The Impact of Information Technology Integration on Government Services: Representation of the Ministry of Education in Erbil - Iraq Case Study

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ABSTRACT

The purpose of this thesis was to investigate the relationship between the use of information technology and the quality of services given at the Ministry of Education's Erbil representative office. The purpose of this research is to investigate the impact of technology on the dependability and availability of government services. It also investigates the effect of information technology on consumer satisfaction. A descriptive analytical methodology was used. In this study, three categories of variables were used: The information technology is an independent variable. The mediating variables are the availability and dependability of government services, while the dependent variable is consumer happiness. A questionnaire of 28 questions was prepared and delivered to beneficiaries of the Ministry of Education's representative services in Erbil, with the goal of measuring the impact of use in the representative office under study from the perspective of the recipients of the services. SPSS and statistical tools were used to collect and evaluate 228 responses. The findings indicate that the use of IT tools has a significant impact on the availability and dependability of government services. This usage may also have an impact on consumer satisfaction.

KEYWORDS: Information technology, customer satisfaction, E-government services, communication tools

I. INTRODUCTION

The world is witnessing tremendous scientific progress in a variety of fields, particularly the rapid and amazing advances in modern information systems and technology. As a result, the so-called "information age" has emerged, in which information and communication technology play a significant and vital role in society (He, et al., 2021). Computing, data storage, networks, software, artificial intelligence, and digital devices have all seen rapid advancement. Many social, economic, political, and cultural aspects of life are now supported by information technology. We have entered an era marked by our ability to generate, process, distribute, and use massive amounts of digital information while also connecting billions of people around the world via technology (Zhang, et al., 2020). The information age is changing the way people live, work, learn, and communicate. The rapid growth of information and communication technology has significantly altered numerous parts of society, basically turning the globe into a small, interconnected village in many fields such as education and others Information and Communication Technology. People all across the world are affected by technical developments that occur anyplace. This has resulted in new realities, interaction mechanisms, and methods of doing things that differ significantly from those of the previous decade (Camero & Alba, 2019).

The global spread of the internet, mobile devices, digital platforms, networked sensors, and artificial intelligence has fundamentally altered the functioning of individuals, companies, and societies. The emergence of a hyper-connected information society has affected people's lifestyles, cultures, working styles, learning methodologies, and social ties. As technology continues its unrelenting march forward, the consequences are profound and long-lasting.

Because these rapid changes pose significant difficulties to developing countries such as Iraq, it is crucial for Iraq to identify and capitalize on emerging opportunities while also recognizing potential threats and risks. Iraq must take proactive measures to minimize or lessen these risks. This necessitates strategic foresight, which is carefully studying current patterns, forecasting future events, and devising plans to gain benefits while avoiding hazards. If Iraq is to thrive in the digital era, it cannot afford to be passive or reactive. Iraq can craft policies and initiatives to capitalize on opportunities such as using technology for economic growth and educational advancement while mitigating risks such as digital divides, workforce disruptions, and cybersecurity threats by understanding the current landscape and plausible trajectories. For Iraq to thrive rather than flounder in the twenty-first century, informed and decisive action is required (Younis, et al., 2023).

Iraq had just lately begun to adopt cutting-edge technology in a variety of fields, including healthcare, accountancy, and education (Alhasan, et al., 2022; Al-Waeli, et al., 2020; Meri, et al., 2019). Indeed, modern information technologies have the potential to significantly improve the functioning of management departments inside Iraq's Ministry of Education. Leveraging recent IT advancements can assist the Ministry in strategically employing information systems. The Ministry of Education can achieve significant strategic and performance improvements by investing in and harnessing the latest developments in areas such as data management, analytics, automation, and communication technologies, and by integrating innovative information systems into its operations, planning, and decision-making. This includes better data-driven policymaking, more administrative efficiency through digital workflows, better resource allocation across the education system, and improved student service delivery (Mohammed, 2022).

Harnessing current information systems will undoubtedly become a critical resource and strategic focus for firms seeking success in today's increasingly technology-driven and competitive market. The current environment has made it critical for institutions to drastically restructure their operations and strive tirelessly to remain competitive, both within and externally. Companies that do not aggressively incorporate sophisticated information technology and digital capabilities into their fundamental functions will fall behind. To improve decision-making, innovation, efficiency, and agility, information systems must be used as a strategic asset and weapon. Adapting quickly and pro-actively to technological disruptions and breakthroughs is now a requirement, not an option, for organizational survival and excellence. Businesses that accept this reality will succeed, while those that dismiss it risk becoming irrelevant.

An information system is a collection of procedures, rules, and processes that manage the flow of relevant, actionable information to intended users in order to aid decision-making. Information systems are an important source of data and insights that provide an accurate picture of the state of affairs and progress in sectors such as education (Al-Qaysi, et al., 2020). Information systems provide critical inputs into decision-making across educational institutions and management by systematically gathering, processing, evaluating, and disseminating information in accordance with established protocols. Through trustworthy information sharing, they enable evidence-based planning, policy formulation, and program assessment. Well-designed information systems with features such as data management, analytics, and end-user accessibility serve as the foundation for continual improvement in the education area (Jeyaraj & Dwivedi, 2020).

