

**CANKAYA UNIVERSITY**  
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**DEPARTMENT OF MANAGEMENT**

**MASTER THESIS**

**ELECTRONIC ACCOUNTING AND MANAGEMENT OF ACCOUNTS IN THE  
PUBLIC SECTOR (COMPARATIVE STUDY)**

**NIBRAS MAHMOOD SHTEB AL-WAELI**


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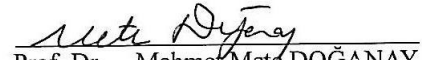
Approval of the Graduate School of Social Science, Çankaya University.

  
Prof. Dr. Mehmet YAZICI  
Director

I certify that this thesis satisfies all the requirements as a thesis for the degree of Master of Business Administration.

  
Prof. Dr. Mehmet Mete DOĞANAY  
Head of Department

This is to certify that we have read this thesis and that in our opinion it is fully adequate, in scope and quality, as a thesis of degree Master of Business Administration

  
Prof. Dr. Mehmet Mete DOĞANAY  
Supervisor

**Examination Date: 24 / 01 / 2014**

**Examining Committee Members**

Prof. Dr. Mehmet Mete DOĞANAY (Cankaya university)

Assist. Prof. Dr. Orcun SAKARYA (Cankaya University)

Assist. Prof. Dr. HAKKI ARDA TOKAT (TOBB University)


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Name, Last Name : **NIBRAS AL-WAELI**

Signature :



Date

: 24 / 1 / 2014

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This thesis is dedicated To pure hearts, souls and spirits...To those people who settled in graves, but still live in my heart (my father, my mother and sister).To my dear sister (Eman)who taught me the meaning of success, hope and patience to face difficulties ...

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## **ABSTRACT**

### **ELECTRONIC ACCOUNTING AND MANAGEMENT OF ACCOUNTS IN THE PUBLIC SECTOR (CMPARATIVE STUDY)**

**AL-WAELI, NIBRAS MAHMOOD SHTEB**

**Department of Management**

**Supervisor: Prof. Dr. Mehmet Mete DOĞANAY**

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The Electronic accounting systems have a tremendous importance for its ability to produce financial reports with high accuracy and precision effectively and efficiently in governmental institutions in the accounting transactions that helps in decision making at a glance. The purpose of this research is to solve the problems that are caused by using manual accounting systems and replacing it with an electronic one, which aid in producing reports and information accurately with full speed. It helps governmental institutions to achieve accounting, business transactions and to make administrative decisions in the right time and quickly to accomplish its goals. Through comparing between electronic and classical or manual accounting capabilities and also to meet the desires of the users to keep pace with technological developments, to provide a clear vision that may help to evaluate and introduces appropriate recommendations in this regard through reviewing scientific researches in this field a comparison has been done among some countries that use electronic accounting in their government sectors these countries are Malays, Albania, Turkey and Jordan. The research concludes a group of recommendations for applying electronic accounting in Iraq and to improve accounting system in Iraq and direct necessary advice to companies that produce such systems and those who have the right for making decisions to use it. When making decisions to use

any program, trying to develop or change the existing system the decision must be taken deeply and getting help from external experts.

**Keywords:** Electronic accounting, Accounting System in Iraq, Iraq, Improving Accounting system

## ÖZET

### KAMU SEKTÖRÜNDE ELEKTRONİK MUHASEBE VE HESAPLARIN YÖNETİMİ (KARŞILAŞTIRMALI ARAŞTIRMA)

**AL-WAELI, NIBRAS MAHMOOD SHTEB**

**Yönetim Departmanı**

**Danışman: Prof. Dr. Mehmet Mete DOĞANAY**

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Elektronik muhasebe sistemleri, devlet kurumlarındaki muhasebe işlemlerinde, bir bakışta karar alma süreçlerini kolaylaştırarak ve yüksek doğruluk, hassasiyet ile verimli ve etkin bir şekilde titiz raporların hazırlanabilmesinde çok büyük öneme sahiptir.

Bu araştırmanın amacı manüel muhasebe sistemlerinin yarattığı problemleri çözmek ve bunları yüksek bir hızda doğru bir şekilde rapor ve bilgi üretmede yardımcı olan elektronik sistemlerle değiştirmektir. Bu sistemler devlet kurumlarının daha sağlıklı bir biçimde muhasebe ve ticari işlemlerini gerçekleştirmesine olanak tanır ve hedeflerini yerine getirmek adına idari kararların doğru zamanda ve daha çabuk alınmasını sağlar. Araştırmanın amaçları arasında elektronik ve klasik veya manüel muhasebe imkânlarının karşılaştırarak ve diğer yandan kullanıcıların teknolojik gelişmelere ayak uydurma taleplerini karşılayabilmek, bu konuda uygun tavsiyeleri sunmayı değerlendirmeye yardımcı olabilecek açık bir görüş kazandırmak ve bu alandaki bilimsel araştırmaları incelemek de bulunmaktadır. Kamu sektöründe elektronik muhasebe kullanılan bazı ülkelerde bir karşılaştırma gerçekleştirilmiştir. Bu ülkeler Malezya, Arnavutluk, Türkiye ve Ürdün'dür.

Araştırma sonuç olarak, Irak'ta elektronik muhasebenin uygulanmasında bir grup öneriyi neticelendirmekte ve yine bu ülkedeki muhasebe sistemini geliştirmeyi amaçlayarak ve bu gibi sistemleri üreten şirketlere ve bunları kullanma kararı alan şirketlere gerekli

tavsiyeleri yönlendirmektedir. Herhangi bir programı kullanmak, geliřtirmeye alıřmak veya var olan sistemi deęiřtirmek veya geliřtirmeye alıřma kararı nemlidir ve uzmanlardan yardım alınmasını gerektirir.

**Anahtar Kelimeler:** Elektronik muhasebe, Irak'ta, Irak'ta Muhasebe Sistemi, geliřtirilmesi Muhasebe Sistemi



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## **LIST OF SYMBOLS / ABBREVIATIONS**

PSAs	Public Sector Accounting Standards
AIS	Accounting Information Systems
AAFA	American Association of Finance and Accounting
AAI	Automatic Accounting Instructions

## **INTRODUCTION**

Accounting is considered as a social science and activity that serves many of the interested parties and beneficiaries whether they are inside or outside the organization. Therefore, the need for accounting information come through the need for information that can help the users to make appropriate economic decisions.

The information technology is considered as one of the most important fields that accountants should be familiar with, because accountants process a large amount of information in their work that can be obtained through the accounting information system which is considered as an effective tool to provide the necessary information for management or for the organization. Information technology has become a key element in the organizations and information technologies are used in various fields to support the activities of the organizations in order to achieve their objectives, whether those objectives are profit oriented or non-profit oriented.

Today, the world is witnessing an enormous development in computer technology, and this technology has also caused substantial changes in accounting procedures. Many accounting procedures that are one manually performed are performed electronically by computers today. This technology presents tremendous potentials and a very important features, including the ability to store data and accounting information and running accounting data at high speed and high precision. In addition to the development of the internal and external networks, where through the internal networks all sections and departments and branches can be linked together, and through external networks they can link the organization with external parties including clients, suppliers, government and other related parties. The most important example is the World Wide Web (Internet).



Moreover, this enormous potential, coupled with the rise of giant companies and the merging of entities that use large accounting information technology, as well as the increasing competition between most of these companies and institutions and the growth of international trade and the information revolution, all that helped to spread the use of computer technology in accounting information.

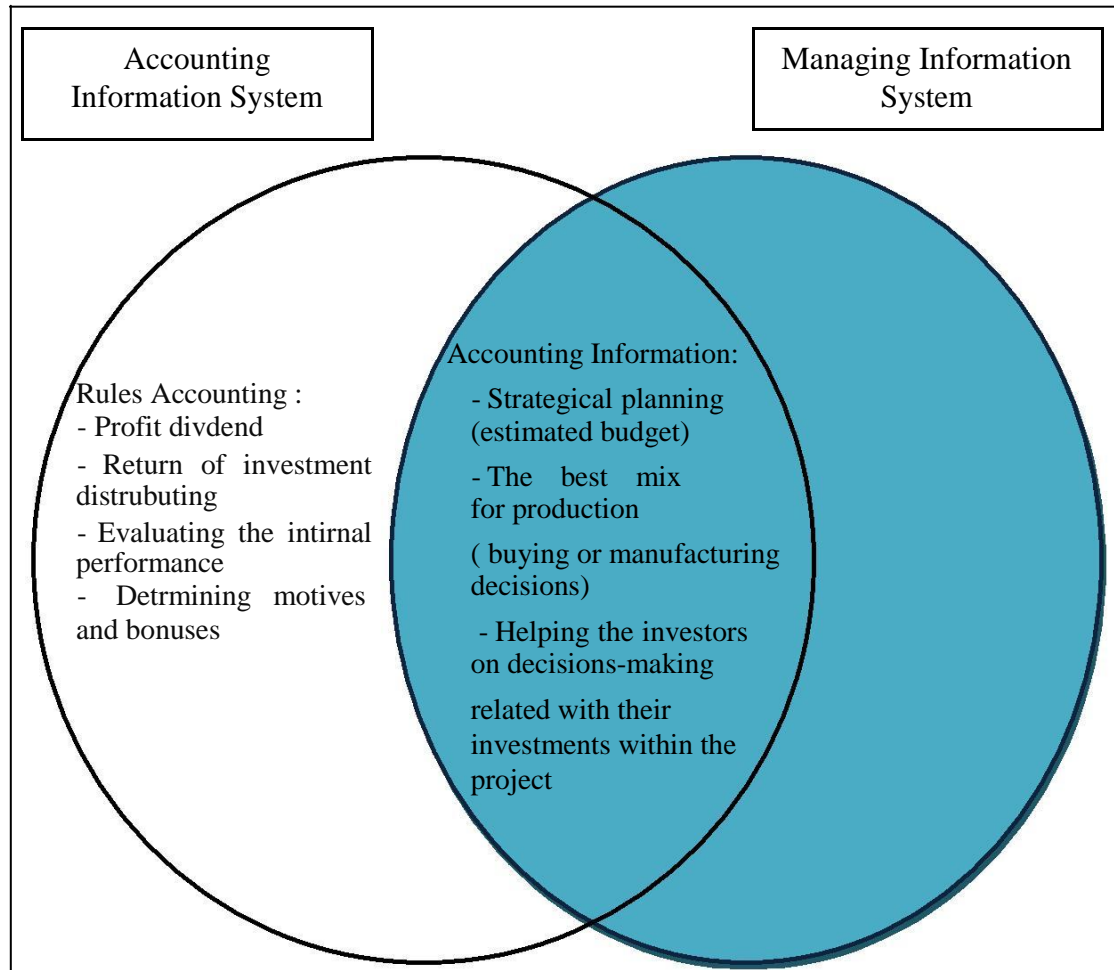
The **Tucher's** study of 2001 emphasizes what we have previously said, including the increasing growth in using this technology by companies and institutions of all the sizes in developing their internal systems to obtain a competitive advantage. This growth is appeared through the increase in spending for getting this technology. Hence, the electronic accounting imposed a new reality on the accounting profession as a result of making the activities and transactions of the company dependant on computer usage. These developments have also affected the accounting profession, and have forced the accountants to keep up with these developments. Moreover, they showed the accountants the importance of changing their conventional methods with new techniques based on modern technological methods and advanced analytical techniques in order to perform accounting operations efficiently and effectively.

The global companies and institutions have operations all around the world and many stakeholders from different companies. They also control huge amount of capital. As a result the importance of the published financial statements has increased, considering them as a source of information, which serves those interested including the businessmen and financial institutions in decision-making, whether in investments or in the finance fields. In order, these published financial statements to meet the needs of the users, two basic conditions should be available which are: the information that these data provided should be characterized by a reasonable degree of credibility, so that it can be trusted and relied upon in planning, controlling and decision-making, as well as that information should be comparable so it can be used to evaluate the institutions' performance and standing on its financial position. Furthermore, governments begun to develop regulations and tax laws, and as a result of all these developments, the need for accounting reports has grown and to standardize the methods of preparing these reports has become very important.

Efforts have begun focusing on putting the foundations and rules of the accounting profession, that has resulted in what became known as the generally accepted accounting standards. Therefore, the needs and requirements of the markets and financial statement users led to developing the accounting profession in general and the underlying controls particularly. Most of these developments that we have mentioned happened in the United States, but there were similar developments that have taken place in various countries that are developed commercially and industrially.

The great development that has been witnessed by the accounting profession is the computerization of accounting systems. And like any system it has been developed to serve a particular sector, and the scope of its work is being determined. The scope of accounting information systems and its relationship to the information system management has two points:

The first point is that the accounting information system is part of the whole management information system. The role of accounting information system is limited to measuring the historical accounting information for the purpose of preparing reports for external parties. According to this view, the accounting information system is known as an integrated system of machines and people to provide the necessary information for management in order to achieve the optimal use of the available resources for the organization. While the second point is that the role of accounting information system is not just the preparation of the financial statements of the organization for outsiders, but also to provide information for the insiders that are necessary for planning, controlling, and decision-making. The American Accounting Association has prepared a report which represents conciliation between the two views that previously mentioned, which considered the accounting information system and the management information system as independent systems, each one has its own functions. But there is an overlap between them, as shown in Figure (1). The intersection area represents the shared side between the two systems. The accounting operations area specializes in providing the needed data for making decisions, whether from inside or from outside the organization. While financial accounting specializes in determining rights regarding with the outside parties, such as the return on the project investment including profit and dividend.



