

The Impact of Use of Expert Systems on Improving Effectiveness of Accounting Information Systems: Applied Study in Iraqi Commercial Banks

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Abstract

The study aimed at identifying the concept, characteristics, types, advantages, and dimensions of expert systems, and the concept and effectiveness of accounting information systems in Iraqi banks, and found a moral effect on the dimensions of expert systems (hardware, equipment, software and applications) on the effectiveness of accounting information systems in Iraqi commercial banks in their dimensions (system quality, information quality, user satisfaction). Expert systems also assist the bank's accounting information systems in obtaining timely, accurate, appropriate and highly reliable financial and non-financial data and information. The study recommended the necessity of involving accountants in the development of computer-based accounting information systems in all different stages related to systems development, and the necessity of working on developing expert systems in banks in a way that suits the technical developments taking place in providing services and their different applications that take place in the business environment to meet the needs and requirements of beneficiaries.

Keywords: Expert Systems, Effectiveness of Accounting Information Systems.

Introduction

The current era, especially the 1980s, witnessed a transformation in the business environment of various kinds, which was dominated by the application of the expert system. The importance of artificial intelligence research has increased through the expansion of the application of expert systems in business operations, which are considered as an artificial intelligence program that imitates the knowledge and analytical skills of its users. The concept developed and expanded in the 1990s and early twenty-first century to assist companies of all types in the presentation, use and use of financial and non-financial information and data with the speed and accuracy required. Operational Information Systems, synthetic mesh systems, management information systems, decision support systems, expert systems and artificial intelligence are computer-based information technology systems that are eligible to contribute to the decision support process (Omoteso, 2012 & 2007, Durman) (Kozakhmet & Ortsova Tym Tayeva, 2012).

Part One: Research Methodology

First: Study Problem: Banks have recently been automating their business to adapt to the competitive environment to ensure survival. Although automation has a major impact on speeding up operations, achieving quality and reducing costs, this remains limited to routine or low-skill tasks, so banks have turned to new technologies, such as artificial intelligence, that perform non-routine cognitive tasks performed by highly skilled accountants. Through artificial intelligence, companies in all sectors and sizes can gain access to technology, which provides accountants and professional business owners with great efforts in daily financial and service tasks, in addition to the ability to use historical experience to determine possible future impacts. Artificial intelligence (AI) is an entity with many pros and cons, although its benefits, it has many risks, such as manipulation of all systems, including accounting systems, yet the benefits of artificial intelligence outweigh the risks, especially in business applications (Geisel, 2018). It basically depends on the level of artificial intelligence used, and therefore the degree of risk resulting from its use depends on the effectiveness of accounting systems with all their components and dimensions. This is why the study on the use of expert systems on the effectiveness of accounting information systems in Iraqi banks came from the following main question: "What effect does the use of expert systems in dimensions (hardware, equipment, software and applications) have on improving the efficiency of accounting information systems in Iraqi banks in their dimensions (system quality, information quality, user satisfaction)? The following sub-questions arise from the main question:

1. What impact does the use of equipment and equipment have on the effectiveness of accounting information systems in their dimensions (system quality, information quality, user satisfaction)?
2. What impact does the use of software and applications of expert systems have on the effectiveness of accounting information systems in their dimensions (system quality, information quality, user satisfaction)?

Second: Importance of Study: The importance of the study lies in the great development that took place in the banking sector, the increase in the number of private banks in Iraq after 2003, and the dependence of these banks on all kinds of accounting information systems in performing their main functions, especially in measuring and communicating financial and non-financial information, which the beneficiaries need in the form of reports Financial lists to make appropriate decisions in all areas, but these systems are considered to be traditional. Expert systems play a more important role than traditional systems because they have the ability to solve problems and make decisions, which require experts in this field.

Third: Objectives of the Study: The study aims at identifying the concept, characteristics, types, advantages and dimensions of the expert systems, and identifying the concept of accounting information systems, their efficiency and their results, dimensions of the effectiveness of accounting information systems in Iraqi banks, and the relationship between the expert systems and the effectiveness of accounting information systems in the banks in question.

Fourth: Study Hypotheses: The study is based on a basic hypothesis that states the following: (The dimensions of expert systems do not have a statistically significant effect on the effectiveness of accounting information systems in Iraqi banks. The main hypothesis follows:

1. The expert systems' dimension does not have a statistically significant impact on the effectiveness of accounting information systems with its components (system quality, information quality, user satisfaction).