This research investigates the impact of information technology (IT) on government services and customer satisfaction in Iraq. To re-establish a service system based on current technologies in Iraq after years of war and turbulence, information technology strategic planning must be devised, taking into account successful policy measures for the use and application of information technology.

This article is structured as follows. First, Section II devotes to e-government. Section III addresses the research questions. Section IV presents the approach and hypotheses, followed by the questionnaire in Section V. Afterward, the study results and discussion are illustrated in Section VI. Finally, Section VII brings this paper to a close.

II. E-Government
The use of information and communication technologies (ICTs) to deliver government services to residents, businesses, and other stakeholders is known as e-government (Qaisar & Khan, 2010). There are several ways to describe e-government. It can be used to improve government efficiency and effectiveness, boost openness and accountability, and engage citizens in the democratic process. E-government, according to the United Nations, is "the use of information and communication technologies (ICTs) to improve the efficiency, effectiveness, and transparency of government services, as well as to promote citizen participation in government." E-government is defined by the World Bank as "the use

of information and communication technologies (ICTs) to deliver government services to citizens, businesses, and other stakeholders" (Twizeyimana & Andersson, 2019).

The phrase "E-Government" refers to government agencies' use of information and communication technologies (such as Wide Area Networks, the Internet, and mobile computing). They can form relationships with a variety of corporations, government entities, and, finally, individuals. As a result, service delivery efficiency will improve, as will coordination and communication among all government departments (Carter, et al., 2022).

Mechanism for classifying e-government applications:

There are 8 different categories into which different types of e-government can be divided.

➢ G-to-O e-Gov, or government-to-officeholder electronic government: this type supports public affairs organizations, intra-organizational officials, and, last but not least, secondary organizations' cooperative public affairs methods and processes.

➢ G-to-C e-Gov (Government-to-Citizen e-Gov): G2C section describes electronic interactions between governments and their citizens (Noviana, et al., 2015). The ultimate objective is to enable residents to communicate with their government from the convenience of their homes. The G2C application enables citizens to satisfy their curiosity and obtain information on government entities. Citizens can also utilize services like eAssistance and eVoting.

➢ G-to-B e-Gov (Government-to-Business e-Gov): The majority of businesses are familiar with the services provided by governments because they are connected on a large network. Everywhere there are secure paths to ensure that only businesses using a legal person's identification can access the facility. As an illustration, consider online customs declaration or online clearing of products (Syauket, n.d.).

➢ C-to-C e-Gov (Citizen-to-Citizen e-Gov): Here, the government bargains for information based on the circumstances. For instance, the government resolves any disputes between individuals or offers temporary employment to citizens who have survived a given tragedy. These citizens can then work and make a life. In conclusion, the government assists its citizens through information and human resources (Tsampoulatidis, et al., 2019).

➢ Business-to-Government Exchanges B-to-G e-Gov (e-Government): Similar to a C-to-C e-Government application is this section. This particular type involves the government acting as a mediator in the information-negotiation process. For instance, the government itself permits company to bid on contracts containing sensitive information. These companies would be capable of building weapons including warships, tanks, and aircraft. These all stand for a nation's arsenal (Al-Taie, et al., 2013).

➢ Citizenship-to-Government 6 C-to-G e-Gov (e-Government): The necessities of the populace lead to the development of entirely electronic communities. These requirements are known as aggregate driven demand. For instance, citizens have the ability to request assistance and make recommendations to their fellow citizens (Al-Taie, et al., 2013).

➢ Business-to-Government Exchanges B-to-G e-Gov (e-Government): Similar software to C-to-G e-Government is used here. However, in this case, communities built on electronics are driven by requirements of corporations. These requirements are known as aggregate driven demand. Businesses may, for instance, request government support or participation in their plans (Al-Taie, et al., 2013).

➢ Nonprofit-to-Government (N2G): Information and communication exchange between the government and nonprofit entities, political parties and social organizations, the legislature, etc. (Almarabeh & AbuAli, 2010).

Challenges of E-Government in Iraq

Despite the government's efforts to improve the process of providing services to citizens, the adoption of e-government faces several challenges. These may be increased or decreased based on the environment and the implementation procedure. The most significant obstacles to Iraq's transition to e-government can be stated as follows:

a. Poor and Costly Infrastructure:

Every citizen who wanted to use e-government had to have Internet access. Furthermore, e-government operations necessitate a communication infrastructure, network devices, web servers, and security measures, but Iraq has endured harsh conditions that have rendered its communication and telephone infrastructure outmoded, if not obsolete, over the last 35 years. Thus, the most significant barrier to developing e-government in Iraq is a lack of infrastructure (Almarabeh & AbuAli, 2010).

b. Weakness of laws:

Weaknesses in laws governing the use of modern technologies, as current legislation is incompatible with the environment of electronic work, particularly in terms of electronic security and the protection of rights and privacy. As a result, regulations must be developed and legislation enacted to ensure residents' safety and the preservation of their privacy (Jameel, 2019).

c. The problem of human resources:

Human resources are a problem in Iraq for two reasons: there are no specialized cadres to work with the technologies required for the implementation of e-government programs, and there is a lack of sufficient awareness among citizens to use these technologies, if any exist (Mohammed, 2020).

d. Accept the idea:

Government departments' unwillingness to begin adopting the e-government initiative, as many institutions and departments continue to use antiquated and paper-based methods of work, posing a significant barrier to government computerization (Mohammed, 2020).

e. Payment problem:

Fees, stamps, collection processes, payment methods and their legality, and the extent to which electronic payment is accepted in return for cash (Talab, et al., 2019).

f. Political stability:

The country has been through a period of political insecurity, which has made it difficult to undertake e-government reforms; this is what has caused delays in the passing of laws as well as the submission of infrastructure projects required by e-government projects (Talab, et al., 2019).

