

**THE ROLE OF INFORMATION AND COMMUNICATION
TECHNOLOGY IN DEVELOPING THE WORK OF THE
ACCOUNTING AND AUDITING DEPARTMENTS IN THE MINISTRY
OF EDUCATION**

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Abstract

The research aims to determine the impact of information and communication technology in raising the level of efficiency and development of the work of the accounts and auditing departments in the Ministry of Education, which requires research and study to improve the level of the ministry's performance. Answer the following question:

Is there an impact of information and communication technology on the work of the accounts and audit departments?

In order to achieve the objectives of the research, data were collected using a questionnaire distributed to a selected sample from different departments and different age groups and academic achievement; their number was (100). To test the research hypotheses and determine the effect relationship, the statistical method (multiple linear regression) was used at a significant level (0.05, 0.01).

The results of the research proved the acceptance of most of the hypotheses, and the research concluded with several conclusions and recommendations that indicate the existence of a significant impact of information and communication technology in raising the efficiency of the work of the accounts and audit departments. In addition, the research presented several recommendations, the most important of which is (the development of human competencies available within the staff currently with scientific and practical qualifications and capability of using information and communication technology, as well as providing new job grades in the future).

Introductory words: information technology, communication, accounting and auditing departments, accounting system.

1- Introduction:

Recently, economic units have faced new forms of competition that were not previously known. It was called the new information revolution or the information and communication technology revolution, as it brought about significant changes in various economic, social, cultural and other areas of life. The use of software and modern systems in various fields and administrative levels as well as from Various technologies and means of communication that are complementary to it. Developing and strengthening the strength of any economy in a way that relies on the essential tool in this structure, which is the economic unit, which calls for continuous updating of systems in order to improve the capabilities and skills of employees at all levels, including financial matters, by facilitating and simplifying procedures and developing human performance to achieve the set goals efficiently and effectively. By using new technology as a tool to achieve this.

2- Research methodology:

2-1- Research problem:

Contemporary economic units face several problems in achieving the goals set for them efficiently and effectively, where the need arose to find an explanation for these problems and to find successful solutions to them, as information and communication technology came with its techniques and behavioural patterns to contribute to overcoming these problems, especially about the work of the accounts departments And auditing Based on the preceding, the research problem is represented in studying the impact of technology and communication on raising the level of efficiency of the work of the accounts and auditing departments The research problem is through the following question.

Is there an effect of information and communication technology on the work of the accounts and auditing departments of the research sample?

2-2- Research objectives:

The research aims to achieve the following goals:

- Statement of the importance of information and communication technology on the work of the accounts and audit departments in the Iraqi economic units.
- Determine the role of information and communication technology in raising the efficiency of the work of the accounts and auditing departments.
- Linking two essential aspects, the first is information technology, and the second is the work of the accounts and auditing departments.
- Statement of areas and levels of information and communication technology that contribute to raising the efficiency of the work of the accounts and auditing departments.

2-3-The importance of the research:

The importance of the research is based on the following:

- Clarifying the concept of information and communication technology, accounting and auditing.
- Statement and interpretation of the relationship of the information and communication technology cycle in raising the efficiency and developing the work of the accounts department.
- Demonstrating the importance of using information and communication technology in raising efficiency and developing the work of the accounts and auditing departments.

- The research derives its importance through the results reached, which determine the nature of the relations between the role of information technology and the work of the accounts and audit departments.

2-4- Research Hypotheses:

To achieve the objectives of the research and measure the role of information and communication technology in raising the efficiency of the work of the accounting and auditing departments, the following central hypothesis was adopted:

There is a significant impact relationship between information and communication technology and the efficiency of the work of the accounts and auditing departments of the Ministry of Education, and the following hypotheses emerge from it:

The first hypothesis is that there is a significant relationship between the use of devices and the work of the accounts and auditing departments.

The second hypothesis is that there is a significant relationship between information technology and the work of the accounts and auditing departments.

2-5-Methods of data collection:

In order to obtain data and information that help to reach the results of the research, the following methods were adopted:

- a. It relied on the contributions of writers and researchers from Arab and foreign sources.
- b. The research tool: The questionnaire was designed through the research questions and objectives to obtain data and information, and its hypotheses were tested. Finally, the statistical computer program (SPSS) was used to extract the analysis (Multiple Regression).

