technology in the Iraqi society from the perspective of the information society?
- ❖ What is the availability degree of information and communication technology skills in the Iraqi society from the perspective of the information society?

2. **research Importance:** The importance of the research stems from the fact that it focuses on a very important topic in today's world, which is measuring the digital divide from the point of view of the information society. The current research is also one of the few that focused on the digital divide and the information society in Iraq, and the research could contribute to reaching conclusions and recommendations that could contribute to the places of digital weakness in Iraq and ways to confront them.
3. **research Objectives:** The study aims to:

❖ Explaining the digital gap concept and its degree in the Iraqi society.
❖ Measuring the digital gap in the Iraqi society from the perspective of the information society.
❖ Reaching to a set of Conclusions and recommendations that could contribute to analyzing and clarifying the reality of the digital gap in Iraq and how to find an appropriate solution.

4. **research Hypotheses:** The study starts from a main hypothesis, which is: there is no large digital gap in the Iraqi society according to the information society view. It is divided into a set of the following sub-hypotheses:

   First sub-hypothesis: There is no difference between the accessibility of information technology available in the Iraqi society and the accessibility that must be available.

   Second sub-hypothesis: There is no difference between the possibility of using the information technology available in the Iraqi society and the possibility of using information that must be available.

   Third sub-hypothesis: There is no difference between the availability of information technology skills in Iraqi society and those that must be available.
5. **research Methodology:** The descriptive analytical approach has been used in the study, which is one of the appropriate approaches to give a clear image about the study problem, in addition to its help in understanding the study by clarifying and explaining its variables.

   5-1. research tool: The study tool was designed as three parts. The first part included the demographic information about the related study sample members. The second part included the dimensions of the digital gap. The third part included the information Society.

Doi: www.doi.org/10.25130/tjaes.18.60.1.40

5-2. Statistical methods: The appropriate analysis method is based mainly on the type of data to be analyzed. The statistical package (SPSS) is used to analyze the collected data for achieving the study objectives and testing hypotheses.

5-3. research Limits: The study spatial limits are represented by the Iraq information Society, while the temporal limits are represented by 2022, the year of completing research and distributing of the questionnaire to the study sample.

5-4. research Community and Sample: The study community is represented by information Society of Iraq. Since the community is Unspecific and heterogeneous, the helpful sample was relied upon in collecting the data.

The questionnaire was distributed to the study sample of 184 manually to a number of specialists in the technical field from the University of Baghdad and the University of Mosul by 60 questionnaires equally, and to a sample of workers in government and private communication companies with 60 questionnaires, and the rest was distributed to a number of interested and workers in the field Software. (The distribution included 4 Iraqi governorates, namely Baghdad, Salah al-Din, Basra, and Mosul).

The study sample has been calculated using the following statistical law:

The sample size will be determined according to the following law: (Khalil, 2013: 62)

$n1= z^2.p.q/d^2$

Where n_1 is the initial sample size.

z is a tabular value under the normal distribution curve, which equals to 1.96.

P is the percentage of items number in which the property or properties in question are available. It can be assumed that:

p = 50% for the largest sample size

Q=1-p=1-50%=50%

d is the permissible degree of error and is equal to 5%

Through the application we find that:

n1=(1.96)2.(50%)(50%)/(0.05)2= 184

Second Section: the theoretical side

First. Digital Gap Concept: The emergence of the digital age resulting from the development of information and communication technologies has led to the emergence of the term "digital gap". This term digital was first used in the United States of America in 1995, to highlight the unequal division of information and communication technology between different social and economic groups in the United States, especially regarding to the use of the computer in general and the Internet in particular. Then, this concept expanded a little to include the availability of landlines and mobile phones, computers, Internet users, content, location, income, age, and educational level. This concept spread to Europe and the rest of the world soon. There were a set of other concepts before using the concept of the digital gap mostly related to the concepts of the information society, such as: information inequality, information gap or knowledge gap, and computer literacy. (Ali, 2014: 8)

The Organization for Economic Co-operation and Development defines the digital gap as: "the gap between individuals, families, companies and geographic areas at different social and economic levels with regard to their opportunities to access information and communication technology and their use of information and communication technologies". (OECD, 2001: 16).