**Figure 1.1 :** The Overlap Between The Managing Information System And Accounting Information System

Hence, the importance of using an electronic accounting system in business has appeared:

The institutions that have not used the electronic accounting yet may differ significantly in terms of the evolution and the development. The large size of business institutions and the geographical distance between their subsidiaries made an urgent necessity to use the electronic accounting for managing the institutions businesses and getting reports in a timely manner, and with a high quality of accuracy.

Many researchers have spoken in this subject, and the following is some of what they said about it:

Due to the development of businesses in terms of increased size and diversity of their business and their geographic location, all that and other has increased the importance of the use of electronic devices and computer programs (Ahmed, 2006 p: 87).

It is worth mentioning that all current accounting processes can be performed electronically. One of the most important uses of computer is producing the reports and making comparisons, and providing information about costs and revenues fast and continuously without incurring additional costs. That made the administration able to make decisions at the appropriate times, to deal with any risks or distractions, and also they can produce the reports at the appropriate and specific times as well as its importance in providing information and making assessment on it in order to assess the financial performance. In addition, there many other uses, such as determining adequate liquidity and forecasting required cash demands for future periods, etc. (Oban, 1998, p. 34-37).

The benefits of computer programs in digital information processing have emerged clearly in the administrative uses. There have been many computer programs to service the administration in all the fields of its work, planning, controlling, performance evaluating, decision-making, and in business fields such as purchasing, warehousing, production, and office works and what can help the administration at all levels including - executive management- supervisory management and the senior management (Arab Society assembly, (2), 2001, p: 26).

This technical developments have reflected to enhance accountants contribution in the administrative process within the organization, and providing a valuable opportunity to support the communication activities with the different administrative levels, through what the information technologies is providing of time, speed and accuracy in the completing the structural activities (routine activities ) in the accounting work. (Arab Society assembly, (4), 2001, p 337).

The spread of computer usage in accounting data processing that is derived from the documents and accounting books and converting them into information, can be utilized in developmending plans and programs for business performance, and implementation and supervising these plans in order to achieve the organization's goals. Those made this tool an important mean helped the administration in time, effort and cost reduction by saving and accounting information and storing them for using them in the needed time, and using it when making a decision related to work and various activities in organizations. (Ahmad, 2006, p: 87).)

In terms of supervising and following-up, the control activity has become more accurate and comprehensive by using computers. In addition to that it is instantaneous, because the use of computer reduces the time difference between the implementation and supervising. The use of computers has also enabled the communication of the results, analyses, and developing important indicators that can allow the predictability and the speed of discovering the actual deviations (Ahmed, 2006, p: 87).

The use of computer contributes to the preparation of performance reports in the appropriate time. It has become possible for the managers to receive such reports in a short period of time after the end of the processing, which leads to an increase in the operating efficiency due to the immediate initiative in checking and correcting the causes of deviations before the aggravation of the situation. (Moscov and semken, 2002, pp. 320-328).

In the field of decision-making, the use of computers has led to providing the management with the necessary information for decision-making, with appropriate speed and accuracy, and by applying advanced techniques for solving problems such as transaction researches, simulation and contests theory, which consequently led to streamlining the decision-making processes". (Ahmad, 2006, p: 87).

Through the studies above, the importance of using electronic accounting in organizations can be summarized as follows:

- 1- Reports can be produced, comparisons can be made, and information can be provided in a short period time and accurately, without incurring extra costs.
- 2- Service to the management in all fields including planning, monitoring, performance

evaluation, and decision-making can be provided in a timely manner and accurately. 3- Higher degree of integration and connection between the activities within the enterprise can be achieved.

### **1.1 Research Problem**

The spread of modern technology in the world, the increase of the organizations' international activities and the expansion of the businesses globally have led to the emergence of many accounting problems that is difficult for the institutions and the companies to tackle with. All of these developments require that radical changes in the accounting systems be made in order to keep pace with the modern economic developments. So, the necessity to establish an electronic accounting system has become very important in order to form a common accounting language, to make recording fast and error free, to make reading and analyzing financial statements easy in a more efficient and effective way, and to help in the decision-making process and the development of strategic plans particularly in the public sector.

### **1.2 The Importance of the Study**

The importance of the study stems from mainly the importance of electronic accounting and the role it plays in the rehabilitation of the government institutions in order to enable them to integrate with the rest of the world. Moreover, to ensure the government's ability to maintain the national economy and to find a way or a mechanism of accounting system development for those organizations that use modern technology. It also encourages a lot of government sectors to use electronic accounting, and achieve significant returns contributing to the development of the national economy in various fields. Through this research I will analysis -in a scientific, thoughtful and organized way- the electronic accounting applications in the public sector through reviewing a selected group of countries.

Then, the results that we obtain will be depended on to guide other countries on how to achieve this transition smoothly. Furthermore, we believe that this will make a modest contribution to the computerized accounting research.

### **1.3 Research Targets**

This study aims to:

- 1- Search the application of electronic accounting in the public sector of Iraq.
- 2- Identify the problems that may be faced as a result of the application of electronic accounting systems in the public sector.
- 3- Compare and derive results from the application of electronic accounting in different countries.
- 4- Make the appropriate recommendations to ensure the strengthening of the accounting system that is linked to the internet.

### **1.4 Study's Methodology**

The necessary data have been collected from the recourses such as the books and studies in specialized fields, postgraduate studies, studies and researches published on the Internet. Information about the actual application of computerized accounting in various other countries such as Malaysia, Albania, Turkey, etc. are studied.

## **CHAPTER II**

### **GOVERNMENT ACCOUNTING**

#### **2.1 Government Unit**

Every government provides public services, makes investments (especially in infrastructure), and provides transfer payments such as pensions. All of these activities cost the governments a large amount of money. Hence, the governments have to generate the revenues that are required to cover these costs. From this explanation we can conclude that governments have revenues and expenses. Therefore, it is necessary for the governments to establish an organized way to record various financial transactions that create these revenues and expenses. Also, it is of utmost importance to establish the systems that are essential for controlling and supervising these transactions. Recording the transactions is related to accounting. So, accounting concepts must be known and their applications must be devised to carry out the recording of government financial transactions[2].

##### **2.1.1 The concept of government Unit:**

It can be said that a government unit is the administrative establishment that provides certain public services. For example, a ministry or an agency or a government institution can be considered as a government unit.



### **2.1.2 The characteristics of a government unit:**

The most important characteristics of a government unit can be explained as follows:

1. The financial resources of a government unit are annually renewed: state allocates for each government unit the financial resources required for funding its activities via the general budget.
2. The unified financial system is derived from the financial instructions issued by the supreme authority to every government unit.
3. A government unit is not allowed to be owned by individuals and private institutions.
4. Government units are classified as:
  - a. Revenue units: units whose revenues substantially exceed its expenses, for example, customs offices. This type of government units are responsible for collecting revenues.
  - b. Non-revenue (expense) units: units whose activities do not generate revenue or very low revenue compared to its expenses. This type of government units consume large amount of financial resources. Government units related to defense, health and education are examples to this type of government units.
5. Identity of a government unit is sometimes not very clear because each unit that is present in the administrative system is associated one way or another with other units. These relationships stem from numerous administrative and regulatory reasons.
6. Causal relation between revenues and expenses are limited. The expenses of the units do not represent its effort in generating revenues. Expenses of a government unit may not generate any revenue at all. This is contrary to the situation in private sector. In private sector expenses must generate revenues that exceed them.

7. The units have the sovereign authority in carrying out its activities. They are also subject to strong internal control that is required to save public money from any abuse[31].

### **2.1.3 The general characteristics of government activities:**

The activities of the government units are different from the activities of the private sector economic units for the reasons listed below:

- ❖ The aim of the activity: the main aim of the activities of the government units is to provide public services for the community. On the other hand, in the private sector, the main aim of the activities of the economic units is to earn profit. In the private sector the main motive is profit whereas in the public sector the main motive is public benefit.
- ❖ Continuity: the government activities are characterized by their continuity due to the essential functional nature of the state.
- ❖ Financing: Government activities are financed by the funds allocated at the beginning of each fiscal year. This allocation is accomplished through a budget. In the private sector financing the activities is mainly depended on the external financial resources such as bank loans or internal financial resources such as retained earnings.
- ❖ Accounting measure: It is often difficult to measure the activities of a government unit in accounting terms that is revenue minus expenses because the activities of the government units are not geared to make a profit. Nevertheless, that does not prevent assessing performance of the government units [11].

## **2.2 Government Accounting**

Throughout this section, the focus will be on the government accounting in general. Expectations from the governments (public services, infrastructure investments, and transfer payments) increase rapidly day after day and these expectations increase the burden of the government units year after year. Today, the activities of the governments are not limited to providing traditional public services such as defense, security, justice and education, but the multiplicity and diversity of expectations from the government has necessitated the government activities to include all kinds of social and economic activities[4].

Particularly in Iraq, the general budget has become the important basic tool of formulating the social and economic policies that are the effective means of economic reforms, especially after the recent serious developments.

The general budget preparation and the basis of estimating financial resources and the allocation of these financial resources to each government unit in the administrative system are considered to be one of the most important issues that must be dealt with. The field of government accounting emerges as an important tool to deal with this issue. That is way it is very important to establish and implement a sound government accounting system. Otherwise, it becomes very complicated to track the revenues and expenses[9].

### **2.2.1 The definition of the government accounting:**

Government accounting is one of branches of accounting that deals with the methods, which are used in measuring and recording government revenues and expenses, and presenting financial reports related to the government activities to be used by the parties involved [9] [11].

Government accounting can also be defined as the process of approving, allocating and expensing the public financial resources, presenting the periodic reports, and assessing their impact on the government activities[4].

Government accounting aims to provide the involved parties with the government financial data. These parties include the following:

1. Public servants: Those data are of importance for the public servants in arranging every-day financial transactions and in doing their own duties properly.
2. The legislative authority: The legislative authority investigates the information that is presented in the reports to figure out whether the general budget is implemented properly or not. In other words, they wonder whether the public money is spent as prescribed by the budget, and whether the revenues are collected as estimated in the budget. If there is a deviation from the budget, they demand an explanation from the administration.
3. Businessmen and investors: They analyze the financial reports presented by the government for one clear reason, that is whether their investments are safe or not.
4. Academicians in finance also need these data because they use the data in their studies.
5. General public: Each individual or institution may have his/her/its special reasons to study and analyze financial reports prepared and issued by the government [4].

### **2.2.2. The requirements of the government accounting system:**

In order to make the accounting system achieve its aims, the following requirements must be met:

1. The rules that must be followed to record government transactions accurately must be defined clearly so that the data documented in the records and presented in the reports are safe and protected from unauthorized change.
2. Government accounting system must be established in a way to enable records to distinguish the functions, government units and the type of the expenses or the revenues. In other words each transaction must provide information about the government unit involved (for example ministry of health), function that the transaction belongs to (for example health services), and the type of the expense or the revenue (for example wage expenses).
3. An effective internal control system ensures the accuracy of the various transactions and discovering, if any, mistakes and fraudulent recording.
4. The system must be designed to provide the data in appropriate form so that it can be used in planning, controlling and economic analysis.

### **2.2.3. The bases of the government accounting system:**

The government accounting system has four main bases:

**First:** recording tool. It can be either electronic (i.e. computer) or manual (i.e. books).

**Second:** Source documents, which are the documents that support accounting records.

**Third:** periodic reports that are used to make decisions and conduct analyses.

**Fourth:** internal control. Internal control is the system that prevents, detects, and deters misstatements[13].

Components of the Government accounting system:

Generally, these components can be found in any accounting system and they are also present in the government accounting system. These components are as follows:

1. Documents

Documents are the basis for recording the transactions. Each transaction creates revenue or an expense and documents are the evidence that these transactions have actually occurred.

2. Books

Accounting records are kept in the books. Books consist of main and subsidiary accounts. Records are made into the accounts. We can say that accounts are revenue and expense items. When revenues are earned and expenses are incurred a record is made. Books are the main storage devices in an accounting system.

3. Control system:

Control system periodically compares the actual results with those of the budgeted ones. Control system uses the information contained in the books to come up with the actual results. Budget numbers are obtained from the budgets. Control system provides the information necessary to prepare the periodic reports, which is another component.

4. Periodic reports:

Periodic reports consist of the quarterly and annual reports giving information about the actual figures (both revenues and expenses) and comparisons of the actual figures with those of the budgeted ones. Users of the government accounting system get information about the deviations from the budget by examining the periodic reports.