2-6- Research community and sample:

The Ministry of Education represents the research community. Therefore, (70) questionnaires in the departments and formations of the ministry in the province of Baghdad were distributed to its employees and (50) questionnaires in the ministry's departments in the provinces. In addition, (100) distributed questionnaires were retrieved.

The third hypothesis is that there is a significant relationship between communication and the work of the accounts and auditing departments.

3- Information technology

3-1- Definition of information technology

Information technology is "a group of technological machines and modern technology in storage or communication and for processing data and information accurately." (Jacob, 2017, 6)

She also knew "the use of advanced methods in order to obtain more advanced information in different forms or to show it on a graph, various forms, and a presentation." (Kahina, 2015, 33)

Communication technology was defined as "one of the tools or means that are used in the production, storage, reception or distribution of data and displaying it in a manner that is understandable and clear." (Al-Sabbagh, 2000, 64).

3-2- Components and elements of information and communication technology

Information and communication technology is based on three essential elements: (Balqdoum, 2017, 136-137).

1- Hardware: Hardware is the most important physical component in information technology. It is represented in computers of all kinds and their peripherals used to work and carry out the required tasks.

2- Software: Software is one of the essential intangible components of a computer system as it performs several essential functions, the most important of which are computer operations management, data retrieval and support for business applications.

3- Networks: Networks mean connecting a group of computers with communication lines and organizing them to help their users work on the available resources and transfer and exchange information among them. As well as achieving a set of purposes such as providing communication between people and accessing information remotely, electronic commerce and others using these networks.

3-3- The importance of information and communication technology They are as follows: COHEN, 2018, P45).

- The speed of achievement by shortening time and distances and rationalizing efforts and resources.
- Contribute to creating new job opportunities as it more effectively manages the human resource and customers.
- Removing spatial obstacles by linking individuals, institutions, or bodies in terms of time or place.
- Enhancing its quality in new markets, estimating production and controlling costs, thus reaching significant results that help achieve goals efficiently and effectively.

3-4- Objectives of information and communication technology

The objectives of information and communication technology are as follows. (Verleun, 2011, 74):

- It helps to operate several databases through various operating systems and devices.
- The ability to change and modify information when needed in a smooth and very safe manner.
- Continuous development in the approved system with the possibility of expanding capabilities and the ability to carry out additional work.
- Saving the time and effort required to maintain the system while ensuring that databases are not lost and integrated.

3-5- Advantages of information and communication technology

Economic units achieve many advantages when using information and communication technology in their various activities. These advantages are as follows: (Khalil, 2015, 36)

- 1- The use of information and communication technology helps to increase sales, improve earnings per share, and reduce production costs through the optimal use of available resources.
- 2- Obtaining more effective competitive advantages by designing innovative programs and applications that are compatible with the requirements of the stage.
- 3- Contribute to reducing costs, as this is one of the essential benefits reaped by industrial units in several areas, the most important.
- 4- Contribute to improving quality through using computers in design, improving the quality of outputs, and electronic data exchange used by units.

4-6- Jobs in information and communication technology

The use of information and communication technology performs several functions, the most important of which are: (Kahina, previous source, 78)

- Unifying the records of the various activities of the unit and all the details of its restrictions.
- Contribute to the analysis, collection and consolidation of data and information related to the unit.
- The possibility of implementing and managing several information processing operations at one time.
- Providing appropriate information to make the appropriate decision regarding timing, accuracy and credibility.
- The ability to store vast amounts of data and information, retrieve them and send them to the beneficiaries.

5- Contact

5-1- Definition of Communication:

The concept of communication defines communication as ("the process of exchanging information and opinions between two or more parties, in order to reach an understanding on a specific point or more, or in order to inform others about something, or in order to consolidate human relations with the surrounding community.")⁰ Al-Qaryouti, 2000, 57).

Accordingly, communication performs many functions for man

- A tool that helps meet all basic instinct requirements.
- A means that works to bring out what a person entails.
- Communication contributes to influencing others and thus directing them positively or negatively.

5-2- communication process:

There are three elements to the process of communication, they are:

- 1- The sender is the first element of the communication process and represents the point from which communication begins (direct or indirect) and maybe with (one person or a group of people), depending on the situation.
- 2- The future is the second element in the communication process, and it may be (the future is one person or a group of people) where the function of the future seeks to achieve.
- 3- The message is the third element and represents the content or content the sender wishes to communicate to the receiver for the message to succeed ssage.