The concept of the digital gap refers to the difference between the possession of information and communication technology in its modern form and the acquisition of the skills required to deal with it between the developed and productive countries that produce these technologies and their programs and contents, (Srinuan, 2011: 9) and the developing countries that do not contribute to the production of these technologies and the formulation of their contents. It can be said that inequality in access to information, contribution to knowledge, the increase in the networks size, and benefiting from the tremendous development provided by information and communication technology are all elements that are the prominent parts of the digital gap (Asaad et al., 2022: 5).

Second. Digital Gap Reasons: The revolution of communication and information technology has resulted in many challenges, including the challenge related to narrowing the digital gap between developing and developed countries. It is the gap represented in a decrease of the average

number of telephone lines and computers, the Internet users' number as a percentage of the population and the weak environment of communications, information and human development in this field and others. The most important causes of the digital gap can be identified as follows: (Wang et al., 2021: 503) (Belhoushat et al., 2021: 4)

- **Digital Gap Technical Reasons:** One of the most common reasons of the digital gap spread and increase is the technical reasons, as the countries around the world cannot keep pace with the speed of technological development. In addition, the monopolization of modern technology by developed countries in many fields, and the weak investment of information technology in developing countries, including the Arab countries, since they are considered as consumers of technology, therefore consuming the western modern technological products.
- **Digital Gap Economic Reasons**: There are many reasons and impacts on expanding the digital gap between third world countries and developed countries. The most important reasons are the significantly high costs of information technology and the low level of individuals' income in developing countries. Therefore, many third world citizens are unable to buy computers or modern mobile phones keeping them up to do date with modern technologies and applications.
- **Digital Gap Political and Social Reasons**: The low level of education and the non-fluent speaking of English language contribute highly to increasing the digital gap, the low percentage of females using technology, and local policies that do not fit in with global technological developments... etc., all contributed to increasing the digital gap in the third world countries. The sanctions imposed by developed countries on many developing countries such as Iran, North Korea and Iraq in the last decade have contributed to restricting the transfer of technology to those countries since there are political differences between them.

Third. Digital Gap Measurement: The digital gap is measured based on global standards set by the International Telecommunication Union (ITU), and the Information and Communication Technology Development Index (IDI), which is a composite index that includes several sub-indicators, some of them are related to ICT access, use and skills of use. This indicator is designed to measure the development of information and communication technology in different countries during a certain period of time, the digital

gap among countries according to their levels of information and communication technology development, and the various possibilities of the development of information and communications technology and how countries can take advantage of them to promote growth and development. The indicator includes the following: (Mohamed, 2022: 4-9) (Mohamed et al., 2020: 23-26)

- **Index of accessing to information and communication technology:** It includes the following indicators:
  - Landline subscriptions for 100 people.
  - Mobile phone subscriptions for 100 people.
  - International Internet frequency bandwidth (bits/s) for each Internet user.
  - Percentage of families that have access to the Internet.
  - Percentage of families that own a computer.
- **Index of using information and communication technology:** It includes the following indicators:
  - People using the Internet (%).
  - Active mobile broadband subscriptions for (100) people.
  - Active fixed (wired) band subscriptions for (100) people.
- **ICT Skills Index:** It includes the following indicators:
  - Average study years.
  - Gross enrollment ratio at high school.
  - Gross enrollment ratio at university.

Fourth. The concept of information society: The origins of information societies can be traced back to two related developments:

- **Economic development:** The agricultural community has lived on raw materials and natural energy such as wind, water, animals and human effort. At the stage of industrial society, they depend on the generated energy such as electricity, gas and nuclear energy. While in the post-industrial society or the information society, it depends mainly on information, computer networks and data transmission in its development. (Ziaie, 2013: 2-3)
- **Technological change:** Technological change has clearly contributed to the process of economic development, since information and communication technologies have a clear impact on economic development. In fact, information and communication technologies will

bring about a new long wave of economic growth, leading to the emergence and development of information societies. (Asaad, 2020: 4-5)

The information society is defined as: a society in which every individual can create, access, use and share information and knowledge so that individuals, communities and peoples can use their full abilities to advance their sustainable development and improve their quality of life.