2. The expert systems software does not have a statistically significant impact on the effectiveness of accounting information systems with its components (system quality, information quality, user satisfaction).

Fifth: Study Community and sample the study community consists of the sector of Iraqi commercial banks listed on the Iraqi Stock Exchange. The sample of the research was the use of the random sample method by distributing the questionnaire to the managers of Iraqi commercial banks and employees in the technical divisions of those banks with the aim of demonstrating the impact of the expert's systems on the effectiveness of these banks' accounting information systems and reaching more neutral and reliable results.

Part Two: The Theoretical Framework of Study

The First Axis: The Concept and Dimensions of Expert's Systems

First: Concept of Expert's Systems, the system is a technology that detects solutions to problems that require specialized knowledge and skills, and in which the system works in a way that the expert thinks and motivates to emulate, expert systems techniques are different types of artificial intelligence, in which decision-making is recorded and taken (Al-Dweik & Al-Salem, 2013). As sees (Raiq, 2015) the expert systems as "computer-based information systems consisting of parts that are a tool for interaction with the user, the inference tool, and stored experiences the purpose of the expert system is to provide advice and solutions to problems specific to a particular area. These tips are similar to those that the human expert in the field can provide and the experienced system is able to solve problems, show how to get there, and provide tools that can be relied upon to solve similar problems.

Secondly: Dimensions of Expert's Systems the Study of the expert's systems focused on the dimensions of the expert systems, with the study of (Al Khawaldeh, 2020)" focusing on the dimensions of the hardware, software, knowledge engineer and innovative creative environment, while (Thoraya et al., 2021) focusing on the dimensions of neural networks, genetic algorithms, and intelligent agents, as noted (Shuabneh, 2017) On dimensions of suitability of system, training and development, intelligent software used and security system, as used (Ziadi, 2018) dimensions of hardware, software and knowledge engineer. From the above, the most widely used dimensions of expert systems are:

1. **Devices:** These include the availability of computers suitable for operation of expert systems, whether they are equipped with comprehensive information at the time of decision-making, the costs of purchasing devices, the extent to which expert systems cope with technological development, and the extent to which computers are able to present information in the form of environmental or sports forms. The extent to which the equipment designed to use expert systems needs to be known for high efficiency, and the availability of expertise and high efficiency in the users of expert systems systems.
2. **Software:** These include the extent to which the software of the expert systems fits the decision-making requirements, the ability of the expert systems software to provide sufficient information for decision-making, the availability of security tools to protect the software of the expert systems from vandalism, and how to use the software of the expert systems to help the organization make the appropriate decision within a clear strategy. The extent to which expert systems software contributes to problem prediction, the extent to which expert systems software can develop a clearer view of problems and choose appropriate solutions, and the flexibility of expert systems software to use information in decision-making. In measuring the dimensions of the expert's systems, the researcher relies on the effectiveness of accounting information systems in banks on the dimensions mentioned above, namely the dimension (hardware, software).

Second Axis: The Concept Effectiveness and Indicators of Accounting Information Systems in Banks

First: The Nature and Concept of Accounting Information Systems: The accounting information systems of commercial banks are one of the key strategic resources and sources of financial and accounting information for management and external parties for planning, control and decision-making purposes, and play an important role in achieving an integrated vision between the capabilities of commercial banks, their available resources and their areas of operation to optimize the use of these resources (Abdallah and Qantani, 2007). "Accounting information systems are defined by (Mi'a, et al., 2007) as a set of individuals, equipment and documents that interact with each other within a given framework, according to a set of policies and procedures for processing data reflecting economic events with the aim of producing information that meets the needs of a different group of users. They are defined (accounting information systems also define systems that collect, process, classify and prepare financial reports for events to provide relevant information for the purpose of increasing revenue and guiding decision-making (Soudani, 2012). It also serves as the basis for FAO's information systems for reporting to internal

and external users and, on these terms, serves as a platform for the managers of organizations in the decision-making process (Knez EVIC et al 2012).