III. Research Questions

The purpose of this research is to investigate the impact of information technology on the actions of the Iraqi Ministry of Education's representative in Erbil. The following issue is discussed:

What is the impact of using IT in the government services in customer satisfaction in Iraq?

The above questions lead the authors to additionally address the below sub-questions:

1. What is the state of using IT in government services in Iraq?

2. What is the impact on using IT on the services provided by the Ministry of Education?

3. What is the impact of using IT on the reliability on the services provided by the Ministry of Education?

4. What is the impact of using IT on the speed on the services provided by the Ministry of Education?

5. What is the impact of using IT on the availability on the services provided by the Ministry of Education?

IV. Methodology and Hypotheses

The study's primary goals are to discover and quantify the effects of technology elements on government services in Iraq. Data will be collected quantitatively from personnel working in the Iraqi Ministry of Education's Erbil office, and the impact of technological elements (networks, data, and software) on user satisfaction will be studied by mediating three criteria:

➤ Availability of government services

➤ Reliability of government services

➤ Transparency of government services

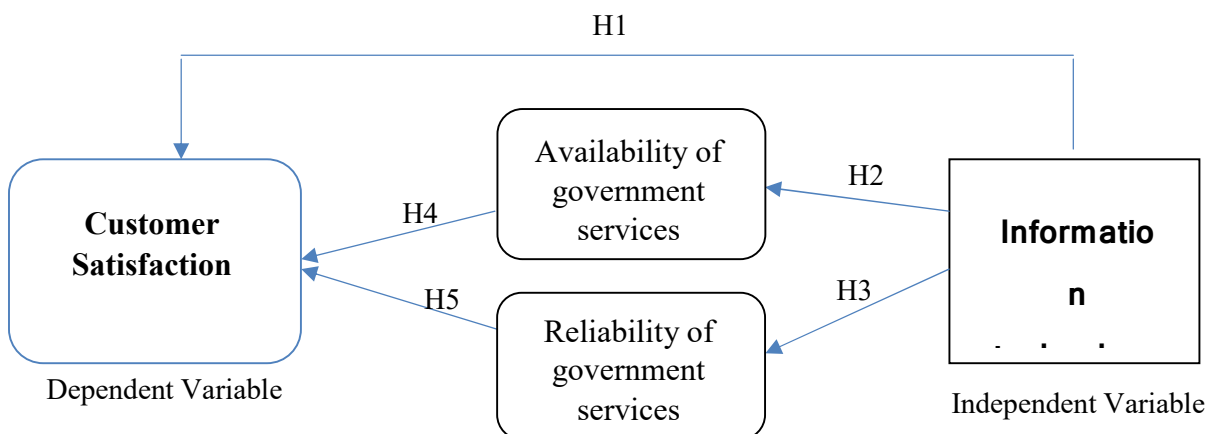Figure 1 shows the conceptual framework adopted in this study.

Figure 1: Conceptual Framework of the study

From this figure and Based on the research objectives and goals, the following hypotheses can be formulated:

H1: there is an impact of the use of Information technology tools on the customer satisfaction in the government services.

H2: There is an impact of using IT tools on the availability of government services

H3: There is an impact of using IT tools on the reliability of government services

H4: The availability of government services has an impact on the customer satisfaction

H5: The reliability of government services has an impact on the customer satisfaction

V. Questionnaire

The researcher was determined to create a questionnaire list with clear questions that respondents could answer. The list is divided into four sections, the first of which includes questions that assess the independent variable (use of information technology), and the second of which includes questions that assess the dependent variable (use of information technology). A part of questions designed to assess the dependent variables: government services, availability, dependability, and customer satisfaction.

➢ The variable of using information technology (expressions from 1-10).

➢ Availability variable (Expressions 11-15).

➢ Reliability variable (expressions from 20 to 25).

➢ Customer satisfaction variable (expressions from 25-30).

The researcher employed mathematical methods and standard deviations to answer the questions. The researcher showed this list to several professors at universities in Lebanon and Iraq, and they gave him some advice, which he adopted and modified the form based on the arbitrators' recommendations.

More than two hundred of those included in the study answered the study questions, and a sample of only 228 people was taken. The questions were divided into several sections, and the first section focused on basic information such as gender, age, and academic achievement, and then the study questions come, as shown in Table 1.