It is also defined as: The society that depends mainly on abundant information as an investment resource, a strategic commodity, a service, a source of national income, and as a field for the workforce, fully exploiting the capabilities of information and communication technology, clearly showing the use of information in all aspects of economic, social and political life in order to obtain development and prosperity. (Mohamed, 2020: 250)

Despite the multiple concepts about the information society, it can be said that it focuses mainly on the production, access, creation and exploitation of information for growth and development goals, by setting methods for managing its flow through an information and communication network infrastructure.

Fifth: The Digital Gap from the Perspective of the Information Society: It can be said that the digital gap, from the perspective of the information society, has many gaps, namely: (Al-Khory, 2020: 18-24)

- A technological gap between the technological progress of developed and developing countries.
- A knowledge gap in information acquisition and transmission between developed and developing countries.
- A communication gap between the style and methods of communication, which is more multiple and abundant in developed countries than in developing countries.
- A gap in education and scientific research methods and activities between developed and developing countries.
- A gap in culture. In the advanced society, there is a great concern with technology, computers, the Internet and communications, and it considers it as a scientific, work and learning tool, while in the developing countries they look at these things as a tool for playing and entertainment.
- A gap in the mind between the Western person's mentality, who is interested in science, work, development and research, having a constant

desire for change and progress, and that of developing countries who has no interest in the acquisition of science and scientific research.

- A gap in legislation and regulations, as third world countries are characterized by the lack of necessary legislation of the information society.

Sixth: Information Society Objectives: If the Arab information society wants to achieve a balance in controlling the data flow towards it, to find itself on the cusp of transition to the information society, the following objectives must be achieved: (Nishijima, 2017: 12-24):

- Full benefit of the information and communication technology available in the community.
- Making the information via global, regional, international and local information networks accessible, in accordance with the cultural diversity of each community and respecting its freedoms and privacy.
- The development of education and the renewal of school curricula to serve the transition to the information society.
- Taking into account the individual and qualitative geographical features of the nature of each region and its inhabitants.
- Eliminating the social and economic differences that appear in societies that use technology.
- Serving the public good aiming at achieving social welfare and setting development plans.

Seventh: Information Society Standards:

It refers to a set of indicators and criteria that are relied upon to know the information degree of society, and are defined as follows: (Myovella et al., 2020: 106-112)

A. **Readiness:** It is linked to the basic technical and societal infrastructure.
B. **Density:** shows the use state of ICT applications.
C. **Impact:** It means the consequences of the use of information and communication technology concerning management re-engineering, and creating an added value for new wealth resources.
D. **Result:** It is the final result achieved after confirming and applying information technology, and the size of the existing gap.

Thirds section: field side of research

First: validity and reliability of the study tool: After designing the questionnaire in order to measure the variables and dimensions of the study

and the effect between the independent and dependent variables, and to ensure the validity of the questionnaire, the questionnaire was judged by a number of specialists. So, some questions were merged and others were deleted before distributing the questionnaire to the study sample. The form was distributed to a sample of 184, and it was fully retrieved. This data was entered into the SPSS program for analyzing. The Alpha Cronbach test was conducted in order to know the degree of internal consistency and stability between the questions. The test has the following results:

Table (1): Measuring the internal consistency and stability of the questionnaire questions

Reliability Statistics	
Cronbach's Alpha	**N of Items**
.932	31

Source: prepared by the researchers depending on SPSS program.

This means that if the questionnaire, including its different indicators, is distributed at different times to another sample, there is a 93% probability of obtaining the results that have been reached.

