

## **THE IMPACT OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) IN THE ACCOUNTING SYSTEM: ADVANTAGES, APPLICATIONS, AND CHALLENGES**

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### **Abstract:**

Developments in information technology, having had a significant impact on individuals and business units' individual and social lives, have also impacted accounting information systems and have affected it in various aspects, including concepts and scope of activities. Accounting initially supplied information only to business owners and governments but has expanded since it became an information exchange system; So that it meets the information requirements of all stakeholders. Developments in information technology have affected the accounting information system by eliminating human errors, decreasing costs, increasing productivity, quality and effectiveness. They have also created new areas and users in the accounting profession,

presented in the following examples: international accounting, e-commerce, timely production, activity-based costing, quality management, e-books, electronic accounting and auditing, human resource accounting, etc. This paper concludes that rapid changes in information technology have made computers much easier and more widely used and that accounting tasks can be performed faster and more accurately. Accounting, as the language of business and the information system, must adapt to new technology to serve financial information users. In the information age, the market requirements of accounting graduates are progressively changing. Training future accountants to adapt to more IT-based environments has long been the focus of experts and faculty members at universities and training centers. While pointing to the importance of information technology in accounting, this paper also mentions the advantages, applications, and practical challenges of information technology in accounting.

## **1. Introduction:**

Electronic and computer technology and tools in the past few years have caused the phenomenon of information explosion. They will undoubtedly have a significant impact on societies' orientation and the information they need, today not only senior managers and executives but for all sections of society such as researchers. Scholars and people in business are bound to use information. Information system users use information as a valuable source of both capital and labor. Since information is essential and useful and is the basis for all organization activities, processes must be established to produce information and manage it. Such systems' ultimate goal is to ensure the accuracy and validity of the information available at the required time and in a usable manner. Today, information technology plays a vital role in all areas of a company's activities. In general, information technology is considered a valuable resource and increases managers' and employees' ability and makes it possible to achieve the organization's goals while increasing productivity effectively.

Numerous scientists call this century the information and communication era. In this day and age, the global village hypothesis has become objectively realized. With the help of technology, communication and information exchange in everyday life are essential today. Also, in large environments, you can easily exchange information using new communication facilities such as the Internet. Computer experts have also created the conditions for small computers to make the most available resources and facilities by connecting as a single network.

Information technology (IT) is a general term used to describe computers' use to create and maintain data and supply timely information. In other words, any facilities used to receive, store, process, transmit and deliver information are called information technology. The importance of various applications of information technology in life today is quite tangible and undeniable to the extent that in some cases, without the use of IT, activities will be disrupted or will require a lot of costs [1].

Classically, most sciences have flaws and problems at the beginning and have evolved. Accounting is no exception to this rule. But what has led to the sudden and sudden advancement of accounting is undoubtedly information technology, which this paper tries to explain the relationship between accounting and information technology.

As of 1950, a great deal of scientific research has been done on technological advances. Creating more scientific research opportunities has taken the form of a natural cycle of information technology developments with a series of international and global laws as e-commerce and accounting. They have created a new one. Besides, these gains have been made applicable by

saving time and money by speeding up transactions and communications. This has led to the transfer of financial transactions from a traditional paper-based environment to an electronic environment in the accounting information system [1]. We will no longer need to justify using information technology in today's world because of these factors. An accounting will inevitably use all or some of the new methods in providing its services and tasks. Consequently, information suppliers, especially accountants, must supply relevant and high-quality information for their services to have a buyer at high prices. Otherwise, they will not have a place in the future [2].