Table 1: Question Code

Code	Questionnaire
Information Technology Hub	
V1	The Ministry's representation in Erbil uses modern technologies to provide services
V2	The use of modern technologies contributed to improving the services provided to auditors
V3	The representation is aware of the need to use technology to achieve the best services
V4	The representation uses the best applications to provide services to citizens
V5	The representative office tries to contribute to employing communications to solve problems
V6	The representation uses social networking sites Facebook, WhatsApp, and others
V7	The representative office tries to inform its employees of the latest tools used in modern technologies.
V8	The representative office considers the use of modern technologies a prerequisite for success and development
V9	The representative office uses modern technologies to monitor the implementation of the daily tasks of the employees
V10	The representation is interested in hiring experts in the field of technology in the representation and its branches
Customer Satisfaction	
V11	Modern technology has reduced the complaint of slow representative services
V12	The use of technology contributed to improving the level of satisfaction of service beneficiaries
V13	The use of social networking sites contributed to increasing users' satisfaction with the representation services
V14	The use of the representation tools, programs, and tasks is very easy and convenient
V15	The technical tools used in the representation help speed up the process of completing the needs of the auditors
Credibility of Services	
V16	The percentage of errors decreased when using Office applications and data-tracking applications

V17	Information technology tools help in performing business safely and accurately.
V18	Information technology tools may improve the decision-making process within the representation.
V19	IT tools improve employee productivity within the representation
V20	Information technology tools increase the speed of work within the representative office
Service Availability Hub	
V21	Technologies contributed to the availability of services to all auditors without discrimination
V22	The use of technologies provided access to remote services for auditors
V23	The use of technology has reduced the number of complaints about the unavailability of services
V24	The use of modern technologies has increased the number of transactions completed by auditors
V25	New technologies have increased the opportunity to reduce costs for auditors of the representative office

A five-point Likert scale was used to answer the questions supplied in this study in order to analyze the data and validate the hypothesis. A five-point Likert scale is a worldwide scale that is used to examine attitudes and viewpoints. It is a 5-point scale with two extreme poles and a neutral option linked with intermediate answer alternatives. Strongly disagree, Disagree, Neutral, Agree, Strongly Agree are some examples. Table 2 shows the indices that were used (Pimentel & Pimentel, 2019).

Table 2: The five-point Likert scale

Degree	Level of Agreement
Strongly disagree	1
Disagree	2
Neutral	3
Agree	4
Strongly Agree	5

VI. Sample, Results, and Discussion

1. Statically Tools

Many statistics and other approaches were utilized to study the influence of information technology on the operations of the Education Representation in Erbil (Amirrudin, et al., 2021; Crane, et al., 1991; Smith, et al., 2020):

A. The stability coefficient is represented by Cronbach alpha. It is employed to evaluate the accuracy of the grouped response.

B. The demographic data of the sample are described via frequencies and ratios.

C. The mean is the average across all responses.

D. The answer's divergence from the mean is measured by the standard deviation.

E. A graph to confirm the data's normal distribution

F. P-P diagram to check the model's linearity

G. The Pearson correlation coefficient, which estimates the degree and direction of the association between two variables, is the most popular of the linear correlation tools.

H. KMO test: A statistic called the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy shows how much of the variance in your variables may be due to underlying causes. High numbers (around 1.0) typically suggest that your data may benefit from a factor analysis.

I. MANOVA test: To determine the statistical significance of the impact of one or more independent variables on a collection of two or more dependent variables, multivariate analysis of variance (MANOVA) and multivariate analysis of covariance (MANCOVA) are used.

2. Sample

Table 3 shows the sample distribution according to the gender, education level and age

Table 3: Distribution of variants according to gender, education level, and age.

Variants	Class	Number	Ratio
Gender	Male	183	80.3
	Female	45	19.7
Education level	Bachelor's	170	74.6
	Master's	20	08.8
	Ph.D.	10	04.4
	Secondary	28	12.3
Age	18 - 30	63	27.6
	31 – 40	62	27.2
	41 – 50	75	32.9
	Above 50	28	12,3

Source: the results of the statistical analysis of the questionnaire.

a. Distribution sample according to gender

According to the statistical results in Table 3, the majority of responders are men, with a ratio of 80.3%, or 183 people. In comparison, the percentage of females reached 19.7%, which equates to 45 people.

b. Distribution sample according to education level

Table 3 depicts the sample distribution based on a certificate. According to the statistical statistics, 74.6 percent of respondents have a bachelor's degree, followed by 12.3% who have a secondary degree. In comparison, the percentage of people with a master's degree was 8.8%, and 2% had a Ph.D. Doctoral degree holders indicate that the study sample has the ability and competence to adapt modern administrative concepts and underpinnings.

c. Distribution sample according to age

Table 3 shows that the majority of respondents' ages fall within the age group (41-50) with a percentage of (32.9%), followed by the age group (18-30) with a percentage of (27.6%), and the age group (31-40) with a percentage of (27.2%), while the last category (over 50) has a percentage of (12.3%).

3. Stability

The researcher was able to confirm the validity of the questionnaire by analyzing its internal consistency. Coefficient, where the Cronbach's alpha scale was used to ensure the stability of the study tool.

The reliability of the questionnaire was confirmed using the Cronbach's alpha scale, which is a reliable approach for measuring a questionnaire's internal consistency. Determines the degree to which a group of objects is linked. It measures the dependability of the scale (see Table 4).