The five-point Likert scale was adopted in answering the questions directed to the study sample as follows:

Agree strongly	Agree	Neutral	Disagree	Disagree strongly
5	4	3	2	1

The arithmetic mean of the Likert scale is 1+2+3+4+5=15/5=3, which is the value by which the arithmetic mean is compared for each question.

The criteria of judging average responses according to Likert scale:

Category Length = (highest response degree – lowest response score)/number of response categories

Category Length = (5-1) /5 = 0.8

Accordingly, the closed classification was approved, and the following areas were identified:

Table (2): Likert's five-point scale of answers

Domain	Agreement Degree	Relative Importance
1.8-1	Very weak	20-36
2.60-1.81	Weak	36.1-52
3.40-2.61	Moderate	52.1-68

Doi: www.doi.org/10.25130/tjaes.18.60.1.40

4.20-3.41	Strong	68.1-84
5-4.21	Very strong	84.1-100

Source: assembled by the researchers depending on (Asaad, 2016: 18).

If the arithmetic mean value of the question or expression is within the range (1-1.8), it corresponds to the answer degree "very weak". If it is within the range (1.81-2.60), it corresponds to the answer degree "weak", while if it is within the range (2.61-3.40), it corresponds to the answer degree "moderate". If it is within the range (3.41-4.20), it corresponds to the answer degree "very strongly", and if it is within the range (4.21-5), it corresponds to the answer degree "very strongly".

Second: Description of Study Variables: The study has relied on the average mean method in collecting data. The arithmetic mean has been calculated for each question, then for each independent sub-variable, and after that for the independent and dependent variables. The arithmetic means results and standard deviation of all variables were as in the following table:

Table (3): descriptive data for all study variables

Variable	Arithmetic Mean	Standard Deviation (Std)
accessing to information and communication technology	3.38	0.982
using information and communication technology	3.12	0.782
ICT Skills Index	2.90	0.667
Digital Gaps	3.13	0.723
Readiness	3.18	0.931
Density	2.60	0.976
Impact	2.90	0.683
Result	2.85	0.772
Information Society	2.88	0.846

Source: prepared by the researchers depending on SPSS program, sample 184.

The previous table (3) shows the following:

The arithmetic mean of the digital gap's factors (accessing to information and communication technology, using information and communication technology, ICT Skills Index) is within the range (2.61-

3.40) that is correspondent to the answer degree "moderate" on the areas of the five-point Likert scale, with a significant difference. The relative importance of this independent implies that the sample members see that the efficiency of the (accessing to information and communication technology, using information and communication technology, ICT Skills Index) must be better.

Also, the arithmetic average of Digital Gaps is within the range (2.61-3.40) that is correspondent to the answer degree "moderate" on the areas of the five-point Likert scale, with a significant difference.

The arithmetic mean of the Information Society Factors (Readiness, Density, Impact, Result) is within the range (2.61-3.40) that is correspondent to the answer degree "moderate" on the areas of the five-point Likert scale, with a significant difference. The relative importance of this independent implies that the sample members see that the efficiency of the (Readiness, Density, Impact, Result) must be better.

The arithmetic mean of the Information Society is within the range (2.61-3.40) corresponding to the answer degree "moderate" on the fields of the five-point Likert scale, with a significant difference. Furthermore, the relative importance of this independent implies that the sample members see that the efficiency of the (Information Society) must be better.

Third: Hypothesis Test: To do this test, the researcher applied the One Sample T Test in order to measure the differences between the averages of what individuals expect and what is actually measured. Hence.

3-1. main hypothesis, which is: there is no large digital gap in the Iraqi society according to the information society view: To test the main hypothesis, the researcher calculated the general arithmetic mean of all the expressions of the digital gap and tested its significance, as in the following two tables:

Table (4): Descriptive statistics for the Digital gaps

One-Sample Statistics				
	N	**Mean**	**Std. Deviation**	**Std. Error Mean**
Digital gaps	184	3.1349	.77246	.07052

Source: prepared by the researchers depending on SPSS program, sample 184.