5-3- Types of Communication:

Studies and research indicate that there are several types of communication, whether within the organization or with its external environment and among these types: (Nesliham, 2012, 104)

First: operational and personal contacts:

- Operational communications are linked to the economic unit's activity, which aims to carry out its work.
- Personal contacts have a strong influence on the relations of employees with their subordinates and with the policies of the unit.

Second/official and unofficial communication: where the official communication takes place between the different administrative levels, and official communication takes one of the following forms.

- Downward official communication.
- Official return communication.
- Horizontal communication:

Informal communication does not adhere to procedures, rules, or laws. It may occur between those in charge of managing the unit or with external parties, such as informal meetings, trips, or conferences (Rousseall, 2008, 50).

5-4- Principles of Communication:(Jacob, previous source, 76)

- The principle of clarity in communication of all kinds.
- The principle of focus and attention to the elements of communication.
- The principle of integration between the elements of communication.
- The principle of using the strategy of the informal communication system.

6- Accounting system:

6-1- The organizational structure of the government accounting system:

The organizational structure of the government accounting system in Iraq since the first formation of the government in 1921 consisted mainly of: (Lahood: 1998: 45)

- a. The central treasury in the capital is linked to the units of the state located in the centre.
- b. The treasury of the governorate (formerly the brigade's treasury) to which the state units in the governorate are linked.
- c. District Money Directorate - Money Directorate in each district.
- d. District boxes: A box in each district.

The approval to work with the decentralized accounting system was obtained on 2/2/1975, which stipulated: (transitioning the government accounting system from the central system to the decentralized system in exchange relations and accounting organization in the accounting units).

6-2- The concept of decentralization:

In government accounting regulation, decentralization is considered a development of the complex central system. According to this system, government units are disengaged from the accounting point of view of the central departments to which they are linked so that each unit forms a special fund to pay the expenses due on that unit and receive the resources due to the unit. This is done by opening a current account. In the name of the unit at the bank, it is funded centrally by the Central Finance Unit of the State, similar to the rest of the central departments, in addition to forming a pre-disbursed auditing body that audits the documents arising from that unit directly. (Tweet: 2002: 58)

6-3- Advantages of the decentralized system: (Tel: previous source: 74)

- Provides high flexibility in performing work, which facilitates implementing the general budget.
- Ensure effective control over the follow-up of the balances of the intermediate accounts (advances and trusts) and recycle them from one year to the next.

- An effective tool in auditing operations by monitoring and following up on the allocations of the independent accounting unit.
- It allows for expanding the analysis of accounts to more minor levels. The accounting restrictions are established according to them to limit each unit's transactions by itself and not to place the burden on another department.

7- The practical side

7-1- The stability test of the resolution

A Test-Retest before adopting the questionnaire in its final form to verify the clarity of its paragraphs and that they are related to the subject to be measured. It was distributed to a sample consisting of (10) people who were included in the study sample, and they were chosen deliberately. It was found from the answers that there is relative clarity in the paragraphs. The scale as there were not too many inquiries, and after ten days, the questionnaire was distributed again to the same group of people. The correlation coefficient (Pearson) was extracted to know the correlation coefficient between the answers in the two times, which is (0.84). The stability and validity of all data on the subject of the research.

7-2- Alpha Gronbach test:

In order to indicate the consistency of the paragraphs of the questionnaire among themselves, the Vakronbach coefficient was adopted for its variables, and the stability of the paragraphs was calculated on the research sample of (100), and the results appeared as follows:

- 1- Independent variables, information and communication technology, number of questions (12), stability coefficient (0.80)
- 2- The approved variables raise the efficiency and develop the work of the accounts and audit departments. For example, the number of questions is (10), and the stability coefficient is (0.84).

This gives the characteristic of consistency and homogeneity between the paragraphs of the questionnaire and their expression of the research subject.

Simple linear regression is one of the most critical measures for measuring the relationship quality between two variables. Many studies show that the relationship between more than two variables is dependent (regression). Simple linear regression is one of the statistical methods used in studying the relationship between two variables in the form of a functioning relationship, as one is called Variables. The dependent variable and the other variable is an independent variables.

(Independent Variable) with an effect on the change of the dependent variable. In this study, the researcher aims to study the role of information and communication technology (the independent variable) in developing the work of the accounts and auditing departments (the dependent variable).