#### **2.2.4 The bases of measurement in government accounting:**

Measurement is the basis by which expenses and revenues are recognized and recorded in the books. There are three bases in recognizing revenues and expenses. They are as follows [12]:

- Accrual basis: Revenues and expenses are recognized when they are incurred regardless cash collections or payments. In other words, revenues and expenses are recorded in the fiscal year (accounting period) when they occur independent of cash inflows or cash outflows

- a. Advantage: Since revenues and expenses are recorded in the fiscal year that they belong to it gives a clear picture of the financial performance of a given year. Also accrual basis of accounting makes comparison among fiscal years more meaningful.

- b. Disadvantage: At the end of each fiscal year adjusting entries must be made in order to assign revenues and expenses to the fiscal year that they belong to. Some adjusting entries may be complicated and they may require careful analysis.

- Cash basis:

In cash basis of accounting revenues and expenses are recorded when cash is collected or paid. In other words, revenues are recorded when the cash for that revenue is collected regardless when the activity that generated the revenue occurs. Revenue generating activity may occur in a different fiscal year from the cash receipt. But the revenue is recorded in the fiscal year that the cash is received. Likewise, expense may occur in a fiscal year different from the fiscal year that the payment for that expense is made. But the expense is recorded in the fiscal year that the payment is made.

- a. Advantage: it is simple to apply. There is no need for complicated adjusting entries at the end of each fiscal year that assign revenues and expenses to the appropriate fiscal years.
  - b. Disadvantage: Since revenues and expenses may be recorded in the fiscal years other than the fiscal years that they occur, it is not possible to get a clear picture of each fiscal year's performance. Also, it makes it hard to compare the performance of different fiscal years, since revenues and expenses may be recorded to the periods that they do not belong to [6][13].
- The mixed basis:

It is a combination of the accrual basis and cash basis. It is the basis that is used in the government accounting in Iraq. This basis is applied as follows: **Revenues:** Revenues are recorded in accordance with the cash basis. In other words, revenues are recorded when the cash for that revenue is received. So, the revenue generating activity may occur in the same year, previous years, or coming years. Regardless when the revenue generating activity occurs, revenues are recorded in the fiscal year that the cash is received.

**Expenses:** Some expenses such as ranks and fee of services are recorded in accordance with the accrual basis that is in the fiscal year that they occur. Other expenses are recorded in accordance with the cash basis that is in the fiscal year that the payment is made for those expenses [6][12].

### 2.3 The unified accounting system in Iraq

This unified accounting system in Iraq was established 25 years ago. It was designed to address the needs of the economic environment in the 1980s and 1990s. The world and Iraq have witnessed tremendous changes in the first decade of the twenty first century [6][7]. These changes have brought economic reforms that transformed Iraqi Economy a market one and as a result it encouraged foreign investments. Iraqi legislation enacted new laws for a number of governmental institutions such as the Iraqi



Central Bank, banks, insurance companies and the Iraqi stock exchange. These laws stipulated that these intuitions apply government accounting standards. These laws were enacted to meet current and future needs as a result of the economic reforms[5][11]. Coping with the main aim of the international accounting standards, represented by unifying accounting concepts and practices and issuing the appropriate financial reports on the international wide, parties specialized the accounting have sought to keep on working with the accounting unity in Iraq by unifying the accounting concepts and practices and the appropriate financial reports for making a comparison between the general and mixed institution sectors, taking into consideration the concord with the international accounting standards, to develop the accounting level in Iraq, serve the national economics and enable the financial reports to meet the needs of the economic unit, report users, the national accountant and tax device, in addition to its dealing with cost accounting and financial accounting concepts [5][6][11].

### **2.3.1 Accounting principles and concepts**

The unified accounting system is based on the accounting principles and concepts concerning to the conceptual framework of the international accounting standards, which are the following[5][13]:

#### **2.3.1.1 Accounting concepts**

- a. Entity concept: Economic unit or the government unit for which the accounting records are kept is independent from the individuals who affiliate with that unit. According to this concept, only the activities (revenue generating or expense generating) of the unit must be recorded, not the personal activities of the individuals that are affiliated with that unit[13].
- b. Going concern concept: This concept assumes that the economic unit or the government unit will continue its operations forever. In other words, this concept assumes that the life of the unit for which accounting records are kept is unlimited[5].

- c. Monetary unit concept: All records must be kept in terms of a currency unit. It is assumed that the purchasing power of this currency is reasonably stable over time. If the purchasing power of the currency is very volatile, it makes it difficult to make meaningful comparisons between the fiscal years and necessitates some adjustments[13].
- d. Periodicity concept: Although it is assumed that the life of the unit (economic unit or the government unit) is unlimited, this unlimited life is divided into certain periods and results of these periods are reported. These periods for reporting purposes are called fiscal years (for government units) or accounting periods (for economic units). Fiscal year or accounting period is usually a year. Although it is one year, beginning of the year (that is the fiscal year or accounting period) differ from government to government or institution to institutions. It may be calendar year or different from the calendar year[5].

#### **2.3.1.2 Accounting principles:**

- A. The principle of matching revenues and expenses: The main outcome of accounting is the financial reports that show the performance of an accounting unit (economic unit or a government unit). Revenues must be matched with the expenses that are related to those revenues. In other words revenues must be recorded in the same period with the expenses that are incurred to generate those revenues[6][14].

Here, some problems appear in determining the expenses of that period, because some expenses have direct relationship with revenues[14]. While, at other times, there is no direct relationship between revenues and expenses, which requires using judgment in determining relationship between revenues and expenses in that period.

- B. Consistency principle: it means that the policies and methods of accounting certain transactions should not be changed from one period to another. This

principal states that same policies and methods must be applied consistently from one period to another[5][7].

- C. Revenue recognition principle: According to this principal two conditions must be met to recognize revenue[7]. These are:

**First:** Revenue generating activity must be complete. In other words, activity that causes the revenue to occur must be completed.

**Second:** There must be no uncertainty about the collectivity of the cash. Cash may be received after the revenue generating activity occurs. But, according to this principal there must be reasonable assurance that the cash will be received in the future.

- D. The objective evidence principle: This principle requires that every accounting record must be supported by an objective and verifiable document[7].

- E. Adequate disclosure principle: It is necessary to include all material information (financial or non-financial) in the financial reports in order to make report users to take more informed decisions. This is accomplished by furnishing these information in the footnotes that accompany to the financial reports.

### **2.3.2 Basic characteristics of the unified accounting system**

**First:** comprehensiveness:

- 1- It includes the public sector.
- 2- It includes all operating and investing expenses, regardless the source of their funding.
- 3- Chart of accounts is prepared similar to the traditional chart of accounts and the inclusion of cost and revenue accounts, national accounts and other accounts necessary for controlling and planning purposes are taken into account.

**Second:** simplicity and flexibility in the application:

The aim of the system is to make it easier for the government units to process accounting information. Another aim of the system is to provide accounting information related to relevant government units for planning and controlling purposes through:

- 1- Furnishing the required statistical data needed by various parties,
- 2- Preparing statistical statements attached to the system to cover the requirements of all parties for controlling, planning and decision-making [6] [7].

### **2.3.3 The scope of the unified accounting system application:**

A. The unified accounting system is applied by all economic units in the public sector and self-funding administrations which are dealing with economic bases and aim to cover their production costs or in more general[7], regardless of their administrative relation with considering the following:

- 1- The unified accounting system is applied to productive economic units based on the consideration of its expenses that are distributed to the formations belong to it[5][7].
- 2- The system is applied to all training centers that operate in favor of the productive parties, by considering that the expenses of these centers are distributed on beneficiaries of productive facilities[6].
- 3- The system application includes printing, publishing, and distribution facilities, regardless of the size of the support and subsidies received from the state as productive facilities on which the above concept is applied.
- 4- All the institutions and facilities of public sector, which practice construction works and the advisory and laboratory centers associated with it, are included by the unified accounting system as it is considered one of the parties whose dealing is based on economic basis.

- 5- The system had been applied on all the tourist public sector facilities by considering them as productive facilities whose dealing is based on economic basis[35].
- B. The system application includes all cooperative associations.
  - C. The unified accounting system is applied on all mixed sector companies
  - D. The following parties are excluded from the unified accounting system:
    - 1- Ministries and directorates whose budgets are part of the ordinary state budget.
    - 2- Banks
    - 3- insurance companies[5][6][7].

## **CHAPTER III**

### **ELECTRONIC ACCOUNTING / INTRODUCTION**

After continued growth in the use of information and communication technologies in business operations in order to support data and information processing within and between organizations, the term Electronic Accounting has emerged as one of the contemporary issues in accounting.

The role of accountants has also changed as a result of the developments in information technology. Accountants today have become more interested in the sources of accounting records, in other words the transactions on which the accounting records are based, the effects of accounting figures on the financial position, performance and cash flows of a business, accessing to different local and international databases in order to make reasonable comparisons[16]. Decision makers such as investors and creditors also want to get instant and up to date accounting information in order to make informed investment and lending decisions. All of these developments necessitate reliable and fast information processing.

The electronic accounting system is one of the important technologies for providing useful information processing capabilities for accounting operations. Because of its high-speed capabilities in performing calculations, storing and retrieving data, preparing necessary reports, and conducting various checks in order to ensure the correctness of the records and the reports, electronic accounting systems have been adopted by many organizations (government or private) throughout the world. One of the most important advantages of electronic accounting is its speed and reliability.

Developments in information technologies have brought new approaches to business operations, also these developments influence the accounting practices of the institutions, especially with the emergence of e-commerce concept and the effects of this concept on the accounting function where this system has caused some changes to the basic principles of accounting[16].

### **3.1 Definition Of Electronic Accounting:**

Electronic Accounting can be defined as: computerized system that makes journal entries, posting the figures to the ledgers, preparing the trial balance and the financial statements.

More precisely and more comprehensively, the term Electronic Accounting means performing traditional accounting tasks on computer through the Internet or through an application by using digital tools. All the mechanical tasks such as recording, posting, preparing the trial balance and the financial statements that once performed manually are performed by computer in an electronic accounting system. In electronic accounting there is no need to keep traditional paper based books. Because all the books such as the general journal, general ledger and subsidiary ledgers are kept electronically.

### **3.2 The Advantages Of Electronic Accounting:**

1. Speed in processing, recording and posting accounting data: Computers process data very quickly so that they can process over a million mathematical or logical operations per second.
2. Accuracy: it is known that computers can work continuously for a long time in data processing without any stress, they repeat the process for any number of times without error or change provided that the instructions and data entered into the computers are correct and proper. In other words if the computer is programmed correctly it processes the data accurately.
3. The preparation of the budget estimates can be done faster: Computer helps prepare annual budget faster. It provides all reports and accounting data that are necessary to prepare the budget.[33]
4. Facilitating change in records: easy-to-follow up on the events when there is a fault or there is a sudden change in the data.
5. Quickly identify current balances: electronic accounting helps to retrieve all account balances including the balances of the subsidiary accounts quickly. An accountant or a manager can quickly get information at any time about the assets,

liabilities, revenues, expenses, and costs of an organization.

6. Speed in preparing the reports[16]. By its information processing capacity, it is very easy to get any type of accounting report including the financial statements from an electronic accounting system. This capacity makes managerial decisions faster and more accurate.

### **3.3 Disadvantages Of Electronic Accounting:**

1. Difficulty in finding the optimal combination of hardware, software and other subsystems for the formation of the electronic system, so as to ensure the achievement of the objectives of the system and to secure reliable information processing capacity at a possible minimum cost.
2. Electronic accounting necessitates the use of software, in other words the use of accounting programs. There are very sophisticated accounting softwares as well as very simple ones. That is the way it is very important to choose the appropriate software. The most important criterion in choosing accounting software is its appropriateness. Choosing a wrong software may lead to higher costs or insufficient capabilities. The large number of accounting software in the market causes trouble for the organizations in choosing the appropriate one.
3. In case of using more than one software in the computer system, more than one compiler will be needed, that will make the accounting system more complicated.
4. Difficulty in choosing an appropriate computer energy system for the organizations and the facilities. As an example Iraqi Ministry of Electricity, Telecommunications and service need high performance computers in its departments which consume high energy, in order to control the huge number of user accounts, while the rest of small units must be energized with low power in order to avoid waste, thereby reducing the costs.



5. Difficulty in finding the compatibility in knowledge: the harmony between individuals, who are working on local electronic accounting systems and programmers, reflected on all stages of the design and operation of the system is necessary.

6. Control problems: control problems can be summarized as the lack of knowledge of the outside observers of the electronic accounting system, computer languages and programs, which poses a real challenge to the audit profession.

7. Administrative problems: the main justification for the existence of computers is to improve administrative performance of decision-making process. But there are several problems, the most important of which is the lack of knowledge of the managers in the design and functions of the electronic accounting system. Sometimes the managers may not understand and appreciate the contribution of electronic accounting systems to information processing. If the managers do not have the necessary knowledge they resist a change from a manual system to an electronic system.

8. Natural and physical risk: computers are exposed to many risks such as fire, natural disaster, theft or loss of information, power problems such as low or unsteady voltage, physical damage.

