The Role of Accountants in E-accounting Information Systems' Lifecycle at the Jordanian Banking Sector

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Abstract

This study has aimed to identify the role of the accountants in the E-accounting information system lifecycle in the most important economic Jordanian sectors, which take advantage of the information technology in order to provide and invest the banking services; the banks seek to own software which can be developed in accordance with the development of the E- banking services as well as their needs of the data and reports. Such matter requires the participation of the accountants in the E-accounting information system lifecycle, contributing to achieve various advantages such as the reduction of the risks related to the systems as well as the appropriateness of the accounting information systems. The study identifies the role of the accountants in the main activities in the E-accounting information system lifecycle. The study has concluded that the accountants play a role in the different stages of the E-accounting information system lifecycle. Furthermore, it has found that the accountants faced various limitations hindering their participation; such limitations include a lack of skill and knowledge related to the information technology.

Key Word: E-accounting Lifecycle, developing accounting Information Systems, planning and the analyzing E-accounting

Introduction

Accounting information system is greatly important since it is one of the most important resources providing the economic and social information required for making the right decisions in this era. In order to meet the needs of decision makers regarding the accounting information, it has to pay attention to the process of developing the accounting information systems in order to keep up with various latest developments occurred in business world, then contribute to meet the needs of the growing demand for such accounting information which various parties and entities require.

Therefore, the role of accountant has expanded due to the development of the accounting information of various business sectors, on the one hand, and the increase of the volume and the complexity of the information, on the other hand; the accountant shall play an active and effective role in the processes of designing the systems in order to achieve an effective internal system as well as the needs of accounting information users (Abu Khaddrah and Ashish, 2008). There is no doubt the success of developing the system requires the necessity of participation of accountants in establishing and developing that system. The effective method of applying the participation principle is represented by the ability of system to involve the accountants not only in one stage of the development of the system but all stages of system development , in particular that each stage has its own specificity which distinguishes it from other stages; the real participation requires that the accountant shall interact mentally and emotionally through an intellectual debate and consultation with the persons who are responsible for developing the accounting information system in a manner that encourages them to participate in bearing the responsibility and contributing to achieve the goals desired.

Such participation is important since the accountants are those persons who use E-accounting information system. It, therefore, is supposed that they have to have a comprehensive knowledge of the current system in terms of its advantages and disadvantages as well as its weak points in addition to the problem which the accountants may face during carrying out their daily works. Moreover, they have to familiarize with the needs and requirements of the users. The contribution of the accountants to develop the accounting information system affects positively the psychological aspects of those accountants, reflecting undoubtedly the easiness of implementing the system. Such matter also encourages and supports them to succeed the accounting system in order to achieve its goals. Thus, the importance of the participation of the accountants in developing the accounting information system is derived from the fact that the accountants as accounting information system's users are well qualified for determining how to develop their work and needs. Furthermore, they will greatly oblige to the final system whenever they have opportunity to participate in the process of the development; the accountant interacts with the accounting systems as well as its outputs of each economic unit. Such interaction includes the usage, evaluation and the development of the accounting information system (Al-Jazrawi and Al-Janab , 2009).

Banking sector in the Hashemite Kingdom of Jordan is considered one of the sectors, greatly investing the information technology as well as using it to provide the banking services. Such matter affects the accounting system which will develop as a result of the development of the use and application of information technology in the banks. Consequently, this study is important since it identifies the role played by the accountants of the banks in the banking accounting information system lifecycle, considering a main and primary role which contributes to develop the accounting information system; in most cases, these accountants have both the occupational experience and practical reality of the accounting system, on the one hand and the science and the knowledge of the accounting bases and standards, on the other hands.

Thus, the efforts excreted to develop the accounting information systems shall not be limited to the professionals and specialties of the accounting information system; in addition, the role of the accountants shall not be limited to prepare and establish the requirements and needs of such systems; it should be noted that if the accountants do not participate in designing the accounting information system, this will lead to negative results represented by the existence of the weakness or failure of the designing process or the existence of difficulties and complexities of implementing such system, finally leading to the non-achievement of the desired goals of the systems. Through the previous overview, the problem of the study can be formulated as follows:

"Does the accountant play a role in E-accounting information system lifecycle in the Jordanian Banks?"

The main purpose of this study is to identify the role of accountants working in the Jordanian banks in E-accounting information system life cycle through knowing to which extent these accountants participate in the stages of E-accounting information system life cycle. Such topic pertaining to the participation of the accountants in the stages of E-accounting information system life cycle, particularly in the Jordanian banking sector in which the use and application of the information system rapidly develop, is considered one of the most important subjects which shall not be highlighted by the researchers; the systems develop once or twice according to the developed e-services pr the increase of clients' numbers. As a result, this study can be considered – according to researcher knowledge – the first study interested in identifying the role of the accountants working in the Jordanian banks in the of E-accounting information system life cycle.

II. Background and Hypothesis Development

2-1 The Advantages of the Participation of the Accountants in Information System Lifecycle of the E-Accounting

The importance of the accounting is derived from the importance of the accounting information system, which is considered one of the most important resources, providing the economic and social information required for making the sound decision in this era. In order to meet the needs of decision makers regarding the accounting information, it has to pay attention to the process of developing the accounting information systems in order to keep up with various latest developments continuously occurred in business world, then contribute to meet the needs of the growing demand for such accounting information which various parties and entities require.