Second: Effectiveness of Accounting Information Systems: The measurement of effectiveness can be seen from both internal and external regions, as effectiveness is assessed within the internal environment on the basis of the degree to which the bank achieves the goals related to the volume of sales, market share, and profits. As for the external environment, effectiveness is measured on the basis of its competitive strength based on the degree of acceptance of its products and services, their understanding of technological development and innovation, their sense of economic volatility and their strong reaction to it (Moroccan, 2002). Effectiveness has been defined as doing the right things, and to be effective, three main factors must be integrated: Individuals, structure and information (Boddy et al., 2009) the effectiveness of accounting information systems "is the ability of the accounting system to achieve its objectives, the most important of which is the provision of appropriate and reliable information that helps decision makers achieve their goals both inside and outside the organization (Fadl, 2007).

Third: Indicators for Measuring the Effectiveness of Accounting Information Systems in Banks

There are several indicators, many of which have been identified by system specialists, focusing on a set of variables that are most important in measuring system effectiveness (Petter et al., 2008).

1. System Quality: Related to the quality of the software and hardware used.
2. Information quality: Refers to the credibility, timability, appropriate, and comprehensibility of the report produced by the system.
3. User satisfaction: Indicates a complete belief by users that the information generated by the system meets their requirements. The researcher sees that these indicators are considered one of the important measures to measure the effectiveness of the system in the Iraqi banks.

Fourth: The Effectiveness of Accounting Information Systems and their Relation with Expert Systems

Expert systems are considered one of the branches of artificial intelligence that integrate knowledge and problem solving skills as a means of reaching the skill of the human expert and dealing with different problems in order to make strategic decisions to solve problems, and they can deal with problems that need theoretical knowledge and scientific expertise. Most importantly, it helps organizations, including banks, acquire the necessary knowledge and restructure it for competition and success (Rhodes, & Wright 2001)) the use of expert Atima in building an effective and efficient accounting information system is due to several reasons such as (Al Shammari, and Al-Abdiqalah, 2008):

1. Speed: Information is obtained and retrieved at a high speed.
2. Saving effort: The effort in electronic systems is less than manual systems, whether it is at the level of procedures for dealing with information or benefiting from it.
3. Quantity of information: The volume of information stored through modern electronic systems is large and growing compared to the volume of information stored through manual systems.
4. The available options in retrieving information are better and broader in modern electronic systems than in traditional manual systems. The researcher believes that expert systems can provide great and multiple capabilities to improve the performance of the accounting information system and develop its various elements of individuals, structures and tools, in addition to making it more flexible and responsive to environmental changes that are affected by banks.

Part Three: The Practical Side

In the current study, the focus is on two axes: The first focuses on the primary statistical indicators. The second axis will focus on the realization of the study's assumptions, which focus on studying the impact relationship between the independent variable and the approved variable, as follows.

The First Axis: Presentation and Analysis of the Importance of Study Variables

The aim of this research is to present and describe the initial statistical indicators in order to clarify the level of availability of the variables and paragraphs that were adopted in the model building through the calculation of the frequencies and their ratio, mean, the standard deviations, and the parameters of difference, and then the relative importance of the level of response of the members of the sample examined on the resolution axes of each

dimension used in the study. The level of response was determined in the light of calculated averages by determining their belonging to any of the categories listed in Table 1¹.

Table 1: Comparison Standard for Level of Availability of Marketing Knowledge Marketing Performance

Availability level	Very low	Low	Moderate	High	Very high
Class length	1-1.80	1.81-2.60	2.61-3.40	3.41-4.20	4.21-5.00

In our current study, the focus will be on two independent variable variables (expert systems), which fall within this variable, the first dimension goes back to hardware and the second dimension goes back to software. The following are the main aspects of the system: The system quality, the information quality, and the third dimension, the user satisfaction, and the availability of each variable.

First:- Expert Systems

Using the Statistical Bag (SPSS VR. 23) some statistical indicators of the independent variable (expert systems and their dimensions) related to the repetition, proportion, media, standard deviations, order of importance, and the level and direction of each of the paragraphs of the current study were obtained.