9. Computer virus: this problem is not limited to one computer, but all computers may be infected with it, which disrupts the work of the electronic accounting system.[33]

### **3.4 Categories Of E-Accounting Applications:**

Electronic Accounting applications can be classified as follows:

1. Electronic applications in the field of financial and governmental accounting (applications of General Ledger and General Journal in particular): They are the applications that use computers to perform the most important tasks of financial and governmental accounting such as making journal entries, posting to ledger, and preparing trial balance and the financial statements.
2. Electronic applications in the field of cost accounting:  
Cost accounting applications in electronic accounting are cost assignment, cost allocation, job-order costing, process costing, and variance analyses when the standard costing method is used.
3. Electronic applications in the field of Managerial Accounting, particularly in the areas of managerial decision-making. Electronic accounting can be used to prepare budgets and perform budget analyses. Budget analyses involve comparing the budgeted results with those of the actual results. Variance analysis is a very important part of budget control and computers can perform variance analysis easily. Accounting softwares have modules that are capable of performing variance analysis.
4. Electronic applications in other areas of accounting such as preparing the tax returns. Electronic accounting softwares have capabilities of preparing different tax returns such as value added tax return, excise tax return, income tax return, corporate tax return. The capabilities of the accounting softwares make it possible to retrieve necessary accounting information that is used in preparing tax returns.
5. Applications of Electronic Accounting which provide links to internet, for example some accounting applications allow the users to connect to the Internet from within the

application and this capability is important for the performance of electronic accounting tasks. In some cases organizations do not have to possess the accounting software by purchasing and installing it. They may register a platform that provides the software and use it through internet. In that case all data are stored by the accounting software service provider.

6. Accounting applications based on the use of databases: Electronic accounting systems may be integrated with databases. This application makes it easier to disseminate and retrieve data from the connected databases. Connection to a database also makes it easier to disseminate data for the use of decision-making. For example, an investor may access the financial statements of an organization through a database. Tax authorities also have databases. Different e-accounting applications in several countries make it possible for the organizations to store data into tax authority's database. The tax authority may use these data for different purposes.

### **3.5 Impact Of Computer Use On Accounting Information:**

The use of computer does not affect the fundamentals of accounting information, it can be said that the elements of accounting information in an electronic based system are not different from a manual accounting system, meaning that in any case, an accounting system makes records (journal entries), post the amounts to the accounts, prepare the trial balance and the financial statements. Electronic accounting only brings speed and accuracy to the operations and provides data storage capacity.

1 - The impact of documentary group: In manual accounting systems documents are paper based such as invoices, purchase requisitions, purchase orders, time sheets, payrolls, receipts, etc. Accounting records are based on this paper-based documents and they are filed traditionally in folders. Application of electronic accounting has not changed the nature of the documents. They are still paper based. But in some countries electronic documents can also be used. For example, invoices are prepared

electronically, sent electronically to the buyers, and filed electronically. Tax returns are also prepared electronically and submitted to the government authorities without being printed. Some countries have enacted laws that made it legal to use electronic documents.

2 - Impact on Book Group: In manual accounting system, book group takes the form of folders, which can be accessed by everyone physically. In an electronic accounting system books are kept electronically. Some countries require that books kept electronically be printed and filed traditionally as paper-based. But there are also other systems that make it possible to keep the books totally electronic media. They are called electronic books and some countries have taken legislative actions to make electronic books legal.

3. Impact on chart of accounts: Chart of accounts used by an organization includes a list of main and subsidiary accounts. If the chart of accounts is necessary for the manual system it is more necessary in the electronic accounting system. Chart of accounts with the names and numbers of all main and subsidiary accounts must be inputted to the electronic accounting application in order to make recording possible.

4. Effect on the financial statements and other reports: The use of computer has influenced the quality of the financial statements and reports provided by the accounting system, and facilitated the preparation of financial statements and other reports such as cost or budget reports. The use of computers has led to the accuracy and speed of access to the financial statements and other reports, as well as the possibility of providing more effective management reports, due to the ability of the computer to process massive amount of data, and the possibility of the development of quantitative models in solving management problems.

## 5. Impact on data storage and accounting information:

The data is stored in the manual accounting system by putting the original documents inside the private files, in addition to the books and records that contain recorded data. Under electronic accounting system, the nature of the system provides a new way of data storage and the data are stored into the hard disk of the computer.[38][39]

It can be said that there are two basic ways to store data:

**First:** the original volume:

It is a component of the computer's central processing unit for data storage, and it can be operated or reused in future operations.

It is clear that this type of storage always directly connected to the central processing unit and it is part of it. Also, anything previously stored can be reached and retrieved directly, regardless of the location of the data within the volume.

**Second:** A data storage unit outside the computer called external storage device such as magnetic tapes or CDs may be used. Another way to store data is to use the storage facility provided by a service provider. This type of storage is explained above.

### 3.5.1 Areas of using computers in the field of accounting

It is possible to use the potential of computers in many areas of accounting including the following:

**First:** Performance of basic accounting procedures such as:

- Making journal entries (accounting records) into the general journal.
- Posting the amounts to the general ledger.
- Preparation of the trial balance.
- Preparation of the financial statements and periodic reports, such as: balance sheet, Income Statement, statement of cash flows, and budget reports.

**Second:** Performance of other accounting procedures such as:

- Keeping subsidiary ledgers such as accounts receivable ledgers, accounts

payable ledgers, inventory ledgers.

- Employee and payroll records
- Calculating and recording depreciation

**Third:** Store and analyze data that are used in decision-making, such as:

1. Pricing under several different conditions and their impact on the profitability of the business.
2. Inventory management and order processing.
3. Analysis of labor costs on the basis of departments and operations.
4. Cost variance analysis.
5. Break-even analysis[35]

### **3.5.2 System**

It is well known that a system consists of several elements related to each other and perform a particular function or several functions, regardless of whether that system computerized or not. A system is always governed by policies and procedures to be followed routinely, as these procedures are monitored by the system administrator to make sure that no breaches of policy happens.[37]

### 3.5.3 Information system:

The information system is the primary source to provide management with appropriate information for managerial decision-making. An information system is defined as a set of components connected with each other properly in order to produce useful information, and provide this information to the users appropriately and timely in order to help them in performing the functions entrusted to them (Abdul Razak Mohammed, 2003, p: 18)

It is also known that any information system consists of three main components:

1. Inputs
2. Processing
3. Outputs



**Input:** It is the data entered into the system that will be processed.



**Process:** It is all logical and arithmetic operations on the input data to prepare it for the third phase of the system (output).

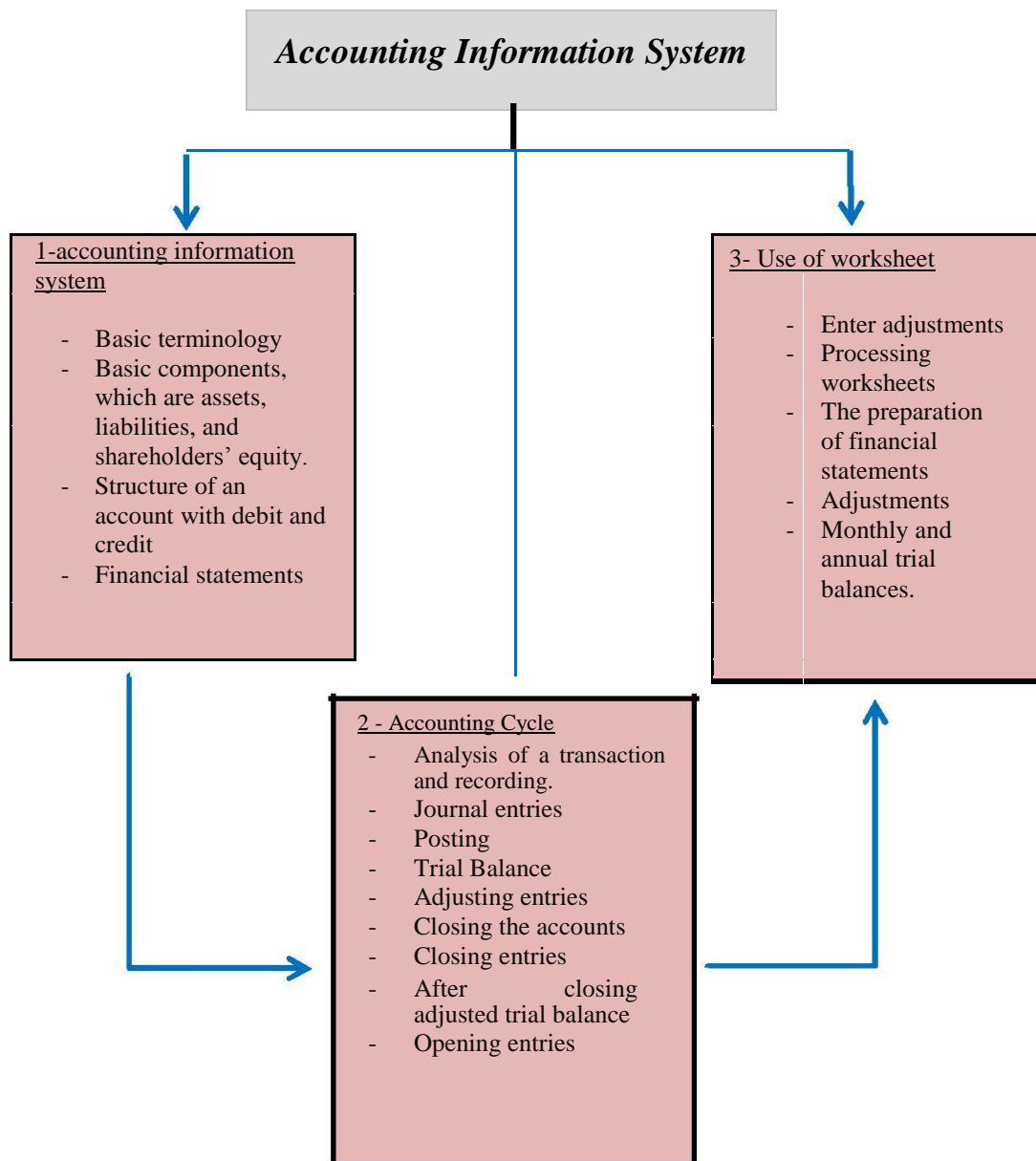


**Output:** It is the desired information provided by the system after finishing the appropriate process on entered data.[37]

### 3.5.4 Accounting information system

Accounting, like any other science is governed by its own system that consists of three main components: input, processing and output.

Like any other system, accounting information system is governed by several strict policies and procedures that may not be violated for any reason whatsoever and regardless whether the system is computerized or not.[37]



**Figure 3.1:** illustrates the accounting information system in its modern sense:  
Accounting Information Systems.



## **A. Basic Terminology:**

There are many accounting terms that are very important and must be included in the accounting system, and the system must work according to them, to sum them up as follows:

Event (Whether external or internal).

1. Transaction: Any economic event that causes increases or decreases in assets, liabilities or shareholders' equity.

2. Permanent and temporary Accounts: Permanent accounts are assets, liabilities and equity accounts. Their year-end balances are transferred to the next year as beginning balances. Temporary accounts are revenue and expense accounts. Their year end balances are not transferred to the next year. In other words temporary accounts are opened with zero beginning balances in the next year.

3. Ledgers: There is a general ledger, which contains all the main accounts. There are also subsidiary ledgers, which contain subsidiary accounts that show the details of the main accounts.

4. General journal: Transactions are recorded chronologically into the general journal. General journal contains the journal entries in a chronological order.

5. Posting: Posting means transferring the amounts recorded in the journal entries to the appropriate accounts in the general ledger.

6. Trial Balance. Trial balance is a chart that lists the debit totals and credit totals, and balances of all the accounts contained in the general ledger.