Therefore, the role of accountant has expanded due to the development of the accounting information of various business sectors, on the one hand, and the increase of the volume and the complexity of the information, on the other hand;

The accountant shall play an active and effective role in the processes of designing the systems in order to achieve an effective internal system as well as the needs of accounting information users and provide the data required for making the decisions. Furthermore, the massive technological advance carries various important risks pertaining to the security and integration of the E-accounting system since the development of computers and information technology are not accompanied by a similar development of the controlling practices and standards. Furthermore, a similar development does not occur in the knowledge, experiences and the awareness of the employees of such facilities (Abu Musa, 2004, P. 1).

Therefore, the accounting information system used in any facility shall include the methods and standards, controlling the data in order to enable the information system's users to submit a reliable information. The accountants play an important role in developing and evaluating the standards of control and security of the accounting system since they work closely with the designers of the system. Such matter allows to ensure that the standards of the control and security are appropriate and sufficient. using the computers in information system affects the means of the control and security of the data; although the automatic operation of the data has various advantages pertaining to the accuracy and speediness, the problems special to the control may lead to the manipulation of the data and the inaccuracy of the outputs (Al-Dahrawi, 2003, p. 159).

In addition, the participation of the accountants in developing the accounting information systems affects positively the psychological aspects of those accountants, reflecting undoubtedly the easiness of implementing the system. Such matter also encourages and supports them to succeed the accounting system in order to achieve its goals. Thus, the importance of the participation of the accountants in developing the accounting information system is derived from the fact that the accountants as accounting information system's users are well qualified for determining how to develop their work and needs. Furthermore, they will greatly oblige to the final system whenever they have opportunity to participate in the process of the development; the accountant interacts with the accounting systems as well as its outputs of each economic unit. In general, such interaction includes the usage, evaluation and the development of the accounting information system (Al-Jazrawi and Al-Janab , 2009). In addition, the role of the accountants is considered a main and primary role; in most cases, they have both the occupational experience and practical reality of the accounting system of the company , on the one hand, and the science and the knowledge of the accounting bases and standards, on the other hands " Na'asha and Khamis, 2009, p. 20). As a result, it can be confirmed that when the accountants participate in E-accounting information systems' life cycle, various advantages, pertaining to the reduction of risks of information technology and banking services as well as the provision of the information required by the decision –makers in addition to the sound and correct accounting handling, are achieved. Accordingly, the hypotheses of this study can be formulated as follows:

Hypothesis 1: The participation of the accountants in E-accounting information systems' life cycle achieves various advantages.

2-2 The Role of the Accountants in E-Accounting Information System Lifecycle

The interest in the information systems is increasingly growing since they represents a strategic resource of most projects establishing in the modern information society; they provide the support required for achieving the competitive advantages which contribute to strengthen the site, the continuation and the success of the project. This does not automatically achieve but requires the increase of performance level of project processes and the improvement of its productivity; in addition, client's satisfaction shall increase and the morale of its stuff shall be improved (Al-Mashad, 2008). The need of establishing new information system or modifying the existing one emerges when a failure or problem of the currently applied system occurs; the facility may have an opportunity to use modern and developed technological methods which enable the facility to provide best information and improve its competitive ability (Al-batanuni, 2005). Most writers and specialists of the information systems agree that the accounting information systems go through a life cycle, starting by the stage of analyzing the system in order to subject it to the organized practical study for the purpose of increasing its ability to achieve the goals desired and the stage of establishing all details special to the new system and ending by the stage of implementing and evaluating the system in order to ensure that it is working well and that it is able to achieve its desired goals. (Al-Ghitani, 2000, Al-Hasun and Al-Qaisi, 1999, Debian, et al. 2005, Bashadi, et al. 2005, Atiyah, 2000, Hussein, 2006, Abu Khaddrah and Ashish, 2008, Moskoff and Simkan, 2002, Hussein, 1995, and Al-Mushid 2008. Regarding the stage of implementation, (Hussein, 1995 and Bashadi etal.), it is primarily connected with either the design of the new integrated accounting system or a branch accounting system while establishing new system or expanding the process of the existing project.

The process of designing the new accounting information system or developing the existing system is involved in the first three stages which are followed in the two cases. Thus, this study formulates and tests the second main hypothesis:

Hypothesis 2: The accountants working in the Jordanian banks play a role in E-accounting information system lifecycle

The following outlines the role of the accountants in E-accounting information system life cycle:

2-2-1The Role of the Accountants in the Stage of the Planning and the Analyzing of the E-Accounting Information System

In this stage, the facility identifies the purpose of establishing or developing the accounting information system. Here, a plan which includes the purposes and stages of applying the accounting information system shall be developed; furthermore, such plan shall have the technical, financial and operational feasibility pertaining to the development of the accounting information system. In light of the technical development of the information technology, business's facilities, particularly the banks, the subject of this study, have strategic plans since using the information technology in the bank is considered a competitive advantage, achieving a better return. Consequently, the banks have to keep up with such development.