Dimension One:- Devices

The findings in Table 2, which relates to the items after the devices, indicate that there is a positive agreement for the device dimension, as the general mean of the sample in question indicates. This is the result of a high degree of agreement, which was demonstrated by the mean (4.1) which is higher than the hypothecal mean of the pentagonal Lactr scale adopted in this study (3) which indicates a positive trend in the response of the sample of the current study on a basis, and it is clear from the table that paragraph (3) (Users of highly qualified systems systems) have obtained the highest computational mean of 4.10 and a standard deviation of 0.913. The level of answer indicates that most sample of the study is in agreement with the contribution of this paragraph in the device dimension. While paragraph (2) (computer equipment and equipment for expert systems at the bank are characterized by keeping pace with modern technological developments.) In the fourth and last place, with a mean of (3.86) and a high standard deviation (1.046).

Table 2: Computational Media, Standard Deviations, and Response Level for the Dimension of Devices n=71

NO.			very low	Low	Moderate	High	very high	mean	S.D	answer direction	answer level	Order of importance
PRA1	There are computers suitable for running expert systems.	F	2	4	6	38	21	4.01	.933	agree	High	3
		%	2.8	5.6	8.5	53.5	29.6					
Pra2	The bank's expert systems equipment and computers are well-equipped to keep pace with modern technological developments.	F	3	5	11	32	20	3.86	1.046	agree	High	4
		%	4.2	7	15.5	45.1	28.2					
PRA3	Expert system device users are highly efficient.	F	2	2	8	34	25	4.10	.913	agree	High	1
		%	2.8	2.8	11.3	47.9	35.2					
PRA4	Devices have extensive information when making a decision.	F	0	3	12	33	23	4.07	.816	agree	High	2
		%	0	4.2	16.9	46.5	32.4					
-----			The general rate of means					4.01	0.927	agree	High	

¹Since the resolution of the study is based on the Pent card gradient, there are five categories for which the arithmetic averages of the study vary, and the category is determined by finding the range "R" (upper limit of scale - lower limit of scale), Then divide the range by the number of classes to find the length of the class "L" and by study variables as follows:

$$R=5-1=4$$

$$L = \frac{4}{5} = 80\%$$

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Dimension Two:- Software

The findings in Table 3, which relates to the paragraphs of the software dimension, indicate that there is a positive agreement for the software dimension, as the general mean of the sample in question indicates. This is the result of a high degree of agreement, which is indicated by the mean of (3.90) above the hypothetical mean of the pentagonal Lacrte scale adopted in this study of (3) which indicates a positive trend in the response of the sample of the current study on a basis, and it is clear from the table that paragraph (3) (Software based on prior experience is better used than that based on mathematical models.) I have obtained the highest computational mean (4.14) with a standard deviation of 0.946 and with an answer level indicating the agreement of most sample study means that this paragraph has a positive role in the software dimension. Paragraph 1 (Expert System Software has the flexibility to use information in decision-making.) In the fourth and last place with a slightly lower mean (3.90) and a high standard deviation (0.928).

Table 3: Computational Media, Standard Deviations, and Response Level for the Dimension of Software
N=71

NO.			very low	Low	Moderate	High	very high	mean	S.D	answer direction	answer level	Order of importance
PRA1	Expert system software has the flexibility to use information in decision-making.	F	1	4	16	30	20	3.90	.928	agree	High	2
		%	1.4	5.6	22.5	42.3	28.2					
Pra2	Expert system software contributes to problem prediction.	F	1	5	14	39	12	3.79	.860	agree	High	3
		%	1.4	7	19.7	54.9	16.9					
PRA3	I prefer to use software based on prior experience than that based on mathematical models.	F	1	5	6	30	29	4.14	.946	agree	High	1
		%	1.4	7	8.5	42.3	40.8					
PRA4	Secure means are available to protect expert system software from storage.	F	4	2	14	37	14	3.77	.988	agree	High	4
		%	5.6	2.8	19.7	52.1	19.7					
			The general rate of means					3.90	0.931	agree	High	

Second:- Effectiveness of Accounting Information Systems

Using the Statistical Bag (SPSS VR. 23) some statistical indicators of the dependent variable (effectiveness and dimensions of accounting information systems) related to the repetition, its proportion, media, standard deviations, order of importance, and the level and direction of each of the paragraphs of the current study were obtained.