The first hypothesis:

[[H]] _0: There is no statistically significant relationship at the level of Significance (0.05) between information technology and the work of the accounts and audit departments.

[[H]] _1: There is a statistically significant relationship at a significant level (0.05) between information technology and the work of the accounts and audit departments

The second hypothesis:

〔H〕₀: There is no statistically significant relationship at the level of Significance (0.05) between information technology and the work of the accounts and audit departments.

〔H〕₁: There is a statistically significant relationship at a significant level (0.05) between information technology and the work of the accounts and audit departments.

After defining the problem of the study and setting appropriate hypotheses for it, the researcher used the program (spssv22) to find out and analyze the results.

As the proportion of the effect of the independent variable (information technology) on the dependent variable (the work of the accounts and auditing departments) was measured, as shown in the table below, which shows that the method of least squares is used in determining the simple linear regression model.

Variables Entered/Removed^{a,b}

Model	Variables Entered	Variables Removed	Method
1	information technology ^c	.	Enter

a. Dependent Variable: The work of the accounts and audit departments

b. Linear Regression through the Origin

c. All requested variables entered.

After measuring the effect of the independent variable and testing the best model for the data, it was found that the value of ($R^2 = 0.775$)

This means the coefficient for determining the best model (the square of the value of the correlation coefficient), meaning that the independent variables explain that (77%) affect the dependent variable, meaning that (77% of information technology affects the work of the accounts and audit departments). The remainder is attributed to unknown random errors and the amount. Its value is (23%), and the correlation coefficient was (0.882) at a significant level

Model Summary^{c,d}

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. Change
1 ^a	0.882	0.775	.455	20668.85766	0.476	23.538	1	26	.000

a. Predictors: information technology

b. For regression through the Origin (the no-intercept model), R Square measures the proportion of the variability in the dependent variable about the Origin explained by the regression. This cannot be compared to R Square for models which include an intercept.

c. Dependent Variable: The work of the accounts and audit departments

d. Linear Regression through the Origin

(0.000). As shown in the table below:

The table below studies the suitability of the data regression line and the null hypothesis (studying the first hypothesis), which states (there is no statistically significant relationship at a significant level (0.05) between information technology and the work of the accounts and auditing departments), as its statistical value reached ($F=23.538$) at the level of Significance

(0.000), which is less than the level of Significance (0.05), which indicates significant differences, and that the model accurately represents the studied phenomenon, and that the regression line fits the given data in the sense of rejecting the null hypothesis and accepting the alternative hypothesis. Freedom (1) and the sum of squares of error amounted to (11106952641.988) at a degree of freedom (26), while the total sum of squares was (21161235085.975) at a degree of freedom (27), as for the mean squares of regression and the mean of squares of the residuals, they were respectively (10054282443.987) (427190479.583) and as Shown in the table below:

ANOVA ^{a,b}

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regressin	10054282443.987	1	10054282443.987	23.547	.000 ^c
Residua 1	11106952641.988	26	427190478.583		
Total	21161235085.975 ^d	27			

a. Dependent Variable: The work of the accounts and audit departments

b. Linear Regression through the Origin

c. Predictors: information technology

d. This total sum of squares is not corrected for the constant because the constant is zero for regression through the Origin.

The value of the impact of information technology on the work of the accounts, auditing, auditing and auditing departments was ($t = 4.852$) at a significant level (0.000), which is less than the level of statistical Significance (0.05), while the value of the marginal tendency was ($B = 14.410$) meaning that the value of the work of the department's Accounts and audits changes by (14,410) for each unit, as shown in the table below:

Coefficients ^{a,b}

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
information technology	14.410	2.970	.689	4.852	.000

a. Dependent Variable: the work of the accounts, auditing

b. Linear Regression through the Origin

As for measuring the percentage of the influence of the independent variable (information technology) on the dependent variable (the work of the accounts and auditing departments), the table below shows that the method of least squares is used in determining the simple linear regression model.

Variables Entered/Removed ^{a,b}

Model	Variables Entered	Variables Removed	Method
1	information technology	.	Enter

a. Dependent Variable: the work of the accounts and auditing departments

b. Linear Regression through the Origin

c. All requested variables entered.

After measuring the effect of the independent variable and testing the best model for the data, it was found that the value of ($R^2 = 0.828$), Which means the coefficient for determining the

best model (the square of the value of the correlation coefficient), meaning that the independent variables explain that (83%) affect the dependent variable, meaning that (83% of information technology affects the work of the accounts and audit departments). The remainder is attributed to unknown random

errors and the amount. Its value is (17%), and the value of the correlation coefficient was (0.910) with a significant level (0.000). As shown in the table below.