Regarding the stage of analyzing the systems, it is considered one of the most important stages which contribute to develop the accounting information systems; it includes the process of analyzing the system which has a set of steps and procedures required for testing the current system or one of its branches in order to detect the fault, causing to reduce the efficiency or inappropriateness of the system.

In general, this stage is started by the appearance of the problems or weak points of the system applied; the analyzer diagnoses that if there is a problem or not, then checks the system in order to get an adequate information through identifying the points of weakness and strength as well as identifying to which extent the system is able to fulfill the level of the data required by the projects; he\ she finally suggests a possible solution to such problem (Moskoff and Simkan, 2002); the project will resort to analyze the system if the current applied system does not efficiently work to achieve the desired goals or if new requirements of administering the system, which are not available in the current system, appear. Furthermore, it resorts to analyze the system due to the appearance of new techniques of applying the information systems or comprehensive improvements of the system in order to be able to keep up with the rapid and successive developments of the information system field (Al-Dalahmi, 2008); the increase of the size of the project makes the current system unable to fulfill the level of data required by the project. In addition, the reorganization of the company, the application of new accounting rules or the laws or legislations amended or issued by government entities require the modification of the current system or the design of new system (Hussein, 2006); the stage of analyzing the current system covers a set of main sectors, including the methods and procedures as well as the organizational environment, the goals of the systems, the resources and barriers, the inputs and the outputs of the system, the functions of the processing and the standards of the control and performance (Khashabeh, without a publishing year, 44). In order to analyze the system, the analyzer shall used a set of tools. Moreover, there are a set of means used to describe the current system such as personal interview, questionnaire, direct observation, work measurement and revision; this stage of the analysis aims to carry out the following activities (Al-Gitani, 2000, Hussein, 2006, Abu Khadrah and Ashish, 2008, Na'asa and Khamis, 2009 and Al-Dalahma, 2008):

- Studying the general budget of the system;
- Identifying Accurately the problem;
- Conducting economic feasibility in order to develop the system;
- Developing the policy of the development of the system;
- Identifying the financial and accounting reports which will be extracted from the system;
- Identifying a mechanism of implementing the accounting restrictions through the systems;
- Establishing a mechanism of the flow of the financial data through accounting cycle of the company;
- Debating with the analyzer in order to illustrate the requirements of the system's users;
- Identifying the resources which shall be used in order to produce the outputs;
- Identifying the processes which shall be implemented in order to produce the outputs;
- Identifying the outputs which shall be produced;
- Identifying the inputs required for producing the outputs; and

- Identifying the requirements of the operative control as well as the accounting control.

In this stage, the role of accountant is represented by the participation of all activities mentioned above; such participation can be achieved through deliberation and the exchange of the views and ideas with those persons who are responsible for implementing the process of analyzing the system in particular that the accountants as the users of the accounting information system have a full knowledge of the current system in terms of its strong and weak points. Moreover, they have to familiarize with the needs and requirements of the users, leading to enable them to correctly diagnose the system and achieve the goals desired.

According to the theoretical frame and the relevant studies, this study tests the following sub-hypotheses:

Sub-hypothesis 1: the accountants working in the Jordanian banks play a role in the stages of the planning and the analyzing of the E-accounting information systems.

2-2-2The Role of the Accountants in the Stage of the Designing of E-Accounting Information Systems

The stage of design aims to implement the following activities (Al-Hasun and Al-Qaisi, 1999, Al-Ghitani, 2000, Atiyah, 2000, Bashadi, et al. 2005, Debian, et al. 2005, Hussein, 2006):

- Designing the procedures and processes required for meeting the requirements of the system;
- Identifying accurately the requirements of the programs and organizing the files and databases;
- Designing the documents of inputs and outputs required for the system;
- Designing the manual of accounts;
- Designing the manual of procedures;
- Designing the screens which will be displayed to the users;
- Designing the appropriate types and formats of the reports as well as identifying their contents;
- Identifying the method and the time of submitting the reports;
- Establishing various relations between the programs and the data;
- Establishing the procedures of the internal control of the system;
- Identifying the methods of entering and getting out the financial data; and
- Identifying the devices of inputs.

On the basis of the above- mentioned, it can be said that in this stage, the role of the accountant is represented by the participation of all activities, mentioned above and connected to the design of the accounting information system since such participation affects the psychological aspects of those users as well as courage them to support and succeed the information system.

Based on the theoretical framework and the studies related to the subject of the research, this study tests the second sub-hypothesis:

Sub-hypothesis 2: The accountants working in the Jordanian banks play a role in the stage of the designing of the E-accounting information systems.