7. Financial Statements. Balances in the trial balance form the financial statements. Balance sheet shows the assets, liabilities and shareholders' equity of a business for a specific date. Income statement shows the revenues, gains, expenses, and losses of a business for a specific period. Other financial statements are statement of cash flows and statement of change in equity.[33]

**B. Debits & Credits:** All accounts in the accounting information system have two sides. Left-hand side of the account is called debit, right-hand side of the account is called credit. According to the basic accounting equation that is discussed below, assets must be equal to the sum of liabilities and shareholders' equity. To keep this equation in balance a record must be made into at least two accounts, and debit total must be equal to the credit total in a journal entry (accounting record). Otherwise the equation is violated.[33]

Accounts can be defined in the accounting system as follows:

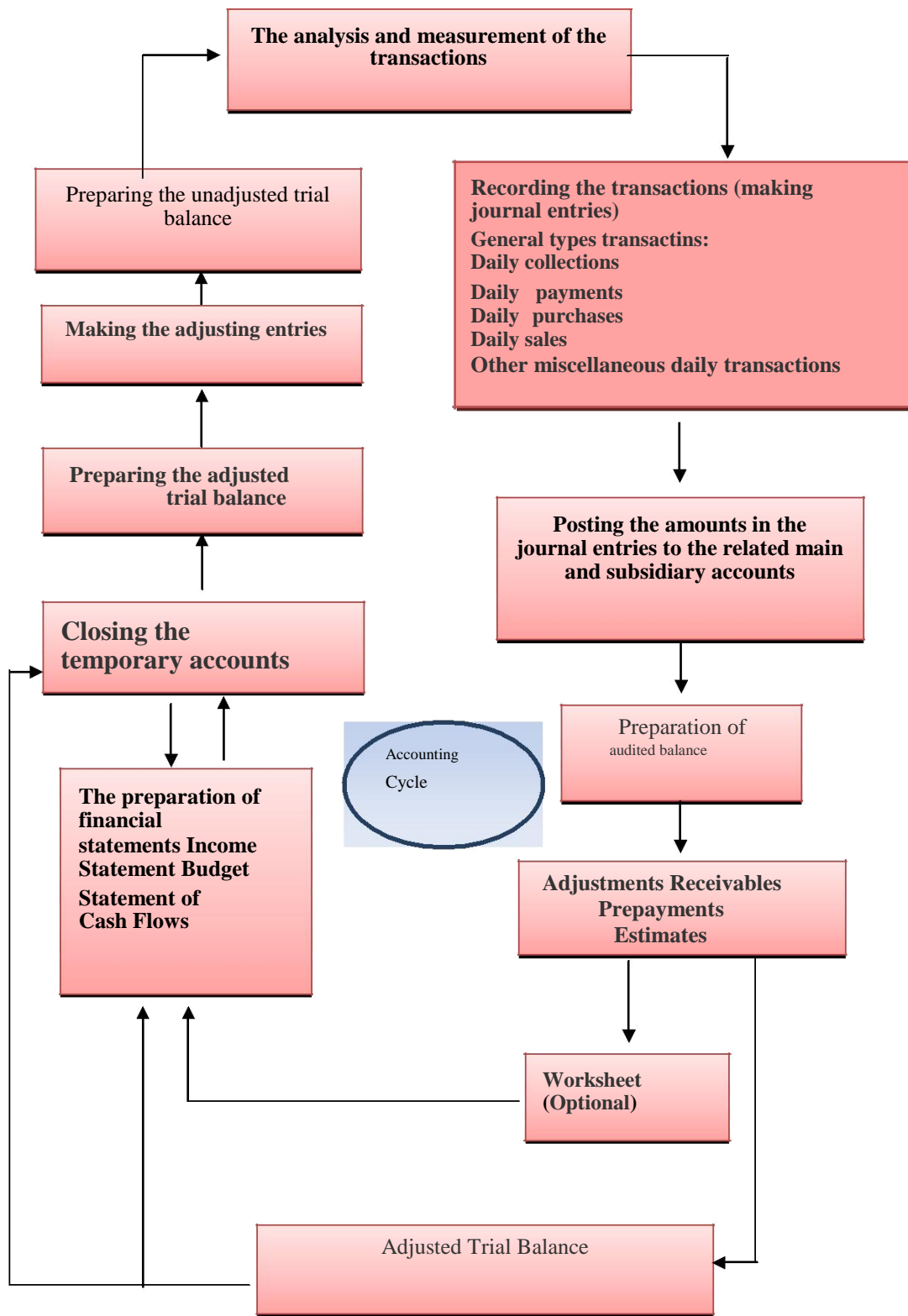
- Asset accounts: Increases in assets accounts are debited, decreases in asset accounts are credited. Asset accounts have zero or debit balance.
- Liability accounts: Increases in liability accounts are credited, decreases in liability accounts are debited. Liability accounts have zero or credit balance.
- Equity accounts: Increases in equity accounts are credited, decreases in equity accounts are debited. Equity accounts have zero or credit balance.
- Revenue Accounts: Revenues increase equity. So revenues are always credited to the appropriate revenue account. They have credit balance.
- Expense accounts: Expenses decrease equity. So expenses are always debited. They have debit balance.
- The Basic equation: as it is well known from the double-entry bookkeeping system, in an accounting record (in a journal entry) debit total must be equal to the credit total. This is due to the basic accounting equation that is expressed as  $\text{Assets} = \text{liabilities} + \text{shareholders' equity}$ . If in an accounting record debit total is not equal to the credit total this equation does not hold. Which accounts increase with debit entry, which accounts increase with credit entry, and which accounts decrease with debit entry, which accounts decrease with credit entry is discussed above.

- Here revenues, gains, expenses, and losses are special cases. Although they are very important account groups, they are not explicitly included in the basic accounting equation. As the basic accounting equation is examined, one sees that the components of the equation are assets, liabilities, and shareholders' equity. Revenues, gains, expenses, and losses are not in this equation. But they are implicitly included in the basic accounting equation. Revenues, gains, expenses, and losses are incorporated into the shareholders' equity. In other words they are considered as components of the shareholders' equity. As stated above revenues and gains increase the shareholders' equity, expenses and losses decrease the shareholders' equity and they are recorded accordingly during the accounting period.

At the end of the accounting period these accounts are closed and transferred to period income if revenues and gains are more than expenses and losses or period loss if expenses and losses are more than revenues and gains. In some applications the amount of revenue and gains over expenses and losses are transferred to retained earnings instead of period income. Period income (or retained earnings) and period loss are also part of the shareholders' equity. Period income (or retained earnings) increases the shareholders' equity, period loss decreases the shareholders' equity. There is another concept related to shareholders' equity that must be discussed here. This concept is dividends. Dividends are the amount that is paid to the shareholders from the net income (period income minus taxes on the period income) or from the retained earnings. So dividends decrease the shareholders' equity by decreasing net income and the retained earnings.[37]

### **3.5.5 The accounting cycle**

The accounting cycle is considered as a common necessity and generally accepted in accountancy, accounting procedures used in any establishment to record transactions and preparation of financial statements. Accounting cycle is shown in figure 1-4.[33]



**Figure 3.2:** Accounting Cycle

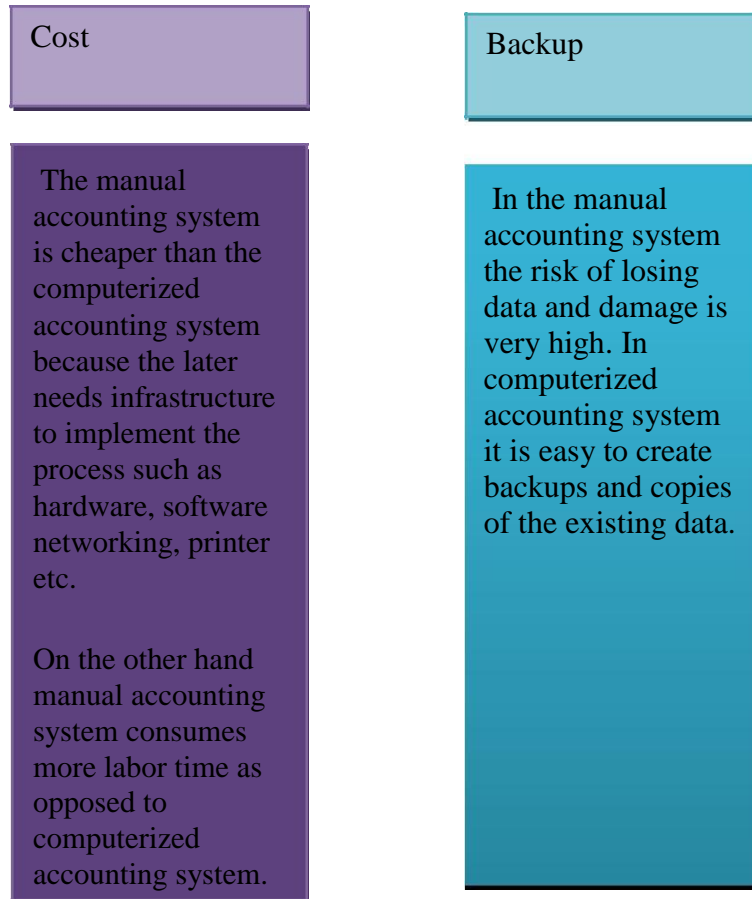
### **3.5.6 The difference between the manual accounting system and the electronic accounting system:**

The main and essential difference between the manual accounting system and the computerized accounting system is caused by information processing methods. In manual accounting system, the accountant analyzes the transaction by examining the source documents, and based on this analysis makes the journal entry and post the amounts to the ledger manually in a paper-based book by using a pen. If any error occurs at any point during this process (journalizing and posting) the error is corrected when discovered, and the error must be discovered by a human (by the accountant). In a computerized accounting system the analysis of the transaction is also accomplished by the accountant. In other words, as in the manual accounting system, accountant decides the accounts that must be debited, and the accounts that must be credited along with the amounts. Unlike manual accounting system, in a computerized accounting system journal entries and postings are made electronically on computer and the books are kept as electronic files as opposed to paper-based books. Any error during this process is discovered by the computer and error message is given. Since the posting is accomplished electronically by the computer, probability of an error is minimized. It should be born in mind that the computer does not decide the accounts that must be debited and credited, and the amounts. As explained above these tasks are accomplished by the accountant. If any mistake occurs at this stage, it must be discovered and corrected by the accountant. Computer can only discover errors that violate basic accounting equation. For example, if debit total and credit total is not equal to each other in a journal entry, computer discovers this error and gives a warning signal. It should also be born in mind that computers process data as they are programmed. If the accounting software is programmed incorrectly then systematic errors occur because of programming error. So it is very important that accounting programs are prepared carefully in accordance with accounting policies and procedures.[35][40]

A comparison of manual and electronic accounting systems are presented below:[35]

Speed of operation	Accuracy
<p>In computerized accounting system data is entered, saved, and retrieved very fast.</p> <p>Once the data is entered it is saved in the system. It can be retrieved and used in reports and analysis when needed immediately, on the contrary to traditional and manual accounting systems. In traditional and manual accounting system the accountant must go through the books manually in order to retrieve data, which is very time consuming.</p>	<p>In computerized accounting system arithmetic calculations are performed accurately compared to the manual accounting system. If errors occur they can be found by in seconds by the accounting software and corrected in an easier way.</p> <p>In manual accounting system calculations are performed manually that may cause errors.</p>

**Figure 3.3 (a):** Comparison between manual and computerized system



**Figure 3.3 (b):** Comparison between manual and computerized system

**Table 3.1:** Point difference between the accounting system manual and computerized

<b>Point of Difference</b>	<b>Manual Accounting</b>	<b>Computerized Accounting</b>
<i>1. Recording</i>	Recording of financial transactions is made into the paper-based books manually by using a pen.	Data is entered into the computer by using a keyboard.
<i>2. Posting</i>	Transactions recorded in the general journal are posted to the paper-based general ledger manually. The accountant first records the journal entry into the general journal then posts the amounts to the general ledger. This duplicates the effort of the accountant.	No such duplication occurs. When the journal entry is made into the computer, the accounting software automatically posts the amounts to the general ledger without human interference.
<i>3. Summarizing</i>	Transactions are summarized by producing the trial balance that lists the debit total, credit total, and balances of all accounts. In manual accounting system trial balance must be prepared manually by the accountant, which is very time consuming and open to human mistake. There is another important point.	In computerized accounting system trial balance is produced automatically by the computer. Computer produces the trial balance very quickly and correctly. If any error occurs during the preparation of the trial balance, computer gives a warning message.



<p style="text-align: center;"><b>4. Adjusting entries</b></p>	<p>Adjusting entries are made by the accountant. Calculations must be accomplished manually by the accountant.</p>	<p>In computerized accounting system, adjusting entries are also made by the accountant, but the calculations are accomplished automatically by the computer.</p>
<p style="text-align: center;"><b>Financial statements</b></p>	<p>In manual accounting system trial balance must be prepared before preparing the financial statements. Balances on the trial balance are listed on the financial statements manually by the accountant.</p>	<p>The preparation of financial statements is independent of producing the trial balance. Whether trial balance has been prepared or not, financial statements are produced automatically by the computer.</p>

**3.6 Principles In Computerized Accounting Systems**

The principles that should be considered in computerized accounting systems are shown below:[40]

1- Accounting Information Security Principle.



**Figure 3.4:** Accounting Information Security Principle

## 2- Accounting Information Process Principles



**Figure 3.5:**Accounting Information Process Principles

### 3.7 Computerized Accounting Application Softwares (Computer Programs)

There are different accounting softwares that are prepared for accounting applications. Each software has its own characteristics. Of course, each accounting software has strengths and weaknesses. An organization must be aware of the strengths and weaknesses of each program when choosing an appropriate accounting software. Some accounting softwares that are used by the organizations in accounting applications are summarized below.[30]

It includes the drivers that can be used in the areas of business information system accounting degree key All Programs Applied accounting which can be used without having to programmer for programming operations accounting and extract the results, and there are many software applications in the field of accounting information systems, which are widely used and frequently, the most important of follows:

It includes the drivers that can be used in the areas of accounting information system, all application programs for accounting which can be used without having the programmer for programming accounting operations and extract it's results, and there are many software applications in the field of accounting information systems, which are widely and frequently used, the most important of follows:[30][33]

### **3.7.1 Prospects accounting system:**

This software is one of the widely used programs in Arabic speaking countries, as it is one of the best programs provided for this purpose. It is a multi-functional application, and bilingual, in Arabic and English. Since the software has an Arabic application it has been accepted widely by the Arabic speaking countries. It operates starting with the processor 80386 and above and with 4 MB of memory only, it works on (Windows 95-Dos) networks. The program consists of four sections:

1. Accounting
2. Inventory
3. Invoices
4. Administrative systems

It also has the ability to issue various statistical reports.[37]

### **3.7.2 Jamshid system of accounting:**

Jamshid bin Mahmoud bin Masood a famous Muslim mathematician, born in the city of Kashan in the fourth century AD and was Jamshid alias kashi, the first who introduced the principle of decimal places (orders) in his book, key account, which focused on the need to put a point in every free decimal point.