Table 4: The possible values of Cronbach's alpha with their meaning

Alpha Value	Meaning
Less than 0.5	Unacceptable internal consistency
0.71 – 0.8	Acceptable internal consistency
0.81 – 0.9	Good internal consistency
Above 0.9	Excellent internal consistency

After calculating the Cronbach's alpha value for the sample, the stability coefficients were excellent and statistically acceptable when applied to sample 228 to test stability, as shown in Table 5.

Table 5: Cronbach's alpha values for the study

Reliability Statistics	
Cronbach's Alpha	Number of Items
0.963	25

The reliability coefficients for all research axes are outstanding and statistically acceptable, as shown in Table 5. Because it is greater than 0.60, having reached a minimum of 0.96, the questionnaire group The research user has a good stability coefficient, which is greater than the statistically admissible value suggested, being greater than (0.70) (Narver & Slater, 1990).

4. KMO Test

Before applying factor analysis, we must ascertain whether our sample is suitable for factor analysis. This can be accomplished by calculating the KMO test statistic, which is based on the correlation and partial correlation between the variables. The KMO test (Kaiser-Meyer-Olkin measure of sampling adequacy) is used to determine whether our samples are adequate for factor analysis. The objective of factor analysis in statistics is to identify fundamental factors or causes that can be utilized to depict the relationship between two or more variables.

The value of the KMO gauge is always between 0 and 1. If the KMO value is closer to 1, factor analysis can be conducted on our data. KMO values greater than 0.5 indicate that the sample is sufficient for factor analysis, whereas KMO values less than 0.5 indicate that the sample is insufficient. A sample with a KMO between 0.8 and 1 is appropriate for factor analysis.

Table 6, which includes the results of the KMO test, is below (Lopes Neri, et al., 2023).

Table 6: KMO possible values

Variable	KMO test	Meaning
Information Technology	0.90	0.00 to 0.49 is unacceptable.
Availability	0.89	0.50 to 0.59 is miserable.
Reliability	0.85	0.60 to 0.69 is mediocre. 0.70 to 0.79 is middling.
Customer Satisfaction	0.89	0.80 to 0.89 is meritorious. 0.90 to 1.00 is marvelous

Table 6 displays the KMO values for the variables of the investigation. Each KMO value is greater than 0.05 and near to 1, indicating that the variables are suitable for factor analysis.

5. Descriptive Analysis

The results of the descriptive statistics for the questions of the independent variable (X use of information technology), as shown in Table 7.

Table 7: The descriptive statistics that the researcher extracted for the research variable for the questions of the independent variable (use of information technology) under study.

Q	Iterations					Mean	Standard Deviation	Orientation of Opinion
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree			
V1	59	28	15	36	90	3.31	1.677	Medium
V2	46	28	17	54	83	3.44	1.562	High
V3	54	28	16	38	92	3.38	1.649	Medium
V4	60	28	14	36	90	3.30	1.684	Medium
V5	47	28	17	54	82	3.42	1.567	High
V6	62	28	15	36	87	3.25	1.686	Medium
V7	56	30	14	42	86	3.32	1.649	Medium
V8	46	28	17	54	83	3.44	1.562	High
V9	46	28	17	54	83	3.44	1.562	High
V10	54	28	16	38	92	3.38	1.649	Medium
V11	46	28	17	54	83	3.44	1.562	High
V12	46	28	17	54	83	3.44	1.562	High
V13	54	28	16	38	92	3.38	1.649	Medium
V14	48	28	17	54	81	3.40	1.572	Medium
V15	58	26	17	44	83	3.30	1.644	Medium
V16	62	26	13	33	94	3.31	1.706	High
V17	50	25	17	36	100	3.49	1.635	High
V18	52	26	16	36	98	3.45	1.648	High
V19	60	27	13	41	87	3.30	1.673	Medium
V20	47	25	17	43	96	3.51	1.600	High
V21	55	28	15	33	97	3.93	1.672	High
V22	51	27	15	49	86	3.40	1.608	High
V23	50	7	7	30	134	3.84	1.643	High
V24	59	27	13	36	93	3.34	1.686	High
V25	54	28	16	38	92	3.38	1.649	High

The attitudes of the research sample individuals indicate a high degree of agreement with the statements of the variable (the use of technology Information), where the approval was medium on the phrase "The Ministry's representative in Erbil uses modern technologies to provide services" with an arithmetic mean of 3.31, as well as high approval on the phrase "The use of modern technologies contributed to improving the services provided to auditors" with an arithmetic mean of 3.44 and a medium degree of approval on the phrase "The representation is aware of the need to use Technology to achieve the best services, with an arithmetic mean of 3.38, and a medium degree of approval for the statement that the representative office uses the best applications to provide services to citizens, with a mean of 3.30, and a high degree of approval for the phrase that the representation is trying to contribute to employing communications to solve problems, with an average of 3.42, and a medium degree of approval for the phrase that the representation uses social networking sites Facebook and WhatsApp and others, with an average of 3.25, and a medium degree of approval for the statement that the representative office is trying to inform its employees about the latest tools used in modern technologies, with an average of 3.32, and a high degree of approval for the statement that the representation considers the use of modern technologies a prerequisite for success and development, with an average of 3.44, and a high degree of approval for the statement that the representation uses modern technologies In the subsequent evaluation of the employees' daily tasks, it was found that the arithmetic average was 3.44.