2-2-3The Role of the Accountants in the Stages of the Implementation and the Evaluation of the E-Accounting Information Systems

The stage of the actual implementation is started by developing a detailed plan of the steps of implementing E-accounting information system; it includes the dates determined to start and end each one of implementation's steps and procedures; then, the responsibilities are assigned to the persons participated in the stage of the implementation, the capital budget special to the implementation. Furthermore, this stage evaluates the system after it is implemented in order to evaluate to which extent the new system achieve the desired goals, detect and correct the deviations of the system, compare the actual costs of the new system with the estimated costs and analyze whether there are big differences between the two costs (Al-Batanuni, 2005). The stage of implementation aims to carry out certain activities required for implementing and operating the new information system (Hussein,1995, Al-Ghitani, 2000; Atiyah, 2000; Moskoff and Simkan, 2002; Debian, et al. 2005; Al-Batanuni, 2005; Mohammad and Al-Shishini, 2006; Assaf and Yusef, 2007 and Al-Mushid 2008); they are outlined as follows:

- Planning to implement the proposed system;
- Preparing the site;
- Purchasing the mechanisms and devices;

- Training the employees after the system is finally developed;
- Preparing and testing the programs which will be used to operate the system;
- Checking the system in order to ensure the possibility of implementing it without problems and testing finally the whole system;
- Finally documenting the system; and
- Operating the system.

The success of implementing the accounting information systems as a strategic variable of organization life relies mainly on two factors: the extent of integrity of the procedural aspects of the system and the extent of the availability of the infrastructure of the system. Human resources represented by these two factors are considered one of the most important elements of the infrastructure of the system at all levels including the individuals of the superior administration; the behavioral aspects of the change are significantly important ((Romeny ;Steinbart , 2000) because if the best system will fail if it is not supported by the individuals whom the system serves. After the new system has regularly worked, the stage of the evaluation occurs; such stage aims to: (Al-Hasun and Al-Qaisi, 1999, Al-Batanuni, 2005; Abu Khadrah and Ashish, 2008)

- Evaluate to which extent the new system achieves the goals desired;
- Analyze the deviations between the planned and actual costs;
- Analyze the advantages of the system;
- Identify the modifications of the system which shall be carried out in order to improve the decisions special to the project of the information system in the future;
- Increase the knowledge and performance of the system and identify its strong and weak points in order to improve it;
- Follow up the ability of the system to adapt with the circumstances of the practical reality; and
- Identify and solve the problems of the system.

The accounting information system is evaluated by project's designers and users who are specialized in accounting. The evaluation shall be conducted at a right time in order to detect the faults and correct them (Hussein 1995).

Based on the theoretical framework and the studies related to field of this research, this study tests the following sub-hypotheses:

Sub-hypothesis 3: The accountants working in the Jordanian banks play a role in the stages of the implementation and evaluation of the development of the E-accounting information systems.

2-3The Limitations Hindering the Participation of the Accountants in E-Accounting Information Systems' Lifecycle

Third hypothesis: There are limitations hindering the participation of the accountants in developing E-accounting information systems.

3 The Methodology of the Study

3.1 The Methodology of the Study

Analytical descriptive approach and the Secondary resources, covering the literatures written on the topic of this research in addition to scientific researches and articles published in the periodicals related to the subject of this study, have been used. Regarding the primary resources; the researcher has relied on a questionnaire designed and designed in a manner that achieves the purposes of the study. Statistical Package for Social Sciences- SPSS has been used for discharging the questionnaire.

3.2 The Population and Sample of the Study

The population of the study has covered all Jordanian (commercial and Islamic) banks, amounting 16 banks. Questionnaires have been distributed to all employees who undertake financial missions as well as the missions related to financial administration in these banks; they are financial managers, the heads of the accounting and accountants' departments; 2 questionnaires have been distributed to each bank. So, the number of the questionnaires has been 32 which have been returned back. However, 30 questionnaires, i.e 94 % of the total number of questionnaires, have been valid and can be statistically analyzed.

3.3 The Instrument of Data Collection

This study has aimed to identify the role of the accountants working in the Jordanian banks in the E- accounting information systems' lifecycle. In order to achieve this purpose and answer the main question of the study, the researcher has developed a questionnaire used as an instrument of data collection; the questionnaire has been divided into various sections so that each of such sections has covered one of the stages of E- accounting information systems' lifecycle.

The questionnaire has been designed according to three-likert scale; the degrees of this scale range between Yes, Sometime and No. This triple scale has been chosen due to the purpose of the study represented by identifying the role of the accountants working in the Jordanian banks in E-accounting information systems' lifecycle. Thus, this role – according to the opinion of the researchers- will include three possibilities which outlined as follows: (1) the accountants play a role in the system lifecycle through participation; here, the answer will be (yes); (2) there is a limited participation in some stages of system's lifecycle; the answer will be (sometimes); or the accountants do not play a role in the system lifecycle, thus, the answer will be (no).

3.4 Testing The Validity of the Instrument of the Study

In order to ensure the validity of the questionnaire for achieving the purposes of the practical study, it has been presented to a group of the specialties; they have made notes and opinions, contributing to amend and develop the questionnaire so that it has become ready to use.