Dimension One:- System Quality

The findings in Table 4, which relates to the paragraphs after the quality of the system, indicate that there is a positive agreement for the quality dimension of the system, as the general mean of the sample in question indicates. This is the result of a high degree of agreement, which is indicated by the mean of 4.01 above the hypothetical mean of the pentagonal Lacrte scale of this study of 3, which indicates a positive trend in the response of the sample of the current study on a basis, and the table shows that paragraph (1) (The bank's accounting information system enables data collection and operation in an easy manner. The bank uses advanced software that facilitates data mining.) You have received the highest computational mean of (4.08) and a standard deviation of (0.906) and with an answer level indicating agreement of most sample study as this paragraph has a prominent role after the quality of information. Paragraph 2 (2) (the bank has an effective communications network that assists in the wide sharing of information both within and outside the bank. the bank's accounting information system enables data collection and operation in an easy manner.) In the third and final place with a mean of (3.96) and with a high standard deviation (0.948).

Table 4: Mean, Standard Deviations, and Response Level to the System Quality Dimension n=71

NO.			very low	Low	Moderate	High	very high	mean	S.D	answer direction	answer level	Order of importance
PRA1	The accounting information system of the bank enables data collection and operation in an easy manner. The bank uses advanced software that facilitates data mining.	F	2	2	8	35	24	4.08	.906	agree	High	1
		%	2.8	2.8	11.3	49.3	33.8					
Pra2	The bank has an effective communications network that helps to widely share information both within and outside the bank. The bank's accounting information system enables data collection and operation in an easy manner.	F	3	1	12	35	20	3.96	.948	agree	High	3
		%	4.2	1.4	16.9	49.3	28.2					
PRA3	The bank uses advanced software that facilitates data mining.	F	21	4	8	36	21	3.99	.949	agree	High	2
		%	29.6	5.6	11.3	50.7	29.6					
	-----		The general rate of means					4.01	0.934	agree	High	

Dimension Two:- The Quality of Information

The findings in Table 5, which relates to the information quality dimension paragraphs, indicate that there is a positive agreement for the information quality dimension, as the general mean of the sample in question indicates. This is the result of a high degree of agreement, which is indicated by mean of 3.967, which is higher than the hypothetical mean of the pentagonal Lacrt scale of this study of 3, which indicates a positive trend in the response of the sample of the current study on a basis, and the table shows that paragraph (2) (The available accounting information is free of error and bias.the information provided by the accounting information system meets the needs of decision makers) has received the highest computational mean of (4.11) and with a standard deviation of (0.919) and with an answer level indicating the agreement of most sample study since this paragraph has a prominent role in the information quality dimension. Paragraph 3 (accounting information available to beneficiaries is accurate and accurately describes what is happening.) In the third and final place with a mean of (3.79) and a high standard deviation (.860).

**Table 5: Computational Media, Standard Deviations, and Response Level to the Information Quality
Dimension n=71**

NO.			very low	Low	Moderate	High	very high	mean	S.D	answer direction	answer level	Order of importance
PRA1	The information provided by the accounting information system meets the needs of decision makers. The accounting information available to the beneficiaries is accurate and accurately describes what is happening.	F	2	3	9	36	21	4.00	.926	agree	High	2
		%	2.8	4.2	12.7	50.7	29.6					
Pra2	Available accounting information is free of error and bias. The information provided by the accounting information system meets the needs of decision makers.	F	1	5	5	34	26	4.11	.919	agree	High	1
		%	1.4	7	7	47.9	36.6					
PRA3	The accounting information available to the beneficiaries is accurate and accurately describes what is happening.	F	1	5	14	39	12	3.79	.860	agree	High	3
		%	1.4	7	19.7	54.9	16.9					
	-----	The general rate of means						3.967	0.901	agree	High	

Dimension Third:- Quality of User Satisfaction

The findings in Table 6, which relates to the paragraphs after the quality of the system, indicate that there is a positive agreement for the quality dimension of the system, as the general mean of the sample in question indicates. This is the result of a high degree of agreement, which is indicated by the mean of 3.94, which is higher than the hypothetical mean of the pentagonal Lacert scale adopted in this study of 3, which indicates a positive trend in the response of the sample of the current study on a basis, and it is clear from the table that paragraph (1) (The bank relies on the accounting information system with the latest hardware and software that enables users to collect and process data with little time and effort.) You have received the highest computational mean of (3.99) and a standard deviation of (0.870) and with an answer level indicating agreement of most study sample since this paragraph has a prominent role after the quality of information. Paragraph 2 (2) (the system improves productivity of users (work productivity). A bank relies on accounting information systems (AIS) on the latest hardware and software.) In the third and final place with a slightly lower mean (3.89) and a high standard deviation (0.838).