Furthermore, there was a significant level of agreement regarding the representative's intention to recruit technology experts in the representative office and its branches, with an average score of 3.38. Additionally, the overall average for the utilization of information technology was highly approved, with an arithmetic mean of 3.67.

a. Descriptive statistics: Questions of the dependent variable (Availability)

The findings from the research sample suggest a significant level of consensus among participants regarding the variable of availability. Specifically, there was a high level of agreement with the statement "technologies contributed to the availability of services for all reviewers without discrimination," as indicated by an arithmetic mean of 3.44. Additionally, participants expressed a high level of approval for the statement "the use of technologies provided access to services." The utilization of technologies in remote auditing has been shown to have an arithmetic average rating of 3.44 among auditors, indicating a moderate level of acceptability. The implementation of current technology has resulted in a decrease in the frequency of complaints regarding service unavailability, as indicated by a mean score of 3.38 and a moderate level of approval. The use of technology has led to a rise in the quantity of finalized transactions, as indicated by an arithmetic mean of 3.40. Additionally, there exists a moderate level of agreement about the statement "technology has increased." In the present day, there exists a potential avenue for auditors to mitigate expenses pertaining to the evaluation of representation. This can be achieved by utilizing the arithmetic mean of 3.30 as a benchmark, which indicates a moderate level of representation. Furthermore, the overall average of the availability variable, as determined by an arithmetic mean of 3.67, demonstrates a significantly favorable level of approval.

b. Descriptive statistics: Questions of the dependent variable (Reliability)

The research participants exhibited a significant level of consensus regarding the variable of reliability. Specifically, there was strong agreement on the notion that the utilization of Office applications and data tracking applications led to a decrease in errors, as indicated by a mean score of 3.31. Additionally, there was a notable level of approval for the statement highlighting the beneficial role of information technology tools. When considering the safe and accurate execution of business operations, it is observed that the utilization of information technology tools can potentially enhance the decision-making process within the representative office. This is supported by a mean score of 3.49 and a high level of approval for the aforementioned statement. Furthermore, it is noted that the use of information technology tools has the potential to improve employee productivity within the representative office, as indicated by an arithmetic mean of 3.45 and a moderate level of approval for this statement. Additionally, it is found that the implementation of information technology tools can contribute to an increase in the speed of work within the representative office, as evidenced by an arithmetic mean of 3.51 and a high level of approval for this statement.

c. Descriptive statistics: Questions of the dependent variable (Customer satisfaction)

The research participants exhibited a significant level of consensus regarding the variable of reliability. Specifically, there was a strong agreement among the individuals sampled regarding the phrase "modern technology has reduced the complaint of the representative's slow services," as evidenced by a mean score of 3.93. Furthermore, there was a notable level of approval for the phrase "use of technology contributed to improving the level of satisfaction." The recipients of the services, with an average score of 3.40, expressed a significant level of satisfaction towards the impact of social networking sites on their experience with the representation's services. This was further supported by a high level of approval, with an average score of 3.84, for the statement "The use of social networking sites contributed to increasing the satisfaction of users of the representation's services." Additionally, there was a notable level of approval, with an average score of 3.34, for the phrase "using the tools, programs, and tasks of the representative office is very easy and comfortable." Similarly, the phrase "technical tools used" also received a high level of approval. In the context of the representative office, the implementation of certain measures has been observed to enhance the efficiency in meeting the auditors' requirements. Specifically, the arithmetic average of 3.38 has been recorded, indicating a notable improvement in the speed of satisfying these demands. Furthermore, the overall average of the availability variable has received a significantly high level of approval, as evidenced by its arithmetic mean of 3.46.

6. Correlation

The Pearson correlation coefficient (r) is widely recognized as a prominent technique in the field of analytical statistics, primarily employed for assessing the strength and direction of linear correlation. The correlation coefficient is a statistical metric that quantifies the magnitude and direction of the association between two variables under investigation, taking values between -1 and 1. When there is a change in one variable, there is a corresponding change in the other variable in the same direction.

An r value of -1 indicates a perfect negative correlation, +1 indicates a perfect positive correlation.

The closer r is to -1 or +1, the stronger the correlation. If r is positive, it means as one variable increases, the other also tends to increase. If r is negative, it means as one variable increases, the other tends to decrease.

Statistical significance depends on sample size and correlation strength. Another interpretation of Pearson's correlation value can be seen in Table 8 (Cohen, et al., 2009).

Table 8: Direction and strength of the relationship of the variables

Pearson correlation coefficient (r) value	Strength	Direction
Above 0.5	Strong	Positive: variables change in the same direction
Between 0.3 and 0.5	Moderate	Positive: variables change in the same direction
Between 0 and 0.3	Weak	Positive: variables change in the same direction
0	None	No relationship between variable
Between 0 and –0.3	Weak	Negative: variables change in the opposite direction
Between –0.3 and – 0.5	Moderate	Negative: variables change in the opposite direction
Below –0.5	Strong	Negative: variables change in the opposite direction

Table 9 shows the correlation between the elements of the study variables based on the Pearson correlation coefficient, which represents the relationship of the elements between the variables.