To test the extent of the validity of the results of the questionnaire and the availability of the internal consistency among the answers to the questionnaire' items, validity variable, Cronbach Alpha, has been used. The value of Cronbach Alpha variable, statistically accepted, shall be 60 % or more. It has been applied to each part of the questionnaire as well as to each field, which is called the field of the study. Table 1 shows that Cronbach Alpha's value of responses of respondents to all questionnaire's items and field is higher than the minimum level accepted by Alpha variable. This means that the degree of the internal reliability of the items' responses is very high. As a result, the instrument of the study is distinguished by a high reliability and the responses can be adopted in order to achieve the purposes of the study and to analyze its results; it also ensures the validity of the study. Table below illustrates the results tested by using Alpha scale.

Table (1) Internal consistency Variable " Cronbach' Alpha"

Field	Internal consistency
The advantages of the participation of the accountants in E-accounting Information system lifecycle	0.90
The role of the accountants in the stages of the planning and analyzing of E-accounting Information system lifecycle	0.84
The role of the accountants in the stage of the designing of E- accounting Information systems	0.93
The role of the accountants in the stages of the implementation and evaluation of E-accounting Information systems	0.91
The limitations of the participation in E-accounting Information system lifecycle	0.92

To keep up with the nature of the exploratory study, data analysis has relied on the descriptive statistics in which a set of statistical methods have been used; such methods have been arithmetic means and T-test. In addition, Three- Likert scale has been used on the basis of the following ranks:

Yes …… 3 points
Sometimes ……..…… 2 points
No …….…….. 1 point

Since the scale is composed of three possibilities, there will be two periods; the first period ranges between 2 and 3 and the second ranges between 1 and 2. In order to figure out the length of period, the number of periods is divided by the number of scale weight which is 2\3=0>66. Then, the length of period is added to the weight. Consequently, we get the following results:

1+0.66 = 1.66 (if this number emerges, the result will be (No, there is no a role)
1.67 +0.66 = 2.33 (if this number emerges, the result will be (sometimes)
2.33+0.66 =3 (if this number emerges, the result will be (Yes, there is a role played by the accountant).

4- Data Analysis and Hypotheses Discussion

1.4 First Field:- The Advantages of the Participation of the Accountants in E-Accounting Information System Lifecycle

It discusses The advantages of the participation of the accountants in E-accounting Information system lifecycle Table 2 shows that the participation of the accountants in E-accounting Information system lifecycle achieves many advantages which contribute to reduce the risk related to information technology increase the efficiency of the accounting systems and provide the appropriate information. We note that paragraph 9, falling within this field, has the highest arithmetic means. This paragraph has indicated that the participation of the accountants contributes to increase the quality of the accounting information and reports provided by the system. The paragraph indicating that the participation of the accountants in **E-accounting Information system lifecycle** reduces the risks related to the technological systems; the arithmetic mean has reached 2.71; this is logic since the experience of the accountant of the software may be limited.

Table (2) The Arithmetic Mean and Standard Deviations of the Performance of the Sample of the Study Regarding the Items Related the Advantages of the Participation of the Accountants in E-Accounting Information System Lifecycle

No.	the advantages of the participation of the accountants in E-accounting Information system lifecycle	Arithmetical mean	Standard deviation	The levels of the acceptance
Some of the advantages of the participation of the accountants in E-accounting Information system lifecycle				
1	Reducing the risks related to E-systems	2.71	.631	Yes, it achieves the benefit.
2	Reducing the risks related to E-systems 'users	2.72	.631	Yes, it achieves the benefit
3	Reducing the risks related to E-devices	.631	2.74	Yes, it achieves the benefit
4	Reducing the risks related to the use of E- banking services	2.76	.631	Yes, it achieves the benefit
5	Increasing the efficiency of E-accounting systems	2.76	.631	Yes, it achieves the benefit
6	Contributing to provide the financial data required for making decisions related to the bank administration	2.78	.631	Yes, it achieves the benefit
7	Contributing to provide the financial data required for making decisions related to the banking planning.	2.78	.631	Yes, it achieves the benefit
8	Contributing to provide the financial data required for making decisions related to the banking control	2.78	.631	Yes, it achieves the benefit
9	Contributing to achieve the quality of the accounting data and reports provided by the system	3.00	.000	Yes, it achieves the benefit
	Total	2.78	.631	Yes, it achieves the advantages

2.4 The Second Field the Role of the Accountants in the Stage of the Planning and Analyzing of the E-Accounting Information System

The role of the accountants in the stage of the planning and analyzing of the E-accounting information system Table (3) shows the results related to the responses of the study sample about the role of the accountants in the stage of the planning and analyzing of the E-accounting information system.

Table (3) Arithmetic Means and Standard Deviations of the Performance of the Sample of the Study Regarding the Items Related the Role of the Accountants in the Stages of the Planning and Analysis of the E-Accounting Information System