Doi: www.doi.org/10.25130/tjaes.18.60.1.40

Table (5): One-Sample Test One-Sample Test for Digital gaps

	Test Value = 5					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Digital gaps	10.905	183	.000	.76894	.6293	.9086

Source: prepared by the researchers depending on SPSS program, sample 184.

Tables (4.5) show that the value of the general arithmetic mean of the Digital gaps to the study sample has reached to 3.13, and with a significant difference of (0.76894). It is within the range (2.60-3.40), and corresponds to the "moderate" answer on Likert scale.

Since the probability of connotation is $P = 0.000 < \alpha = 0.05$, we notice that there are simple fundamental differences between what the sample members expect and what is present. The sample members expect that the result will be very high, but the results are generally moderate. we reject the main hypothesis and accept the alternative one which state: there is large digital gap in the Iraqi society according to the information society view.

3-2. First sub-hypothesis: There is no difference between the accessibility of information technology available in the Iraqi society and the accessibility that must be available: To test the First Sub-hypothesis, the researcher calculated the general arithmetic mean of all the expressions of the digital gap and tested its significance, as in the following two tables:

Table (6): descriptive statistics for the accessibility of information technology

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
accessibility of information technology	184	3.3820	.86852	.07928

Source: prepared by the researchers depending on SPSS program, sample 184.

Table (7): One-Sample Test One-Sample Test accessibility of information technology

One-Sample Test						
	Test Value = 5					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
accessibility of information technology	9.775	183	.000	.77500	.6180	.9320

Source: prepared by the researchers depending on SPSS program sample 184.

Tables (6.7) show that the value of the arithmetic mean of the accessibility of information technology to the study sample has reached to 3.38, and with a significant difference of (0.77500). It is within the range (2.60-3.40), and corresponds to the " moderate " answer on Likert scale.

Since the probability of connotation is $P = 0.000 < \alpha = 0.05$, we notice that there are simple fundamental differences between what the sample members expect and what is present. The sample members expect that the result will be very high, but the results are generally moderate. we reject the First sub-hypothesis and accept the alternative one which state: There is difference between the accessibility of information technology available in the Iraqi society and the accessibility that must be available

3-3. Second sub-hypothesis: There is no difference between the possibility of using the information technology available in the Iraqi society and the possibility of using information that must be available:

To test the Second Sub- hypothesis, the researcher calculated the general arithmetic mean of all the expressions of the digital gap and tested its significance, as in the following two tables:

Table (8): descriptive statistics of possibility of using the information technology

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
using the information technology	184	3.1232	.86039	.07854

Source: prepared by researchers depending on SPSS program, sample 184.

Doi: www.doi.org/10.25130/tjaes.18.60.1.40

Table (9): One-Sample Test One-Sample Test using the information technology

One-Sample Test						
	Test Value = 5					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
using the information technology	10.557	183	.000	.82917	.6736	.9847

Source: prepared by researchers depending on SPSS program, sample 184.

Tables (8.9) show that the value of the arithmetic mean of the using the information technology to the study sample has reached to 3.12, and with a significant difference of (0.82917). It is within the range (2.60-3.40), and corresponds to the " moderate " answer on Likert scale.

Since the probability of connotation is $P = 0.000 < \alpha = 0.05$, we notice that there are simple fundamental differences between what the sample members expect and what is present. The sample members expect that the result will be very high, but the results are generally moderate. we reject the Second sub-hypothesis and accept the alternative one which state: There is difference between the possibility of using the information technology available in the Iraqi society and the possibility of using information that must be available.

3-4. Third sub-hypothesis: There is no difference between the availability of information technology skills in Iraqi society and those that must be available: To test the thirds Sub- hypothesis, the researcher calculated the general arithmetic mean of all the expressions of the digital gap and tested its significance, as in the following two tables:

Table (10): descriptive statistics for the information technology skills

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
information technology skills	184	2.9021	.69830	.06375

Source: prepared by researchers depending on SPSS program, sample 184.