**Table 6: Computational Milieus, Standard Deviations, and Response Level to User Satisfaction Dimension
N=71**

NO.			very low	Low	Moderate	High	very high	mean	S.D	answer direction	answer level	Order of importance
PRA1	The bank relies on the accounting information system on the latest hardware and software. The system enables users to collect and process data with little time and effort.	F	1	5	6	41	18	3.99	.870	agree	High	1
		%	1.4	7	8.5	57.7	25.4					
Pra2	The system improves user productivity (business productivity). The bank relies on the accounting information system on the latest hardware and software.	F	2	2	11	43	13	3.89	.838	agree	High	3
		%	2.8	2.8	15.5	60.5	18.3					
PRA3	The system enables users to collect and process data with little time and effort.	F	1	5	10	36	19	3.94	.908	agree	High	2
		%	1.4	7	14.1	50.7	26.8					
	-----		The general rate of means					3.94	0.872	agree	High	

Second Axis: Study of Impact Relationship

When regression analysis is used, the effect relationship between the independent variable (one or more than one) on Go ahead the variable is usually analyzed on the variable, based on assumptions made by the investigator.

In the current study, three different regression models will be built to suit the assumptions of this study. As follows.

1. The impact of expert systems (hardware, equipment, software and applications) on the effectiveness of accounting information systems (system quality, information quality, user satisfaction)

In the current regression model, the effectiveness of accounting information systems in its three dimensions is the dependent variable that is affected by independent variables, expert systems in their dimensions, once the variables are identified, can be mathematically shaped for the regression model.

$$\text{effectiveness of accounting information systems} = \beta_0 + \beta_1 \text{expert systems} + \epsilon_i$$

Whereas:

β_0 Constant term and vector (β_1 ,) represents the boundary slope of the model above.

ϵ_i Random error threshold distributed by normal distribution with a medium equal to zero and a contrast equal to σ^2 .

2. The impact of equipment and equipment on the effectiveness of accounting information systems (quality of system, quality of information, user satisfaction)

In the current regression model, the effectiveness of accounting information systems in its three dimension represents the dependent variable that is affected by the independent variables, the hardware and equipment dimension, once the variables are identified, can be mathematically shaped for the regression model.

$$\text{effectiveness of accounting information systems} = \beta_0 + \beta_1 \text{equipment and tools} + \epsilon_i$$

Whereas:

β_0 Constant term and vector (β_1 ,) represents the boundary slope of the model above.

ϵ_i Random error threshold distributed by normal distribution with a medium equal to zero and a contrast equal to σ^2 .

3. The impact of software and applications on the effectiveness of accounting information systems ((system quality, information quality, user satisfaction))

In the current regression model, the effectiveness of accounting information systems in its three dimension is the dependent variable that is affected by the independent variables of software and applications, once the variables are identified, can be mathematically shaped for the regression model.

$$\text{effectiveness of accounting information systems} = \beta_0 + \beta_1 \text{software and applications} + \epsilon_i$$

Whereas:

β_0 Constant term and vector (β_1 ,) represents the boundary slope of the model above.

ϵ_i Random error threshold distributed by normal distribution with a medium equal to zero and a contrast equal to σ^2 .

4. The impact of expert systems (hardware, equipment, software and applications) on the effectiveness of accounting information systems (system quality, information quality, user satisfaction)

This point focuses on testing the main hypothesis that (there is a moral effect of using expert systems in its dimensions (hardware, equipment, software and applications) on improving the effectiveness of accounting information systems in Iraqi banks in their dimensions (system quality, information quality, user satisfaction)) For this, the regression equation was analyzed between the dependent variable, the effectiveness of accounting information systems, and the independent variable, expert systems.

From the results shown in the table below, when expert systems are increased by one unit, the effectiveness of accounting information systems will be affected ($\beta = 1.892$) by the increase by. In the β case of the first two – year - olds β , the first two-year-olds were found to be in the first place in the first half of the year, and the first half of the year was the first in the first half of the year. This means that there is a significant positive and moral impact of the expert systems variable on the effectiveness of accounting information systems. Through the above results, we accept the alternative hypothesis, which states that the use of expert systems in both dimensions (hardware, equipment, software and applications) should improve the efficiency of accounting information systems in the Iraqi banks (quality of the system, quality of information, user satisfaction) and reject the hypothesis of non-existence, which states that there is no moral effect of using the expert's systems (equipment and equipment). It is also a good example of how the system is being developed and how it can be used.