No.	The role of the accountants in the stages of the planning and analyzing of E-accounting Information system lifecycle	Arithmetical mean	Standard deviation	The levels of the acceptance
The accountants participate in the following activities of the stages of the planning and analysis of the e-systems:				
1	Developing and promoting the plan of the targeted projects in order to establish the e-accounting information systems	1.58	.0838	There is no a role
2	Conducting a comprehensive study of the volume of the investments required for developing the accounting information system as well as its timetable	1.58	.838	There is no a role
3	Developing the strategic plan of the information systems with taking into consideration the developments of the accounting standards and the financial transactions	1.47	.905	There is no a role
4	Developing the strategic plan of the e- information systems in the banks with taking into consideration the developments of the economic transactions and the means of e-payment.	1.00	.000	There is no a role
5	Determining the needs of the accounting information systems to the modernization and development according to the bank's needs.	3.00	.000	Yes, there is a role.
6	Developing a budget determining the costs of the e-accounting information systems	1.58	.838	There is no a role
7	identifying the problems related to systems as well as the need to develop such systems	1.58	.838	There is no a role
8	conducting the feasibility in order to develop the e-accounting information systems	2.58	.838	There is no a role.
9	Developing a policy of the development and modernization of the e-accounting information systems	1.58	.838	There is no a role
10	Identifying the accounting processing of the restrictions when the e-systems are developed	2.58	.838	Yes, there is a role.
11	Identifying the accounting and financial reports extracted by the developed e-systems	2.58	.838	Yes, there is a role
12	Developing and neutralizing the flow of the data in the accounting cycle through banks' financial systems.	2.58	.838	Yes, there is a role.
13	The accountant helps the systems' analyzer to explain the requirements of the system's users	2.58	.838	Yes, there is a role.
14	Identifying the inputs of the e-systems which must be used to get the outputs.	2.58	.838	Yes, there is a role.
15	Determine the appropriate processing operations which must be implemented to get the outputs.	2.58	.838	Yes, there is a role.
16	Determine the outputs which must be produced by the e-information banking systems fulfilling the needs of the users.	2.58	.000	Yes, there is a role.
17	Determine the operational controlling requirements as well as the accounting control.	2.58	.838	Yes, there is a role.
	Total	2.73	.838	Yes, there is a role

Table 3 indicates that the value of the arithmetic mean of the role of the accountants in the stages of the planning and analysis of the e-accounting information system according to the point of view of the participants of the study has reached 2.73; this means that the accountants working in the Jordanian banks play a role in the activities related to the stages of the planning and analysis.

The data stated in table 3 illustrates the following results:

1- There are some activities in which the accountants do not participate in the stages of the planning and analysis of the e-accounting information system; the arithmetic mean of these activities has ranged

(1-1.58); such activities include the strategic planning of information technology as well as the development of the financial and accounting systems which are connected to the development of the information technology.

2- The results also shows that the accountants play a role in some activities specialized in the accounting fields and processes as well as the accountants' needs, the arm the arithmetic mean of these activities has ranged 2.58-3.

3.4 Third field the Role of the Accountants in the Stage of the of Design of the E-Accounting Information

The role of the accountants in the stage of the of design of the e-accounting information system

Table 4 illustrates the results of the statistical analysis of the responses of the sample of the study to the paragraphs related to the role of the accountants in the stage of the design of the e-accounting information system.

Table (4) Arithmetic Means and Standard Deviations of the Performance of the Sample of the Study Regarding the Items Related the Role of the Accountants in the Stage of the Designing of the E-Accounting Information System

No.	The role of the accountants in the stage of the designing of E-accounting Information systems	Arithmetical mean	Standard deviation	The levels of the acceptance
The accountants play a role in designing the E-accounting Information systems; this role includes the following activities:				
1	Designing the accountancy manual	2.58	.838	Yes, there is a role
2	Designing the documents of the inputs and outputs special to the system	1.56	.738	No, there is no a role
3	Designing procedures and processes manual required to the e-systems in the bank	1.58	.737	No, there is no a role.
4	Designing the actual and appropriate types and forms of the accounting and financial reports as well as identifying their contents.	1.55	.736	No, there is no a role
5	Determine the time of submitting the reports of the e-systems	1.53	.732	No, there is no a role
6	Determining the method of submitting the report	1.58	.737	No, there is no a role
7	Choosing between the alternatives of designing the e-accounting information systems	1.52	.731	No, there is no a role
8	Designing and choosing various types of relations between the programs and data in a manner that simplifies the implementation of the required software performed by the programmers	1.52	.731	No, there is no a role
9	Identifying the appropriate software appropriate for processing the financial data	1.58	.737	No, there is no a role
10	Determining the inputs ' devices appropriate to the e-systems (such as peripheral devices, audio input units, reading card unit and checks)	2.50	.837	Yes, there is a role
11	Designing the method of preparing the restrictions of the settlements and closing entries	2.38	.830	Yes, there is a role
12	Identifying the methods of saving and accessing to the data	2.39	.830	Yes, there is a role
13	Documenting the system through the maps of auditing the data	2.47	.838	Yes, there is a role
14	Documenting the system through the flow of the documents	2.48	.838	Yes, there is a role
15	Identifying the internal control procedures of the e-banking system	2.38	.830	Yes, there is a role
	Total	2.11	.73	

Table 4 shows the distribution of the participants of the study according to their acceptance to the items special to their role in E-accounting information system lifecycle in the banks regarding the stage of the designing in accordance with three-likert scale used. Table 4 indicates that there are some activities in which the accountants do not participate in the stage of the design of the e-accounting information system in the banks; the arithmetic mean of these activities has ranged (1.52-1.58); this paragraph have touched upon the topics related to the designing of the designing the actual and appropriate types and forms of the accounting and financial reports as well as identifying their contents in addition to the paragraph related to determining the inputs ' devices appropriate to the e-systems (such as peripheral devices, audio input units, reading card unit and checks).