Table (11): One-Sample Test One-Sample Test Unemployment

Doi: www.doi.org/10.25130/tjaes.18.60.1.40

One-Sample Test						
	Test Value = 5					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
information technology skills	13.838	183	.000	.88214	.7559	1.0084

Source: prepared by researchers depending on SPSS program, sample 184.

Tables (10.11) show that the value of the arithmetic mean of the using the information technology to the study sample has reached to 2.90, and with a significant difference of (0.88214). It is within the range (2.60-3.40), and corresponds to the "moderate" answer on Likert scale.

Since the probability of connotation is $P = 0.000 < \alpha = 0.05$, we notice that there are simple fundamental differences between what the sample members expect and what is present. The sample members expect that the result will be very high, but the results are generally moderate. we reject the third sub-hypothesis and accept the alternative one which states: There is difference between the availability of information technology skills in Iraqi society and those that must be available.

Fourth: MEASURE THE DIGITAL GAPS: As we mentioned earlier, DIGITAL GAPS = expectations - perceptions (actual performance), and therefore,

The information Society expect to get High service, and by, and fifth Likert scale, the people expectation in the study sample was STRONGLY AGREE ranking (5) according to likert scale answers ranks, we will take the arithmetic mean of Strongly Agree (5) as the following:

Table (12): Measuring Digital gaps

Dimension	expectations	perceptions	Gap
accessing to information and communication technology	5	3.38	-1.62
using information and communication technology	5	3.12	-1.88
ICT Skills Index	5	2.90	-2.1
Digital Gaps	5	3.13	-1.87

Source: prepared by researchers, sample 184.

From Table (12) we note the following:

The existence of a negative gap between the expected and perceived from the digital services provided from the point of view of the information society. All perceived services were average, while the information society expected to obtain high services as a result of digital technical development around the world.

Fourth section: Conclusions and Suggestions

Research conclusions:

1. The arithmetic mean of the Information Society Factors(Readiness, Density, Impact, Result) is "moderate" on the areas of the five-point Likert scale.
2. The arithmetic mean of the digital gaps factors(accessing to information and communication technology, using information and communication technology, ICT Skills Index) is "moderate" on the areas of the five-point Likert scale.
3. there is large digital gap in the Iraqi society according to the information society view.
4. There is difference between the accessibility of information technology available in the Iraqi society and the accessibility that must be available.
5. There is difference between the possibility of using the information technology available in the Iraqi society and the possibility of using information that must be available.
6. There is difference between the availability of information technology skills in Iraqi society and those that must be available.
7. The existence of a large digital gap between the available services and the expected services from the point of view of the information society

Suggestions:

1. The need to improve the reality of access to the network in all Iraqi regions, especially the areas that witnessed military operations against the presence of ISIS. This is done through increasing investments and providing towers in those areas and rural areas that suffer from difficulties in terrestrial and cellular communication networks.
2. Work to improve the quality of services provided in various regions and increase wired and wireless Internet speeds.

   Enhancing the possibility of using information technology, which can be done through the following:

- ❖ Providing high quality services in all regions.
- ❖ Reduce costs.
- ❖ Providing suitable offers by cell phone companies.

3. Training cadres to deal well with information technology in government departments, and providing adequate awareness to citizens about ways to use information technologies.Relying on transferring the experiences of developed developing countries in this field, especially Asian countries, and benefiting from their experts in the process of reducing the digital divide, since its nature is closer to the nature of Iraq.
4. Attracting experts in the field of information technology whose mission is to reduce the digital divide in Iraq. And that is through contracting with international experts to transfer technology and train local specialists to deal with it.
5. The need to permanently measure the amount of the digital divide and work to reduce it and improve the quality of information technology in Iraq.