Model Summary ^{c,d}

Model	R	R Square ^b	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.910 ^a	.828	.400	31669.47103	.423	19.031	1	26	.000

a. Predictors: information technology

b. For regression through the Origin (the no-intercept model), R Square measures the proportion of the variability in the dependent variable about the Origin explained by the regression. This cannot be compared to R Square for models which include an intercept.

c. Dependent Variable: the work of the accounts and auditing departments.

d. Linear Regression through the Origin

The table below studies the suitability of the data regression line and the null hypothesis (studying the second hypothesis) studying the null hypothesis, which states (there is no statistically significant relationship at the level of Significance (0.05) between information technology and the work of accounting and auditing departments) as its statistical value reached (F =19.031) at the level of Significance (0.000), which is less than the level of Significance (0.05), which indicates that there are no significant differences and that the model represents the studied phenomenon accurately and that the regression line fits the given data in the sense of rejecting the null hypothesis and accepting the alternative hypothesis. (19086414177.959) at degrees of freedom (1) and sum The error squares amounted to (26076840172.671) at a degree of freedom (26), while the total sum of squares was (45163254350.630) at a degree of freedom (27), as for the mean squares of regression and the average squares of the residuals, they amounted to, respectively, (19086414177.961) (1002955495.112), as shown in the table below:

ANOVA ^{a,b}

	Sum of Squares	df	Mean Square	F	Sig.
Regression	19086414177.959	1	19086414177.961	19.031	.000 ^c
Residual	26076840172.671	26	1002955495.112		
Total	45163254350.630 d	27			

a. Dependent Variable: the work of the accounts and auditing departments.

b. Linear Regression through the Origin

c. Predictors: information technology

d. This total sum of squares is not corrected for the constant because the constant is zero for regression through the Origin.

The value of the impact of information technology on the work of the accounts and auditing departments was (4.364t=) at a significant level (0.000), which is less than the level of statistical Significance (0.05), while the value of the marginal slope was (19.864B=), meaning

that the value of the work of the accounting departments The audit changes by (19.864) for each one unit, as shown in the table below:

Coefficients^{a,b}

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
information technology	19.864	4.552	.651	4.364	.000

a. Dependent Variable: the work of the accounts and auditing departments.

b. Linear Regression through the Origin

The current study used the method of simple linear regression analysis in order to test the hypotheses of the study. As a result, the study revealed the rejection of the null hypothesis for each of the two test hypotheses (the first and the second hypothesis) and the acceptance of the alternative hypothesis, which states that there is statistical Significance at a significant level (0.05), which indicates the existence of an impact of information technology on All of the work of the accounts and audit departments.

8- Conclusions and recommendations:

8-1- Conclusions:

- a. Information and communication technology contribute at present to defining the human relationship with its internal and external surroundings and, in all respects, considering it an essential resource for human activity.
- b. Information and communication technology plays a prominent role in revitalizing the work of the accounts and auditing departments through its ability to store, process and retrieve data and information with high accuracy and speed, which is reflected in the completion of high-accuracy work with the least time.
- c. Information and communication technology contributes to completing major work with the least possible amount of time and effort, which is reflected in the reduction of various costs.
- d. Information and communication technology contributes to issuing appropriate and timely information and data in making the necessary decisions.
- e. Ensuring the continuity of government institutions by keeping pace with information technology and adaptation developments, which will be reflected in providing the best services and achieving higher levels.
- f. The study showed that information and communication technology has a clear impact on the work of the accounting departments and auditing government units through the availability of an essential and extensive database that can be referred to at any time.

8-2- Recommendations

- a. Developing the control and accounts departments and raising the efficiency and effectiveness of the employees working in them through the use of information and communication technology, as well as keeping pace with recent developments in the fields of information technology by holding workshops and specialized courses.

- b. The need to use information and communication technology to provide data and information promptly and in the required form by linking the various administrative levels.
- c. Developing the human competencies available within the staff currently with scientific and practical qualifications and capable of using information and communication technology, as well as providing new job grades in the future.
- d. Exchanging experiences and benefiting from holders of certificates in the various formations of the ministry in order to make the best use of human energies and information and communication technology so that there is the economic feasibility of using them.

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