Table 9: Pearson correlation coefficient for all items

Variable	Code	Pearson coefficient questionnaire	Sig
Information Technology	V1	1.000	.000
	V2	0.505	.000
	V3	0.616	.000
	V4	0.972	.000
	V5	0.356	.000
	V6	0.326	.000
	V7	0.164	.013
	V8	0.505	.000
	V9	0.505	.000
	V10	0.616	.000
		0.808	
Availability	V11	1.000	.000
	V12	1.000	.008
	V13	0.566	.000
	V14	0.448	.000
	V15	0.564	.000
		0.782	
Reliability	V16	1.000	.000
	V17	0.629	.000
	V18	0.596	.000
	V19	0.969	.000
	V20	0.529	.000
		0.764	
Customer Satisfaction	V21	1.000	.000
	V22	0.651	.000
	V23	0.244	.000
	V24	0.674	.000
	V25	0.645	.000
		0.822	

The values of the Pearson correlation coefficient are presented in Table 9. The aforementioned values serve as indicators of the questionnaire's reliability and suitability for field implementation in our research on the influence of information technology on service performance at the representative office of the Ministry of Education in Erbil. The table additionally presents the correlation between the independent variable and its respective dimensions. The variable of customer satisfaction exhibits the strongest correlation, with a coefficient of 0.822. This is followed by the variable IT, which has a correlation coefficient of 0.808. The variable of Availability demonstrates a correlation coefficient of 0.782, while the variable of Reliability exhibits a correlation coefficient of 0.764. The values in this context represent the positive associations between the independent variable and its many dimensions.

Table 10 shows the relationship between the independent variable and other dependent variables.

Table 10: Pearson Correlation between an independent variable and information technology

Variable	Correlation	Information Technology
Availability	Pearson Correlation	0.921**
Reliability	Pearson Correlation	0.812**
customer satisfaction	Pearson Correlation	0.857**

The service availability variable recorded the highest correlation with a degree of (.921**), followed by the user satisfaction variable (.857**), and finally reliability (.812**). These values indicate positive relationships between the independent and dependent variables.

7. MANOVA Test
Table 11 presents the results of the MANOVA test, wherein the significance value (sig) is reported as 000. This finding suggests the presence of statistically significant differences among the groups. The table additionally presents the magnitude of the impact and the disparities among the variables under consideration.

Table 11: MANOVA test for the dependent variables

Tests of Between-Subjects Effects						
Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	AVAILABILTY	8438.468[a]	39	216.371	37.010	.000
	RELABILTY	8262.093[b]	39	211.849	13.386	.000
	CUSTOMER	7151.135[c]	39	183.362	17.441	.000
Intercept	AVAILABILTY	38693.531	1	38693.531	6618.529	.000
	RELABILTY	38691.344	1	38691.344	2444.806	.000
	CUSTOMER	41382.723	1	41382.723	3936.241	.000
INFORMATION	AVAILABILTY	8438.468	39	216.371	37.010	.000
	RELABILTY	8262.093	39	211.849	13.386	.000
	CUSTOMER	7151.135	39	183.362	17.441	.000
Error	AVAILABILTY	1099.094	188	5.846		
	RELABILTY	2975.276	188	15.826		
	CUSTOMER	1976.493	188	10.513		
Total	AVAILABILTY	75090.000	228			
	RELABILTY	77538.000	228			
	CUSTOMER	77733.000	228			
Corrected Total	AVAILABILTY	9537.561	227			
	RELABILTY	11237.368	227			
	CUSTOMER	9127.627	227			
a. R Squared = .885 (Adjusted R Squared = .861)						
b. R Squared = .735 (Adjusted R Squared = .680)						
c. R Squared = .783 (Adjusted R Squared = .739)						

The output shows that there are significant between-subject differences based on the independent variable (information) across all three dependent variables (availability, reliability, customer):

➢ Availability: $F_{(39, 216.371)} = 37.010$, $p < .001$

➢ Reliability: $F_{(39, 211.849)} = 13.386$, $p < .001$

➢ Customer: $F_{(39, 183.362)} = 17.441$, $p < .001$

The obtained F values, which are big in magnitude, along with the low p-values, provide evidence to support the conclusion that there is a significant difference among the means of the groups being compared.

The impact size seen in this study is substantial across all categories. Specifically, the independent variable accounts for 88.5% of the variance in availability, 73.5% in dependability, and 78.3% in customer satisfaction.

In summary, the findings indicate that various information groups exhibit statistically significant variations in mean scores pertaining to the availability, dependability, and customer-dependent criteria.

VII. Conclusion

These conclusions explain and reflect the most important results of the field study and the hypothesis made by the researcher, which are as follows:

1. The researcher's findings indicate a statistically significant and favorable association between the availability of information technology components and programs and the correctness of employees' work performance within the representative office.