That was the invention of zero to this world. Hence the Jamsheed unique discovery known. This accounting software is dedicated to his name.

### **3.7.2.1 Features of jamshid system**

Jamshid system includes a number of features that are:

1. The Program runs under Microsoft Windows Arabic.
2. Bilingual application with (Arabic/English) interface.
3. Provides full integration between the general ledger, customers, suppliers and inventory.
4. Ease of copying information from a spreadsheet or database, such as Excel, FoxPro and Access.
5. The software allows to open and review multiple screens, and work on them at the same time.
6. Provides help instructions in the form of steps, in both Arabic and English for all commands and dialog boxes.
7. A calculator and a calendar are available anywhere in the program.

Jamshid system can be used more than one company, because it provides with integrated accounts for each company up to 99 companies separately. So it is a multi-user system. It also allows making records denominated in different currencies. Each company's files can be stored in a different file. The system also allows to distribute revenues and costs between different projects. Different documents such as can be prepared by the system. It also provides multi-degree protection through a different password for each user which determined authorization for each user, and also different reports can be produced by the system.[32]

Some of the advantages of the Jamshid system are as follows:

1. Hierarchal visual index of general ledger accounts with the possibility of the use of built-in accounts prepared in advance.
2. Ease and flexibility of format account numbers.
3. Ability to extract general ledger balances for comparison of revenues and expenses of the current year with those of the previous years’.
4. Set the credit limit and the credit period for each customer.
5. Make appropriate accounting records for the value added tax on sales and purchases.
6. Possibility of classifying customers and suppliers and follow the balances of receivables from each customer and payable to each supplier.
7. Quick search for names of customers and suppliers.
8. Ability to enter suppliers’ requests and tracking these requests. It also provides facilities to calculate the cost of a request, suggest a price, processes customer billing. All these features are linked with inventory files and general ledger. It is also very easy and practical to get information related to these transactions.

Jamshed system provides different financial and accounting reports that include:

1. Overdue customer bills.
2. Overduesupplier invoices.
3. Outstanding customer bills.
4. Database accounting.[37]

### **3.7.2.2 The benefits of Jamshid system**

Accounting database of the system contains a group of files linked to each other logically and stored in an orderly manner to facilitate the access of software application for data processing. The presence of the database within the accounting information system components is important, as it helps to achieve the following benefits:

1. Accounting database contains all the data that have to do with all the economic activities of the unit that are carried out by various departments and divisions, leading to easy access to any data can be processed directly and quickly.
2. The existence of the data within the central database uniformly will lead to reduce the duplication of the same data existence (in the case of multiple presence within separate files), which also contributes to reducing the cost of storing data due to not having to repeat files with similar data within the database.
3. Contribute to achieve a state of integration between the subsystems of the information within the economic unit through the possibility of supply and exchange data with each other through a single source represents a database, which contributes to the reduction of time and effort.
4. Ease of data entry and processing by users (especially from within the Economic Unity) which contributes to the provision of information (output) quickly, thereby increasing the efficiency of decisions that can be made based on this information.

There are several methods used to organize the database that are very important for accounting information as it affects the organization of the accounting records on computer files, and then on how to use these data files in the preparation of financial reports. Since the database is only computer files, which reduces data redundancy to a minimum, and that can be accessed by a specific person or persons, it can follow any regulation of the files that are used to create the database.[37]

### **3.8 Stages Of The Work Of Accounting Information Under The Use Of Computers**

Accounting Information Systems work that passes through a series of stages in order to carry out its functional tasks in the economic unit in which it operates.

The use of the manual system to run these data include: stage of registration, phase tab,

summary stage, and stage of presentation of results.

But in the use of computer, it will contribute to reducing these phases where they become Join tab at one stage called "data recording stage" where entry into exact account goes directly.

Thus no need to post to the ledger. So the work of accounting information systems will be limited to three steps:

1. Registration and data recording (registration and tab phases)
2. Operating data stage (summary stage)
3. Presentation of information stage (Showing results phase)

As explained above, computerized accounting reduced the workload and eliminated one stage. As a result of this elimination, accountants are relieved of the tasks that once performed by them.[35]

### **3.8.1 Data recording stage**

The process of recording data is considered to be the starting point of accounting information system process. In computerized accounting system this stage must also be performed by the accountant, because it cannot be performed by the computer without the interference of the accountant. As in the manual accounting system, transaction must be analyzed by the accountant by examining the source documents and a record must be entered by the accountant. The data entered by the accountant get stored in the computer through the means that are explained below:[37]

**A.** Internal Storage Unit, which is one of the components of the central process unit of the computer. Any stored data can be accessed at anytime inside the volume, because the memory storage device permanently and directly connected to the central processing unit as part of it.

**B.** Tapes and compact disks which represent one of the means of external storage.



### **3.8.2 Operating data stage**

The use of computers at this stage has made a significant contribution to the conduct of various operational processes of accumulation, calculation, posting...etc. Accounting procedures in manual systems are processed in the books and records, while in computerized accounting system it is possible to perform these operations quickly and accurately by utilizing the data processing capabilities of the computers.

Although the computer processes the data, the accountant can also be involved at this stage because the computer must be programmed in advance in order to enable it to process the data. If the program is custom made, programmer, usually a software engineer works with the accountant. The accountant provides the necessary accounting expertise to the programming effort so that the program works properly. If the accounting software is not programmed properly systematic errors occur. Systematic errors cannot be easily found because they are programming errors. So, accountants' inputs are very critical during the software development.[37]

### **3.8.3 Presentation of information stage**

The use of computers at this stage has facilitated the work of the accountants in order to provide the required information on time, as required, and as much as appropriate by taking advantage of the capacity of computers. By the power of computers it is possible to get information in any form. The computer can prepare common financial statements, which are balance sheet, income statement, statement and cash flows, etc.. These financial statements prepared by computer can be saved for future use or printed if a hard copy is required.[37]

One can get information as a visual presentation. In that sense the computer can prepare tables and charts. Also it is possible to get periodic reports. If programmed correctly computers perform common financial statement analyses and present them in different formats. For example computer fast and easily calculates trend percentages and presents them in a chart to facilitate the analysis. Financial ratios and their trends can

also be calculated and presented easily on computer. It must be noted that the role of accountant at this stage is to identify the content and format of the reports and the time period for which the report is prepared. As can be seen accounts have a role in each stage of computerized accounting system. Accountants are needed during the programming state to ensure that the program is correctly developed without the possibility of systematic errors. Accounting records must be entered by the accountant to the computer by using a mouse or a keyboard or both. Account must decide the format, content, and periods of the reports that will be prepared by the computer. Computers only facilitate the processes and data storage. Computers never substitute for accountants' expertise, analyses, and judgments.[31][36]

### **3.9 Choosing An Accounting Application To Be Used In The Institutions**

It is very important for the institutions to choose an appropriate accounting program. This program can be chosen from commercially available programs and purchased by the institutions or the program can be specially designed for the institutions. The important points that must be considered when choosing and designing an accounting software are as follows:

- 1- The program must meet institution's special needs in accounting. Special accounting needs of the institution may not be met by purchasing available ready-made programs that can be found in the market. In this situation the program must be designed for the institution in order to meet its special requirements. If appropriate ready-made programs are available, these programs can be purchased and installed into the computer system of the institution.
- 2- The cost of the programs and the system requirements must also be considered. A ready-made program may have system requirements that are unnecessary for the institution. If this ready-made program is purchased, system requirements must be met so that the program operates correctly. The system requirements may cause extra an unnecessary financial burden for the institution. Sometimes a software may be designed that can operated on existing systems at a reasonable cost.

- 3- There is another important point. If the institution decides to design the program in the institution, there must be an expertise within the institution to do so. Otherwise, software development firms outside the institution may demand high prices to design accounting software.
- 4- After the programs are purchased or developed, they must be maintained and the operating problems must be solved. When a ready-made program is purchased, these are provided by the firm that developed the software. If the program is developed within the institution there must be experienced personnel to maintain the program and solve operating problems. This is another thing that must be considered.
- 5- The programs must be easy to use. If using the program requires additional training, that training consumes money and time. User friendly programs must be preferred when all other things are equal.
- 6- The program must identify the errors easily.
- 7- The program may have low cost in the long term, because the program may not require additional costs in case of modification, addition or development, and also there may be no need to make modifications to the program to ensure its suitability with the standards of the institution , the structure of the data files and the types of input and output used.
- 8- The program must ensure consistency with different applications within the institution and thus avoiding the lack of integration of data files, as well as for the restrictions imposed by the used computers specifications, also being the energy programs in harmony with the needs of the institution. Our expanding estimations must be reasonable. In addition to the previous advantages, the use of programs internally developed leads to avoid security and data protection problems.

As shown above, whether the institution uses ready-made programs or develops its own programs, the output of electronic accounting operating process of data will be attained. Therefore, steps of collecting, recording and storage of data will be carried out. The main aim of this system is to achieve the accounting functions of the organization. Hence, there is a need to conduct a study by which the effect of the system on the performance of tasks related to accounting is studied as it is expected in the Malaysian PSAs agreements framework. The performance of the task associated with the accounting or the task performance output (TPO) and the system's ability to perform specific tasks in addition to the obvious results to set a budget or accounting and making reports, auditing or observation. As it helps the users to perform all the tasks efficiently and effectively[32][33][36][39]

### **3.10 A Comparison Between The Countries (Malaysia, Albania, Jordan, Turkey) In Terms Of Practicing Electronic Accounting**

In this section, the application of computerized accounting will be presented in some countries known to apply quality standards and the extent of necessary abilities and potentials to satisfy the needs and the desires of the users in the business organizations, as well as how they cope with technological developments. Also we are going to put a clear perception that helps to evaluate the electronic accounting systems, where these countries will be compared in terms of their use of electronic accounting programs.

### **3.10.1 Malaysia**

The information technologies, which have been inserted into the Malaysian organizations, have changed their procedures. The capabilities of these technologies have led to a change in the accounting system, resource planning system, human resources management system and various business administration systems in the organizations. The proper use of these technologies has led to create a competitive advantage for most organizations including the companies in the private sector, and in all fields of accounting, which is considered to be one of the largest users of information technologies. The development of information technologies in accounting function has converted nature of the flow of accounting information inside and outside the organizations. The use of the traditional, manual paper-based accounting procedures has caused several problems such as the lack of efficiency in data recording. Basically manual accounting procedures make data recording slower and creates a huge task for the accountants. Manual accounting systems also cause errors in data recording and posting that also prevents efficiency. At the same time, manual accounting systems necessitates the use of large amount of paper, which increases the cost. Also, filing a huge volume papers creates another problem. The lack of information security is also considered to be another main problem in manual accounting systems. In Malaysia not only the accounting profession has changed, but also the accounting information systems and their practices have changed. Malaysian accountants have realized that the task of manual bookkeeping could be considered to be a very difficult task, but this difficult task could be eliminated, to some extent, by the implementation of computerized accounting information systems.

Public sector agencies (PSAs) have widely relied on computerized systems in their accounting procedures. A switch o computerized accounting applications in public sector agencies has helped these government agencies to be able to compete the private sector organizations better.