Also, from the calculated value of (f) (9.273), which is significant below the threshold of 0.05, we conclude that the studied model between the effectiveness of accounting and expert systems fits largely with the phenomenon under study by Iraqi banks.

In addition, it is noted from Table 7 that the determination coefficient (R^2) was 84.6% and the corrected determination coefficient was 81.9%, which shows that the explicability of the regression equation is high, indicating that 81.9% of the changes in the effectiveness of accounting information systems are due to the variable of expert systems.

Table 7: The Estimated Values of the Simple Regression Equation between the Two Variables show the Effectiveness of Accounting Information Systems and Expert Systems

Sig	F	Effectiveness of accounting information systems			Supported variable
		Sig	T	(β)	independent variable
0.000	10.082	0.0365	2.762	2.564	Fixed term
		0.0000	6.518	1.892	Expert Systems
		$R^2=0.846$ $R^2= 0.819$ Corrected determination coefficient			

5. The impact of equipment and equipment on the effectiveness of accounting information systems (quality of system, quality of information, user satisfaction) this point focuses on testing the first sub-hypothesis that (there is a moral effect of using equipment and equipment, on improving the efficiency of accounting information systems in Iraqi banks by their dimensions (quality of system, quality of information, user satisfaction)) For this, the

regression equation was analyzed between the dependent variable, the effectiveness of accounting information systems, and the independent variable, representing devices and equipment.

From the results shown in the table below, when equipment and equipment are increased by one unit, the efficiency of accounting information systems will be affected by (β = the increase of 0.832). In the case of the first two -year-olds, the first two-year-olds were found to be in the first place in the first half of the year, and the first half of the year was the first in the first half of the year. This means that there is a significant positive and moral impact of the variable of equipment and equipment on the effectiveness of accounting information systems. Through the above results, we accept the alternative hypothesis that states (the use of equipment and equipment has a moral effect on improving the effectiveness of accounting information systems in Iraqi banks (the quality of the system, the quality of information, the satisfaction of the user) and reject the non-existent hypothesis that states (The use of equipment and equipment has no moral effect on improving the effectiveness of accounting information systems in Iraqi banks (quality of system, quality of information, user satisfaction)).

Also, from the calculated value of (f) (082.10) which is significant below the indication level of 0.05, we conclude that the studied model between the efficiency of accounting information systems, equipment and equipment fits largely with the phenomenon under consideration by the Iraqi Bank.

In addition, it is noted from Table 8 that the determination coefficient (R^2) was 87.2% and the corrected determination coefficient was 85.9%, which shows that the regression equation is highly explicable, indicating that 85.9% of the changes in the efficiency of accounting information systems are due to the variable and equipment.

Table 8: The Estimated Values of a Parameter of the Simple Regression Equation between the Two Variables Show the Effectiveness of Accounting Information Systems and Equipment

Sig	F	Effectiveness of accounting information systems			Supported variable
0.000	9.273	Sig	T	(β)	independent variable
		0.0000	4.551	1.349	Fixed term
		0.0000	5.116	0.832	Equipment and equipment
		$R^2=0.872$ $R^2= 0.859$ Corrected determination coefficient			

6. The impact of software and applications on the effectiveness of accounting information systems (system quality, information quality, user satisfaction)

This point focuses on testing the second sub-hypothesis that (there is a moral effect on the use of software and applications, on improving the effectiveness of accounting information systems in Iraqi banks in their dimensions (system quality, information quality, user satisfaction) and therefore the regression equation between the dependent variable, the effectiveness of accounting information systems, and the independent variable, representing software and applications was analyzed.