2. The information technology components of the representative office, which is the study sample, affect work performance in general. This can be summarized as follows:

   a) The Internet and communication platforms were found to have the greatest impact, despite the limited utilization and scope of the representation's Internet usage, which was primarily limited to certain social networking sites. However, users greatly benefited from these services and expressed satisfaction with them.

   b) The modern office programs, despite being underutilized and lacking sufficient training for staff and service providers in the representative office, were found to have a significant impact, ranking second in terms of their influence. These software tools facilitated the seamless transfer and exchange of information, as well as streamlined access to stored and retrieved data, enabling efficient data processing. Consequently, the utilization of these programs resulted in improved outcomes and provided valuable information that assisted representative staff in carrying out their responsibilities with enhanced speed and precision. The provision of exceptional services by the representative office could be facilitated through the utilization of innovative computer systems to handle beneficiary-related tasks.

   c) The study participants concurred with the researcher's perspective that computers serve as the foundation for information systems, necessitating flexibility, vast storage capacity, and high specifications.

   d) Databases are considered to be of significant influence, ranking fourth, owing to their distinct vision and crucial role in information technology applications. Their ability to offer high-quality services stems from their advanced capabilities in storage, retrieval, deletion, modification, as well as processing and printing of data. This feature facilitates the prompt identification of issues by employees and the subsequent exploration of potential resolutions.

   e) Personnel with expertise in information systems, including technicians and engineers, are required to partake in training programs aimed at enhancing their professional skills and competencies. Nevertheless, this particular specialty surpasses others due to its superior efficacy in managing information technology.

3. Training programs are necessary for personnel who possess knowledge and skills in information systems, such as technicians and engineers, in order to improve their professional abilities and capabilities. However, this specific field stands out among others due to its exceptional effectiveness in the management of information technology.

4. The utilization of information technology has a significant impact on the accuracy and reliability of information. The integration of technology has been found to effectively minimize errors, as evidenced by the researcher's findings that demonstrate a robust correlation between information accuracy and the adoption of modern technologies.

5. The presence of a robust infrastructure facilitates enhanced communication and data collection capabilities, hence enabling the provision of expedited services with superior efficiency. The researcher observed, with the assistance of a substantial sample of individuals from whom opinions were solicited, that the representative office exhibits a significant deficiency in sophisticated infrastructure, which greatly impedes the productivity of its staff.

6. The utilization of information technology has played a significant role in augmenting transparency in service delivery, hence bolstering the trust and assurance of individuals while engaging with the Ministry of Education representative office in Erbil.

7. The findings demonstrated that the utilization of information technology by the representative office resulted in a measurable increase in transaction processing speed, hence confirming its beneficial influence on performance.

8. The findings indicate that the utilization of auxiliary tools and software leads to a tangible streamlining of procedures, resulting in enhanced performance.

The recommendations presented in this study are derived from the research findings and aim to propose strategies for addressing the challenges and capitalizing on the opportunities for e-government implementation in Iraq. To ensure the successful provision of services to Iraqi citizens, it is imperative for the e-government initiative to seek guidance from countries that have already established robust, adaptable, and user-friendly e-government systems. The following characteristics are indicative of countries that have effectively implemented e-government initiatives on a global scale.

Based on the findings of the researchers, the study recommends the followings:

1. The significance of prioritizing attention towards information technology arises from its substantial influence on enhancing the quality of education.

2. The focus of this discussion is on the overall performance of government institutions, with specific attention given to the representation of the Ministry of Education in Erbil. Additionally, there is an emphasis on the necessity of implementing effective performance measures across all government organizations and institutions.

3. The imperative to stay updated on the most recent advancements in information technologies and actively incorporate them into the field of representation through the ongoing development of programs and devices is crucial due to their significant impact on enhancing performance levels.

4. Efforts should be made to provide comprehensive training to the staff members of the representative office, encompassing all programs and devices. Such training initiatives have been found to have a beneficial effect on enhancing the overall performance level.

5. There is a necessity to establish an electronic network that connects government agencies in order to streamline the operations of governmental institutions and enhance their effectiveness.

6. There is a pressing requirement to revise regulations and legislation in accordance with societal progress and the demands of the Ministry of Education, particularly in relation to the inclusion of provisions for electronic signatures and fingerprints.

7. Efforts should be made to streamline the rules and procedures implemented in the representation, as they play a crucial part in enhancing and optimizing the efficiency of the services rendered.

8. The aim of this study is to investigate the relationship between knowledge management, technology, and their influence on service quality and performance.

9. This study aims to investigate the profound effects of technology on user satisfaction, specifically examining its correlation with knowledge management and its influence on education and performance levels across different sectors, with a particular focus on the government sector.

10. The administration should prioritize its attention towards the integration of artificial intelligence and its various applications within administrative tasks.

11. The focus is placed on the training programs offered to the personnel employed in the representative office, aiming to facilitate their acquisition of practical knowledge, enhance their administrative skills, and facilitate the transition from manual to computerized work processes.

12. Based on the findings obtained from testing the initial sub-hypothesis, the researcher suggests the establishment of the representative office being examined. This study aims to investigate the

impact of information technology on the quality of services provided by representative offices. Specifically, it focuses on the dimension of tangible material aspects, which includes the use of equipment and technological devices. The study emphasizes the importance of using modern and appropriate technological devices in representative offices, with a particular focus on high technical specifications. It is hypothesized that enhancing attention to these tangible material aspects will lead to increased satisfaction among both customers and workers in the representation.

13. The primary objective of the representative office is to attain customer satisfaction by employing cutting-edge information technology techniques in its operations and ensuring total quality across all departments and sections.

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