References:

1. Abo Samrah, (2019), Proposal Model for digital transformation,24 international conferences of crises, Management of digital transformation, Egypt vision 2030, Aen Shamss university. P. 3-5.
2. Ali, Samir Al-Sheikh, (2014), The Information Society and the Digital Divide in the Arab Countries, Damascus University Journal, Vol. 30, No. 1. pp. 3-14.
3. Al-Khoury, Ali Muhammad, (2020), The new global economy between the knowledge economy and its modern concepts, digital economy and accelerated technological innovations: a study on the importance of knowledge production and management and investment in advanced technologies to build new economic components that target sustainable development and improve the quality of life of the Arab citizen. P18-33.
4. Asaad, Bassal. Madline Mohamad Jonbolat, (2022), The impact of the digital transformation of university services in enhancing student satisfaction (Analytical study on postgraduate students at Tishreen University), Journal of Al Baath University, Volume 44, Issue3.p3-6
5. Asaad,bassel, (2020), The importance of using artificial intelligence models in economic forecasting during a crisis period (Using the NARX model to predict demand for hospital health services),World Academics Journal of Management, Volume8, Issue3. P2-7.
6. Asaad,bassel,Habeeb mahmod, (2016), Measuring the quality of health service in latakia province patient(failed study of health centers in jahble city), Journal of Social Economics Research, Volume3, Issue4.P4-8.

7. Belhoushat, Zubair: Rahaili, Muhammad, (2021), The Arab Information and Knowledge Society and the Digital Divide, Journal of Humanities and Social Sciences, Volume 7, No. 3. pp. 3-9.
8. Mohamed, Samah Abdel Moneim, (2022), Analyzing the Digital Divide in Egypt, The Arab Journal of Management, Vol. 45, No. 1. pp. 4-11.
9. Muhammad, Manal Jaber Marshi, (2020), The digital divide, causes and indicators, Journal of the Faculty of Commerce and Scientific Research, Assiut University, Volume 3, Issue 69, pp. 249-291.
10. Muhammed, Taqrouet; Sharif, Hassan Taher; And Mohamed, Lakhal, (2020), Requirements for Narrowing the Digital Divide in the Arab Countries: The Case of Algeria. Journal of Development and Applied Economics, No. 2, Volume 4, pp. 23-40.
11. Myovella, G.; Karacuka, M. & Haucap, J., (2020), Determinants of Digitalization and Digital Divide in Sub-Saharan African Economies: A Spatial Durbin Analysis». Telecommunications Policy, 45 (10), pp. 102-224.
12. Nishijima, M., Ivanauskas, T. M., & Sarti, F. M., (2017), Evolution and Determinants of The Digital Divide in Brazil (2005-2013). Telecommunications Policy, 41(1), 12-24.
13. Shenglin, B., Simonelli, F.; Ruidong, Z.; Bosc, R. & Wenwei, L., (2017), Digital Infrastructure: Overcoming the Digital Divide in Emerging Economies. G20 Insights, P3-11.
14. Sobegh, M., (2019), Pillars Of Digital Economy,24 international conferences of crises, Management of digital transformation, Egypt vision (2030), Aen Shamss university.P 61-77.
15. Srinuan, Chalita; Bohlin, Erik, (2011), Understanding the Digital Divide: A Literature Survey and Ways Forward, 22nd European Regional Conference of The International Telecommunications Society (ITS): Innovative ICT Applications-Emerging Regulatory, Economic and Policy Issues, Budapest, Hungary, 18th 21st September 2011. International Telecommunications Society (ITS), Calgary.P6-14.
16. Victoria, Carla Guzmán-Ortiza, Nohelia Gabriela Navarro-Acostaa, Wilmer Florez-Garciaa and Wagner Vicente-Ramosa, (2020), Impact of digital transformation on the individual job performance of insurance companies in Peru, International Journal of Data and Network Science (4) 337-346 www.GrowingScience.com/ijds.P6-11.
17. Wang, D.; Zhou, T. & Wang, M., (2021), «Information and Communication Technology (ICT), Digital Divide and Urbanization: Evidence from Chinese Cities». Technology in Society,64, pp.501-516.
18. Ziaie, P., (2013), Challenges and Issues of the ICT Industry in Developing Countries Based on a Case Study of the Barriers and the Potential Solutions for ICT Deployment in Iran, 2013 International Conference on Computer Applications Technology (ICCAT), pp.1-6.