From the results shown in the table below, when software and applications are increased by one unit, the efficiency of accounting information systems will be affected by (β = the increase of 1.328). In the case of the first two -year-olds, the first two-year-olds were found to be in the first place in the first half of the year, and the first half of the year was the first in the first half of the year. This means that there is a significant positive and moral impact of the variable software and applications on the effectiveness of accounting information systems. In the above results, we accept the alternative hypothesis that states (the use of software and applications has a moral effect on improving the effectiveness of accounting information systems in Iraqi banks in their dimensions (system quality, information quality, user satisfaction), and reject the hypothesis of non (The use of software and applications has no moral effect on improving the effectiveness of accounting information systems in Iraqi banks (system quality, information quality, user satisfaction)).

Also, from the calculated value of (f) (11.317), which is significant below the threshold level of 0.05, we conclude that the studied model between the effectiveness of accounting information systems, software and applications fits largely with the phenomenon under study by Iraqi banks. In addition, it is noted from Table 9 that the determination factor (R^2) was 81.6% and the corrected determination factor is 78.4%, which shows that the regression equation is highly explicable, indicating that 78.4% of the changes in the efficiency of accounting information systems are due to the variable software and applications.

Table 9: The Estimated Values of the Simple Regression Equation between the Two Variables Show the Effectiveness of Accounting Information Systems, Software, and Applications

Sig	F	Effectiveness of accounting information systems			Supported variable
0.000	11.317	Sig	T	(β)	The independent variable
		0.0000	6.036	2.005	Fixed term
		0.0000	6.779	1.328	Software and Applications
		$R^2=0.816$ $R^2= 0.784$ Corrected determination coefficient			

Conclusions and Recommendations

First: Results: The Results of the Theoretical and Applied Study Showed the Following

1. The results of the applied study showed that there is a moral effect of the dimensions of expert systems (hardware and software) on improving the effectiveness of accounting information systems in Iraqi banks in their dimensions (quality of system, quality of information, user satisfaction).
2. The participation of accountants in the development stages of computer-based accounting information systems affects the improvement of the financial performance of the bank, which indicates the important role played by the accountant, who is considered one of the basic components of accounting information systems, whether as a user, auditor, analyst, designer or executor of the system.
3. When applied, the expert systems will affect the areas of banking work, developing the performance of the services provided to the bank's client parties, and finding suitable solutions to the problems faced by the bank during the service provision.
4. The expert systems contribute to the speed of information acquisition and retrieval at high speed.
5. This is the first time that the system has been developed in the United States, and the first time that the system has been developed in the United States, and the first time that the system has been developed in the United States.
6. The expert systems produce and store large amounts of information compared to the volume of information stored through manual systems.

Recommendations

1. Work by the senior management of the bank to develop the strong interrelationship between the objectives of the accounting information system and the objectives of the bank as a whole.
2. The need to involve accountants in the development of computer-based accounting information systems at all different stages related to the development of systems.
3. The need to develop the bank's expert systems in a way that suits the technical developments that are taking place in the provision of services and their different applications in the business environment to meet the needs and requirements of the beneficiaries.
4. The need for bank management to help expert systems acquire knowledge from the knowledge bases stored by systems in many areas that support senior management capabilities.

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Survey form/first Axis/dimensions and paragraphs of expert/independent variable systems

NO.		very high	High	Moderate	Low	very low
1	There are computers suitable for running expert systems.					
2	The bank's expert systems equipment and computers are well-equipped to keep pace with modern technological developments.					
3	Expert system device users are highly efficient.					
4	Devices have extensive information when making a decision					
	dimension One: Software					
5	Expert system software has the flexibility to use information in decision-making.					
6	Expert system software contributes to problem prediction.					
7	I prefer to use software based on prior experience than that based on mathematical models.					
8	Secure means are available to protect expert system software from storage.					
	Dimensions and paragraphs of the effectiveness of accounting information systems/dependent variable					
	Dimension One: System quality					
1	The accounting information system of the bank enables data collection and operation in an easy manner.					
2	The bank uses advanced software that facilitates data mining.					
3	The bank has an effective communications network that helps to widely share information both inside and outside the bank					
	Dimension two: information quality					
4	The information provided by the accounting information system meets the needs of decision makers.					
5	The accounting information available to the beneficiaries is accurate and accurately describes what is happening.					
6	Available accounting information is free of error and bias.					
	Dimension third: User satisfaction					
7	The bank relies on the accounting information system on the latest hardware and software.					
8	The system enables users to collect and process data with little time and effort.					
9	The system improves user productivity (business productivity).					

Source: (Abu Zayed: 2017) & (Amani: 2013)