Furthermore, the results of analysis indicate that that the accountants play a role in some activities related to the documentation of the system through the maps of auditing the documents and the designing of accounts manual as well as proposing the internal control procedures and the settlement restrictions; the arithmetic mean of these activities has ranged 2.38- 2.58. it also should be noted that the highest arithmetic mean of these paragraphs related to the designing of the accounts manual has reached 2.58.

4.4 Fourth Field the Role of the Accountants of the Stages of Implementation and Evaluation of the E-Accounting Information System

the role of the accountants of the stages of implementation and evaluation of the E-accounting information system Table 5 illustrates the results of the statistical analysis of the responses of the sample of the study to the items related to the role of the accountants in the stages of the implementation and evaluation of the e-accounting information systems in the Jordanian banks

Table (5) Arithmetic Means and Standard Deviations of the Performance of the Sample of the Study Regarding the Items Related the Role of the Accountants in the Stages of the Implementation and Evaluation of the E-Accounting Information System

No.	The role of the accountants in the stages of the implementation and evaluation of the E-accounting information system	Arithmetical mean	Standard deviation	The levels of the acceptance
The role of the accountants in the stages of the implementation and evaluation of the E-accounting information system; such role includes the following activities:				
1	Participating in developing the plan of the implementation 's stages of the system	2.46	.818	Yes, there is a role played by the accountant
2	Checking the system before it is applied	2.38	.808	Yes, there is a role played by the accountant
4	The accountant analyzes the deviations between the planned and actual costs pertaining to the new system	2.38	.808	Yes, there is a role played by the accountant
5	The accountant analyzes the expected advantages of the system	2.56	.828	Yes, there is a role played by the accountant
6	The accountant identifies the modifications which must be carried out to the system in order to improve the decisions pertaining to the system project.	2.37	.808	Yes, there is a role played by the accountant
8	The accountant evaluates to which extent the new system achieves the desired goals.	2.38	.808	Yes, there is a role played by the accountant
10	The accountant analyzes the expected requirements of the system	2.46	.808	Yes, there is a role played by the accountant
12	The accountant identifies the problems of the system as well as their solutions.	2.38	.828	Yes, there is a role played by the accountant
Total		2.38		

Table 5 shows the distribution of the participants of the study according to their acceptance to the items special to their role in E-accounting information system lifecycle in the banks regarding the stages of the implementation and evaluation of the e-accounting information systems. The subjects of the sample have accepted the items of this field. Table 5 also shows high percentages of the participation processes of those accountants in the implementation stage. However, the highest percentage achieved in this stage is related to their participation in checking and ensuring the system's integrity. These resulted can be attributed to the fact that the most important matter of this stage for the accountant is to develop the accounting information systems.

4.5 Fifth Field the Limitations Participation of the Accountants in the E-Accounting Information System Lifecycle

The limitations hindering the participation of the accountants in the E-accounting information system lifecycle

Table 6: Arithmetic Means and Standard Deviations of the Performance of the Sample of the Study Regarding the Items Related to the Limitations Hindering the Participation of the Accountants in the E-Accounting Information System Lifecycle

No.	The limitations hindering the participation of the accountants in the E-accounting information system lifecycle	Arithmetical mean	Standard deviation
The limitations hindering the participation of the accountants in the E-accounting information system lifecycle			
1	Lacking the academic and practical qualification of the E-accounting information system lifecycle	2.59	.837
2	Lacking the academic qualification of the field of analyzing the problems related to the e-systems	2.59	.837
3	lacking the academic qualification of the field of the risks related to the use and application of information technology in the accounting processing.	2.55	.838
4	Lacking the academic qualification of the field of the appropriate control standards in order to reduce the risks of the information and communication technology	2.56	.832
5	Lacking the academic qualification of the documentation techniques of the accounting information systems	2.57	.838
6	Lacking the academic qualification of languages' software	2.56	.832
7	The administration is not oriented to take advantage of accountants within the teams of the e-systems' development.	2.57	.838
8	Lacking the understanding of those who manage the firms about the importance of the participation of the accountants	2.53	.836
	Total	2.56	.832

Table 6 illustrates the limitations of " lacking the academic and practical qualification in the e-accounting information system lifecycle occupy the first rank; such limitations hinder the participation of the accountants whereas Lacking the understanding of those who manage the firms about the importance of the participation of the accountants occupy the second rank; we note that the respondents have agreed that the limitations related to the knowledge and experience of the information technology are considered one of the most important challenges which face the participation of the accountants in information system lifecycle.

3.5 The Test of the Hypotheses

3.5.1 Testing the First Hypothesis

In order to study and test hypothesis 1, stating that the participation of the accountants in E-accounting information systems' life cycle achieves various advantages in the Jordanian banks "; a test has been conducted between the arithmetic and theoretical mean; one sample test has showed the results outlined by table 7

Table 7: Arithmetical Means, Standard Deviations and "T" Test for the Items Which Compose the First Hypothesis in Comparison With Standard (2)

The advantages of the participation of the accountants in E-accounting information system lifecycle	No.	Arithmetical mean	Standard deviation	T value	Degrees of freedom	Significance level
	19	2.78	.631	-6.321	18	.000

Table above shows that there are statistically significant differences (0.05=□) between arithmetical mean and standard mark (2). As a result, this hypothesis has been accepted.