For example, the computerized accounting information system (AIS) in Malaysian public sector has been developed to provide an important criterion in order to improve the planning and implementation of the budgets, and to increase the efficiency of the public administration system in the public sector to enable them to provide more accurate and reliable financial information in an appropriate time for the main accounting review to the upper authorities in the governmental organizations. However, these organizations in the public sector may also face serious problems in the management of public resources, such as high costs, long time, the lack of the staff's morale and confusion during the early implementation of the computerized systems because of some problems that follows. Data may be inaccurate and inconsistent and thus the organization or members of the organization may be blamed for this. In Malaysia, members of the governmental organizations received help to enable them to carry out their responsibilities in an efficient, effective and responsive way, and they are encouraged to implement the system to do all the routine tasks related to accounting to achieve the financial control and to strengthen accountability since the system is fully integrated and allows decentralized data entry. This procedure mostly eliminated the problem discussed above. This has also improved the decision-making process, the quality of accounting information, and has made is easier to evaluate performance, internal control and has facilitated the transactions of the organizations. In addition, the computerized system not only helps the government to control its financial resources, but also it can enhance transparency and responsibility in order to reduce the policy of free-behaving which serves as a deterrent to corruption and manipulation.[22]

### 3.10.1.1 Results of using electronic accounting in Malaysia

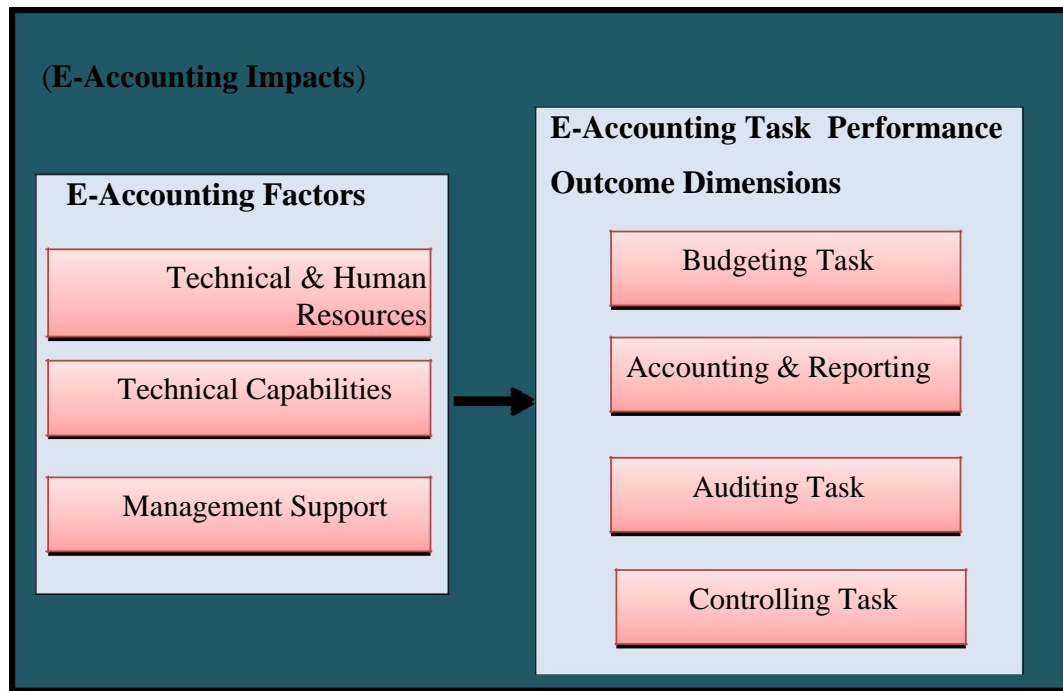
The results achieved by implementing computerized accounting systems in Malaysia can be summarized as follows:

- 1-The use of computers in accounting applications has increased the effectiveness and efficiency of the operations in the public sector organizations.
- 2- Electronic accounting applications has provided an integrated computerized accounting information system, which includes several common units connected with each other, such as preparing the budgets and reporting them.
- 3- Accounting has a very wide area of applications and the use of electronic accounting has not only affected the budget preparation and reporting, but it also has affected the auditing, monitoring, and controlling functions.
- 4- Electronic accounting is a vital tool in the financial management of the public sector organizations and it has a direct effect on the accounting practices.

Figure 1 illustrates the effects of electronic accounting in achieving the results of task performance in an extensive way.[22]

Through the figure, we can derive a number of conclusions:

- ❖ Electronic accounting has a positive effect on the budget preparation task, which is very important for the public sector organizations.
- ❖ Electronic accounting has a positive effect on making accounting records and preparing financial reports based on these records.
- ❖ Electronic accounting has a positive effect on performing the auditing function.
- ❖ Electronic accounting has a positive effect on supervision and controlling task.
- ❖ Overall we can say that there is a positive relationship between the electronic accounting and the achievement of the objectives of the public sector organizations in Malaysia.[22]



**Figure 3.6:** E-Accounting and Task Performance Outcomes Model

### **3.10.1.2 Conclusions appeared during the study of using electronic accounting in the public sector in malaysia**

1- As expected during the experiment, electronic accounting has contributed in the effectiveness of all the tasks[22].

2- In general, computerized accounting has improved accounting system. This improvement has appeared through reporting, budgeting, data security, and performance control. This, in turn, is reflected significantly on the organizational effectiveness in the public sector establishments[22].

3- The most important influence of the application of electronic accounting is that it has provided the best support for all the tasks carried out by the accounting system, and because the main task performed by the accounting system is to prepare financial reports and annual budgeting, computerized accounting has made the performance of these tasks easier and more accurate in a reasonable time[22][36].



4- Electronic accounting has facilitated the submission of annual budget proposals and projected estimates.

5- It has contributed to the improvement of the process of planning the future budgets because it provides the managers with comprehensive information about the numbers. By this system it is very easy to retrieve the numbers that will be used in budget planning.

6- It has contributed to strengthen the financial supervision of PSAs through providing a detailed information report about the special information about the resources.

7- It has provided Information to the external users to perform the auditing function.

8- The central control on the data system for users via the Internet.

9- Computerized accounting system provides the data within a shorter time frame and with less cost in an efficient manner.

10- The Development of information technology in PSAs has changed the way they run their businesses. Now, they can produce and use accounting data very easily without creating extra burden[22][23].

11- The electronic accounting applications have developed a new entry to decision-makers in the formulation of strategic and long-term planning.

12- On the other hand, the system should be used as much as possible through the application of electronic accounting, to provide the best benefits to the organizations, by investing energies within the organization.

13- The Malaysian government has realized through studies, research and the application of electronic accounting that the accounting system has contributed positively to the

efficiency of financial management and operation management.

14- It also promotes the technological readiness among government agencies[22][23][36].

### **3.10.2 Albania**

In 2002, the Albania's Government launched a national strategy for economic development. This strategy was followed by efforts to increase economic growth and as a result the government started a project for the period (2002-2005). This project included many reforms and developments in order to achieve economic growth. One of the major reforms that the Albanian government initiated was the accounting reform in the public sector, which enabled the public institutions to get a better idea about their financials.[17]

#### **3.10.2.1 Challenges that Albania faced during the implementation of the project**

Many challenges emerged during the implementation of the project that can be summarized as follows:

1- Development challenges which stemmed from the lack of applicable laws and regulations. Also the corruption and unattractive investments contributed to the development challenges.

2- Poor infrastructure[17].

3- The weakness of the institutional governance that is considered to be the roots of the developmental problems in Albania. Accordingly, the Albanian Government adopted a reform program to strengthen the institutional capacities in a comprehensive framework of the political process and to continue institutional reforms. Top priority is given to the public administration and to the civil service in order to improve the professionalism and

to reduce the partisanship in order to increase the confidence to the government.

The government established an inter-ministerial council to reform the administration in order to control the operations.[18]

The reform strategy of the public sector identified seven major components which had specific goals that must be achieved. The implementation was accomplished according to the plans between the various components of the strategy, taking into consideration the establishment of the rule of the law and building trust through the government by setting up the government's ability to control the legal and regulatory frameworks in the right place through imposing these laws and increasing responsibility. As mentioned above, accounting reform was one of the main pillars of this strategy to transform the government.[18]

### **3.10.2.2 Electronic accounting project in Albania**

As in its first step, the Albanian Government implemented the electronic accounting project in the public sector, and also collected information for the formulation of the project to identify specific fields of intervention and to determine the capacity of technical functions and to identify how to improve the public accounting system, taking into consideration the current accounts and the reform processes in the public sector.

At the end of each year all financial position related to the public services are presented. The cash basis system is applied by the Treasury Department in the Ministry of Finance as a tool for managing and controlling the cash flow[18][19].

The World Bank implemented a project, which aimed to provide all local structures in the Treasury department including the appropriate programs , hardware and tools to collect, manage and to exchange their own accounting data. The Budget Section requested the Ministry of Finance to develop the policy of transporting jobs, which aimed to encourage and increase the resources of domestic authorities in order to reduce dependence on foreign supply of these resources. The internal control system has been

reorganized as requested by the European Union. Necessary modifications have been made to control the system and to customize the laws. Then the work on the project began effectively through the organization of the integrated financial systems (Oracle-Financials) to prepare the public budget, which is a very important component of public accounting. After several consultations with the stakeholders, the inventory management system was proposed that the first process is providing information through the inventory, and registering these information as a documented data and exporting them to the leading software, where this proposal is supported by all parties involved[17][18][19].

### **3.10.2.3 Goals of completing the electronic accounting project in Albania**

1. Provide the full support to the accounting department.
2. Formulate a public accounting law according to the modern technological developments, and in line with the international accounting standards.
3. Transition to the international accounting standards, thus, this procedure requires a strong commitment from the beneficiary institutions, and needs a great technique expertise. To achieve this goal, the project consists of three phases:
  - a) Absorbing the concepts of accounting principles and formulating the public accounting tasks. The aim of this phase is to provide all the required legal and technical assistances for making the new law in order to ensure the comprehensiveness of all accounting categories and to develop the appropriate standards so as not to conflict with the European Union's laws[18][19][20].
  - b) The restructuring process
  - c) Staff training and the publicizing information about the new system[18][19][20].

**The first phase consists of several activities:**

- 1- A detailed analysis of the accounting system and the public account lists used in Albania.
- 2- Preparation of the principles of the new public accounting and its compliance with the international accounting standards.
- 3- Discussing and reviewing the activities with the authorities in the government institutions.
- 4- Making the final form of the new national public accounting law[19][21].

**3.10.2.4 The General Goals And Activities Of The Pilot Project**

- 1- Estimating the present work procedures and evaluating policies rather than workflow procedures within the government
- 2- Providing the best practices and responsibilities in the information and communication technology as well as the organizational structure within the Albanian Ministry of Finance
- 3- Evaluating the good skills in the information and communication technology in the public sector with an effective centralism, especially with regard to the electronic government and administration of financial information
- 5- Using the Oracle system developed by Oracle experts to design electronic accounting programs.[20][21]

**3.10.2.5 Problems Faced By The Albanian Government During The Implementation Phase Of The Electronic Accounting Project (Pilot Project)**

- 1- Budget allocated to the electronic accounting project was not enough to implement the project in a reasonable time frame.
- 2- A campaign was organized to mobilize the necessary resources for the project to implement it this caused a delay for the implementation phase.
- 3- The infrastructure of the Albanian government was not sufficient for such a program and it consumed time to alleviate this problem, which caused a delay in implementation.[20][21]

### **3.10.2.6 Positive points that should be considered during the implementation Phase**

- 1- Government was eager to provide financing for the project.
- 2- Persistence and hard work in bringing together a team consisted with experts was a positive point to achieve the goals of the project.
- 3- Continuous coordination with other stakeholders and following up the implementation processes at every stage of the project[20][21].

### **3.10.3 Application of electronic accounting software in Turkey**

Modern information technology had influenced for managing business in the government establishments and for accounting practices in Turkey. Where the concept of electronic accounting and its effects on the accounting function had appeared and this modern system had caused some changes to the basic processes of the accounting function. Designers of electronic accounting software had defined it as following-up the internal and external operational events as well as to the posting, registering, archiving and summarizing these events, and submitting them to the concerned authorities within the electronic environment.

#### **3.10.3.1 The concept of electronic accounting in Turkey**

The concept of electronic accounting in Turkey can be classified into three categories:

- 1- E-Taxing: In this category taxes and transactions are imposed such as calculating the preparation of tax returns, calculation of taxes, and then debts on tax and other information related - which all of their parts occur within one electronic environment.
- 2- E-Banking: This category consists of electronic banking practices of the transactions related to banking institutions that are already on going in electronic environment via the Internet.
- 3- E-pre-accounting practices: This category consists of some procedures such as

accounting transactions that occur between establishments, and registration documents, preparation of financial statements through electronic environment and submitting them to the concerned authorities via the Internet.[40][41]

### **3.10.3.2 Implementation in Turkey**

In recent years, the actual accounting practices include preparation and submission of financial reports through electronic media had a noticeable effect on accounting applications in Turkey. In this context, both the private sector and the public sector have begun to use electronic accounting applications in Turkey. And to go along with the developments in information technology, changes have been made to the accounting standards in the world and Turkey, where public accountants were requested in Turkey to study the factors influencing the formation of LUCA WEB system-the accounting system project.[40][41]

### **3.10.3.3 LUCA WEB based accounting system**

#### **The benefits of luca system**

- 1- Saving time
- 2- Reducing transactions.
- 3- Reducing costs.
- 4- Speeding up the accounting procedures.
- 5- Reducing the cost of storing information.
- 6- Providing data in appropriate time.
- 7- Producing reliable reports that comply with the international accounting standards.[40]

### **3.10.3.3.2 The Goals of LUCA System**

- 1- Electronic data entry
- 2- Electronic documentation
- 3- Reducing tax losses, where this was the main target that the Turkish Ministry of Finance has put.
- 4- Reducing the cost of papers
- 5- Ease of creating and submitting financial reports.[40]

### **3.10.3.3.3 Conditions to use LUCA system**

- 1- Technological infrastructure must be mature enough to run the program.
- 2- Tax authorities must also apply electronic procedures. In other words systems of the tax authorities must be transformed to enable them to be a part of electronic accounting system.
- 3- Training the staff so that they can use the programs effectively.
- 4- Infrastructure of programs and technical supplies must be very strong.[40]



### **Results of using information technology in the Turkish accounting system**

- 1- Enhance the decision-making systems and making them more effective.
- 2- Increasing the speed of accounting processes in the government establishments.
- 3- Saving time and expenses for projects that developed in various applications.

### **3.10.3.3.4 The historical process of information technology in the public sector in turkey is as the following:**

- Guide of average
- AS/400 System ( implement between 1997-2000)
- Budget and Management Information System have relieved (2001-2005)
- E-budget System ( 2005 -2010)[40][41]



#### **3.10.3.3.4.1 AS/400 (1997-2000) system**

In the process of transition, the Ministry of Finance of the Republic of Turkey (the Budget and Financial Control Office) bought AS/400IBM system in order to provide support to the development of information technologies for financial processes that can be considered as the first attempt to eliminate the manual accounting systems where communications and data between the centre and the budget offices were integrated.[40][41]

#### **3.10.3.3.4.2 Disadvantageous that have appeared in AS / 400 system**

- 1- Unable to provide full combination
- 2- Unable to provide reports
- 3- Data inconsistency
- 4- Incapable of interacting with other programs.[40][41]

It should be noted that the problems listed above were encountered until the year 2000. Benefiting from the advantages of the superior technologies has become a necessity for institutions, and changing the accounting system to the electronic accounting system was also a necessity. The initiatives of the application were connected between the public and private sectors in Turkey. Accounting system, which presented in the private sector, and regulations and practices in the public sector, is switching to electronic accounting processes within chronological order. Without any doubt, this transformation may not be at the same time, the ongoing changing process and the continuous development will help to correct the deficiencies that had observed in the applications and to improve the services provided.[40][41]

#### **3.10.4 Application of accounting in the public sector in Jordan**

The Jordanian government had switched to the electronic accounting after the appearance of the technological developments around the world. Also it has used electronic systems and applying them to the economic governmental units and private

companies, because it has characterized by accuracy and speed of completing the transactions and providing the appropriate information to the government financial management[15]. In addition to that, it provides the appropriate information to implement and observe the preparation of the state budget[8]. Electronic accounting has helped in making the public policies of the state accurately. Basic components that achieve the desired purposes must be provided in order to take advantage of electronic accounting systems with great interest[29]. The Ministry of Finance and government agencies have examined and evaluated electronic accounting systems such as the treatment of income and debt management systems, which have been programmed in different programs such as (Ingro, ORACAL, FOXPRO)[8].

#### **3.10.4.1 The basic components that adopted by the government institutions in achieving the goals of electronic accounting in Jordan**

1- Machinery and equipment (Hardware): To achieve the goals of the system the equipment that is used must be characterized by high-technology and development as they contribute to the success of these systems.

2- Software: There should be programs that help in providing the appropriate information to achieve the system's goals[29].

3- Guidelines and generalizations : The electronic accounting system is derived from the manual accounting system and these systems are derived from the scientific method and some of the instructions and rules of the government accounting system and according to the instructions issued by the Ministry of Finance where Electronic Systems are designed in line with legislation and financial regulations that must be compatible with the specified government transactions, such as exchange, payment coupons and others[15].

4- Users and IT management: The IT department must be responsible for running and maintaining programs and to follow the developments and updates in line with recent developments to achieve success in the accounting systems of electronic government. At the same time the department must be responsible for training the staff and the

users of these systems[8][29].

5- Controls: it includes government databases and financial and non-financial information, such data faces the breakthrough and misuse such as modification or deletion, which may lead to damage and loss of society and citizens' rights. So that regulations must be issued to control the risk of breakthrough and misuse of these electronic systems, through enacting appropriate controls to ensure the safety of electronic systems[29][30].

#### **3.10.4.2 Characteristics of electronic accounting systems used in Jordan**

1- Accuracy: It must be accurate, which means processing data without mistakes and providing accurate information[30].

2- Speed: Recording, processing, retrieval and report preparation must be achieved in a reasonable time.

3- System efficiency: It is the system's ability to provide services and information to the government and the citizens in short period of time to reduce the cost and to increase productivity of government agencies in a number of transactions during the working time[30].

4- System effectiveness: It represents that the current system meets the goals of the user and the specific requirements, which affects all the required levels of administrative reports, and reducing the routine procedures used in government units.

5- Flexibility: The electronic accounting system must have flexibility and ability to keep pace with modern developments.

6- Reliability: This factor represents the system in terms of accuracy, fairness, and reliability.

7- Fitness: Where electronic systems provide the required information and regain the appropriate secondary data according to the needs of the government[29].

8- Information and data security: There must be secrecy in the access to such information and data and determining the rights of using them to provide adequate protection for databases and restoring them in case of losing them.

9- Self-censorship: In government accounting systems, the self-censorship represents

the inability of modifying data after printing, which means that you cannot delete and repeat data after printing[30].

#### **3.10.4.3 Results of using the electronic accounting in the jordanian government sector**

- 1- Electronic accounting has had great affect on the performance of government establishments in Jordan, and it is contributing to the improvement of the appropriate information and improvement to the performance of work under the economic and political conditions[8].
- 2- Electronic accounting has contributed to the improvement of information and data for planning purposes in the economic units[29].
- 3- Electronic accounting provides the required information for decision-making within the establishments[30].
- 4- Electronic accounting provides information for the control and data security purposes in the establishments [8].

### 3.11 SUMMERY

**Table 3.2:** Comparison between countries in terms of electronic accounting applications in the public sector (Malaysia, Albania, Turkey, Jordan)

	<b>Malaysia</b>	<b>Albania</b>
<b>GOALS</b>	<ul style="list-style-type: none"> <li>- Achieving financial control and Financial Audit.</li> <li>- Enhancing transparency.</li> <li>- Reducing corruption and manipulation.</li> </ul>	<ul style="list-style-type: none"> <li>- Modifying the control system and the law of customizations.</li> <li>- Drafting a new law to include all categories of accounting and appropriate standard-setting to avoid Incompatibility with the laws of the European Union.</li> </ul>
<b>BENEFITS</b>	<ul style="list-style-type: none"> <li>- Reducing the effort.</li> <li>- Improving the decision-making process of administrative.</li> <li>- Evaluate the performance of accounting.</li> <li>- Speed in data entry accounting.</li> <li>- Reducing the time.</li> </ul>	<ul style="list-style-type: none"> <li>- Improve professionalism.</li> <li>- Define a strategy of reform.</li> <li>- Reducing the time and effort of manual system and electronic.</li> </ul>
<b>OBSTACLES</b>	<ul style="list-style-type: none"> <li>- High costs</li> <li>- Confusion during the implementation of the program for fear of failure or data may be inaccurate.</li> </ul>	<ul style="list-style-type: none"> <li>-The allocated budget for the electronic accounting project was not sufficient to implement immediately.</li> <li>-Infrastructure were not well suited for such applications.</li> <li>-Career Level has not been trained before establishing the application, causing a delay in the use of electronic accounting..</li> </ul>
<b>RESULTS</b>	<ul style="list-style-type: none"> <li>- Provide better support for all of the tasks carried out by the electronic accounting system because it is preparing financial reporting and budgeting.</li> <li>- Save time and reduce costs.</li> </ul>	<ul style="list-style-type: none"> <li>- Full support for the accounting department for the application of the electronic system.</li> <li>- The transition to international accounting standards.</li> </ul>

	<b>Turkey</b>	<b>Jordan</b>
<b>GOALS</b>	<ul style="list-style-type: none"> <li>- Strengthening the infrastructure of the state through participation and transparency in the work.</li> <li>- Reducing tax losses.</li> </ul>	<ul style="list-style-type: none"> <li>- Contribution to the development of public policies of the State.</li> <li>- Designing electronic systems to be compatible with the financial legislation and regulations.</li> </ul>
<b>BENEFITS</b>	<ul style="list-style-type: none"> <li>- Save time.</li> <li>- Speed up accounting procedures.</li> <li>- To provide data in a timely manner.</li> <li>- Reducing the costs.</li> </ul>	<ul style="list-style-type: none"> <li>- speed the data.</li> <li>- Accuracy in data processing.</li> <li>- Flexibility.</li> </ul>
<b>OBSTACLES</b>	Reduce obstacles emerged in 2005 during the application of electronic accounting software where they are not able to provide full integration, the uncle of data consistency, unable to interact with other programs, is unable to provide financial reports.	<ul style="list-style-type: none"> <li>- Poor infrastructure.</li> </ul>
<b>RESULTS</b>	<ul style="list-style-type: none"> <li>- Enhance the decision-making systems.</li> <li>- Accelerate accounting processes in government installations.</li> <li>- Save time and expenses for projects.</li> </ul>	<ul style="list-style-type: none"> <li>- Strengthening the accounting system.</li> <li>- Providing information to the Department of Finance.</li> </ul>

## CHAPTER V

### CONCLUSIONS AND RECOMMENDATIONS

#### 4.1 Conclusions

Through analyzing the theoretical aspects of the study, the following conclusions have been reached:

1- The absence of government institutions in Iraq that use electronic accounting widely with the exception of some banks that refuse to cooperate with their electronic accounting system for fear of competition and they have a big secret surrounding it.

2- The lack of clear laws governing computer crimes in general and electronic accounting network crimes in particular.

3- The poor infrastructure in some countries that use electronic accounting programs so applying it was late for technological development.

4- Electronic accounting currently applied in government institutions have adequate capacity and capabilities, as well as its satisfying the needs and desires of the users.

5- Electronic accounting has contributed to improve the process of future budgets planning, because it's provided the financial management, planning management and public management with comprehensive information about the accounting system in government institutions.

6- Electronic accounting helped to make decisions in government institutions in a timely manner and with high accuracy.

7- Electronic accounting have a positive impact on government institutions in terms of the quality control, preparing financial statements and periodic reports, and budgeting and performance controlling, which have reflected on organizational effectiveness in institutions significantly.

8- Through the study of electronic accounting application in different countries I have found that the electronic accounting have positive effects on the governmental institutions in terms of the quality control, financial statements preparation, periodic reports, state budgeting, and performance controlling, which in turn reflected significantly on organizational effectiveness in institutions, because they provide the data in less time, speed and high efficiency, and with low cost, as it has reinforced the decision-making process and make it more effective. This has a positive impact on the development of the national economies of these countries.

#### **4.2 Recommendations**

1- Allocating experienced accounting professionals familiar with the work of the unit or the accounting department in the government institutions, and employing experienced staff of programmers.

2-There is a need to arrange training courses in government institutions in order to increase the awareness of the employees for the importance of electronic accounting and train them to use electronic accounting softwares properly. Trained employees ensure the proper application of electronic accounting. This also saves time and resources.

3- Necessary services for electronic accounting system design must be provided.

4- The views of external experts must be sought by outsourcing them when necessary. Accounting department- after the electronic accounting system design- should not leave the manual mechanism for a period of time. The purpose of that is to examine the computerized system and the extent of its success, and continue to match the manual



method with computerized method. The manual mechanism can be stopped when the necessary data are available on the success of computerized method.

5- It is necessary to develop the vital controls for using computerized accounting programs. These controls ensure to meet the needs and desires of the electronic accounting system users in government institutions and ensure the consistency of the programs with the accounting rules and laws.

6- Continuous work must be performed to provide the characteristics and components related to the electronic accounting system in order to achieve the best possible use of it.

7- A Deep and rational study must be performed when deciding to choose any program by taking into consideration the accounting needs. The same thing must be done when developing the program internally and replacing an existing program. It is very important that the accounting software meets the specific needs of the organization that will use it.

8- Committees must be formed in the Ministry of Finance to check and follow-up in the field of electronic accounting systems that will be applied in government institutions. These committees must ensure the adherence to the principles of accounting and auditing, and applicable laws and regulations.

9- The colleges of Administration and Economics - Department of Accounting in Iraqi universities should be established to provide courses in electronic accounting systems.

10- Computerized accounting systems must be upgraded continuously in order to keep pace with technological developments. New methods and principles in accounting must be incorporated into the accounting softwares.



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## CURRICULUM VITAE

### PERSONAL INFORMATION

Surname, name: AL-WAELI, NIBRAS MAHMOOD SHTEB

Nationality: IRAQI

Date and place of birth: 1981/11/11 , Baghdad, Iraq

Marital state: Single

Phone: 0090 535 026 32 11, 009647712877983

Email: [nibras.m.sh@gmail.com](mailto:nibras.m.sh@gmail.com), [misa\\_200014@yahoo.com](mailto:misa_200014@yahoo.com)

### EDUCATION

Degree	Institution	Year of Graduation
BBA	AL-MUSTANSIRIA UNIVERSITY	2006
MBA	CANKAYA UNIVERSITY	2014

### WORKEXPERIENCE

Year	Place	Position
2006- until now	Baghdad Governorate	Accountant

### FOREIGN LANGUAGES

English & Turkish