Testing second main hypothesis A test has been conducted between the arithmetic and theoretical mean; one sample test has showed the results outlined by table 8

In order to study and test hypothesis 1, stating that the accountants working in the Jordanian banks play a role in E-accounting information systems' life cycle as well as the sub-hypotheses which state the following:

Sub-hypothesis 1: the accountants working in the Jordanian banks play a role in the stage of the planning and the analyzing of the E-accounting information systems

Sub-hypothesis 2: The accountants working in the Jordanian banks play a role in the stage of designing E-accounting information systems.

Sub-hypothesis 3: the accountants working in the Jordanian banks play a role in the stages of implementing and evaluating the development of E-accounting information systems

Table 8: Arithmetical Means, Standard Deviations and "T" Test for the Items Which Compose the Second Hypothesis in Comparison With Standard (2)

	No.	Arithmetical mean	Standard deviation	T value	Degrees of freedom	Significance level
The role of the accountants in the stage of the planning and the analyzing of E-accounting information systems	19	2.73	.838	6.334	18	.000
The role of the accountants in the stage of the designing of the E-accounting information systems	19	2.11	.73	3.446	18	.003
The role of the accountants in the stage of the implementation and evaluation of the E-accounting information systems	19	2.38	.828	3.012	18	.007
The role of the accountants in the E-accounting information system lifecycle	19	2.40	.838	3.012	18	.007

Table 8 indicates that :

- There are statistically significant differences (0.05=□) between arithmetical mean and standard mark (2) regarding the first sub-hypothesis. As a result, this hypothesis, stating that the accountants working in the Jordanian banks play a role in the stage of the planning and the analyzing of the E-accounting information systems, has been accepted.
- There are statistically significant differences (0.05=□) between arithmetical mean and standard mark (2) regarding the first sub-hypothesis. As a result, this hypothesis, stating that the accountants working in the Jordanian banks play a role in the stage of designing E-accounting information systems, has been accepted.
- There are statistically significant differences (0.05=□) between arithmetical mean and standard mark (2) regarding the first sub-hypothesis. As a result, this hypothesis, stating that the accountants working in the Jordanian banks play a role in the stages of the implementation and evaluation the development of E-accounting information systems, has been accepted.
- There are statistically significant differences (0.05=□) between arithmetical mean and standard mark (2) regarding the first sub-hypothesis. As a result, this hypothesis, stating that the accountants working in the Jordanian banks play a role in E-accounting information systems' life cycle, has been accepted.

Testing the third Hypothesis:

In order to study and test the third hypothesis, stating that there are limitations hindering the participation of the accountants in developing E-accounting information systems in the Jordanian banks, a test has been conducted between the arithmetic and theoretical mean; one sample test has showed the results outlined by table 9

Table 9: Arithmetical Means, Standard Deviations and "T" Test for the Items Which Compose the Third Hypothesis in Comparison With Standard (2)

limitations hindering the participation of the accountants in developing the E-accounting information systems	No.	Arithmetical mean	Standard deviation	T value	Degrees of freedom	Significance level
	19	2.73	.838	3.012	18	.007

Table 9 indicates that there are statistically significant differences (0.05=□) between arithmetical mean and standard mark (2). As a result, this hypothesis has been accepted.

The Results and Recommendations

This study aims to investigate the role of the accountants in the E-accounting information system lifecycle- a case study in the Jordanian banking sector; it has reached the following results:

- The participation of the accountants in the E-accounting information system lifecycle achieve various advantages to the banks, including the reduction of the risks related to the e-systems, the provision of the e-system to the data required appropriate to the data users.
- There is a significant participation of the accountants in the E-accounting information system lifecycle. However, the percentages of such participation are varied in accordance with the activities and procedures of each stage of developing the accounting information systems. The application stage has reached the highest percentage of the participation of the accountants; followed by the evaluation stage; the implementation stage; the planning stage and finally the designing stage which has reached the lowest percentage.
- There are various limitation hindering the participation of the accountants; such limitations include a lack of the practical experience, a lack of conviction of the accountants ' ability to participate in the stages of planning, designing, applying and evaluating the accounting information systems relied on the computer, a lack of the functional skills which the accountants have in order to deal with the computerized accounting information system and a lack of understanding of those who manage the firms about the importance of the participation of the accountants in developing the E-computerized accounting information systems.

In light of these results mentioned above, we have recommended that:

- It is necessary to pay attention to the participation of the accountants in all various stages of developing the E-accounting information systems.
- Training programs shall be established in the field of developing the accounting information systems; such matter can enable the accountants to positively participate in the process of developing the system, as necessary.
- If the missions of developing the system are assigned to specialized offices, the contract must have the condition stating that the accountants shall participate in the process of developing the system as a type of training.

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