Progressively, information technology IT is hand in hand with business knowledge. The advent of e-commerce sometimes requires Internet-based systems and expanding their capabilities across numerous occupations, including accounting. [3] Small businesses were used to record activities, prepare test papers, and balance sheets, but now include items such as budgeting, financing, and industrial accounting has become a support system. Members of the accounting profession should be involved in data recording, Computer and Internet applications related to information technology [4]. Today, remarkable changes have taken place in information technology, and its developments have become widespread, so it has created transformational trends in various areas. Its most important features are high-speed data processing, high accuracy, high-speed access to information, up to date, the possibility of electronic information exchange, high quality, extremely cheap and declining price, and expanding the volume of operations we have things getting more complicated. Due to these factors, we will no longer need to justify using information technology in today's world. The accounting will inevitably use all-new methods in providing its services and tasks [3]. Besides, information technology will significantly impact costs and lead to practical improvements in accounting and time savings and increase the accuracy of calculations [5].

In this paper, while examining the advantages of information technology applications in accounting, we seek to answer the factors affecting information technology applications in accounting?

### **3- ICT Information and communications technology (ICT):**

ICT is the application of knowledge in business and industry. In other words, information technology refers to mechanical or electronic devices used in the production of products and to build more efficient systems. The evolution of information technology includes courses in office technology, computer technology, and communication technology:

In the first period, employers were trying to create an environment in which all administrative, employee and commercial affairs were carried out, apart from factory issues and the factory environment's general sense. One of the most important indicators of this period was conducting studies on location and spatial planning for office environments. In fact, in this period, an attempt was made to separate administrative activities from production activities. Finally, the staff units were separated from the administrative units in terms of location. The idea of this period was to supply an environment with better conditions for administrative work, which at that time was mostly accounting such as accounting, wage, and finance [6,7].

In the second period: that is, in the era of computer technology, with the advent of small computers with speed and accuracy, managers decided to use these devices and computerize their organization to use the speed and accuracy of computers to reduce working time and

remove human errors, and the consequence of this move was that the computer-assisted the users to do their daily work well.

In the third period: the era of communication technology, with the increasing and comprehensive expansion of computer science and its peripherals and the integration and integration of each system, was created. Today, the administrative procedures and the global systems whose main task is to develop and improve communications. Classically, communication is essential in terms of business information. Another characteristic of this period in which we live now is that organizations and companies have realized the actual value of time and quality information. In today's complex markets, lack of communication with information sources means that the organization is far away. And obtaining correct, quality, and relevant communication means that the organization is in coordination and mechanism with the environment and is responsive to changes [8,9].

#### **4- Functions of information and communication technology:**

Wherever information technology is used, at least one of the following operations is performed, and in most cases, a combination of them:

- 1- Conversion: means converting information from one form to another (for example, scanning a text and converting it to a file)
- 2- Storage: For example, saving audio on CD or storing financial information.
- 3- Information processing: Calculating the salary or preparing the financial balance, or calculating the items needed to buy.
- 4- Communication: such as sending one or more files from one computer to another.
- 5- Analysis: Like intelligent industrial and construction design software.
- 6- Delete information: such as deleting unnecessary and unnecessary information from a computer.

#### **5- Accounting:**

Accounting is a system in which the process of collecting, classifying, recording, summarizing information, and preparing financial reports and accounting statements is done in specific forms and models so that stakeholders within the organization such as managers or outside the organization such as banks, government, and other authorities can use this information. Accounting, as an information processing system, receives raw financial data and organizes it. The accounting system's final product is financial statements and statements, which are the basis for stakeholders' decision-making (managers, investors, government, etc.). The essential accounting branches are industrial accounting, financial accounting, government accounting, management accounting, and human resource accounting.

##### **5-1- Industrial accounting:**

The requirement to determine the cost in industrial units is the reason for this accounting sub-branch. After the industrial revolution and the mechanization of production lines, industrial accounting was defined as accounting. Over time, with the development of production tools and methods, industrial accounting techniques have developed to the point that today the most complex and extensive industrial units can calculate the cost of their goods in various ways and

supply comprehensive financial reports for Supply input to government agencies, investors and partners.

### **5-2- Financial accounting:**

This type of accounting can also be called reporting accounting because its primary purpose is to prepare the basic financial statements that the users require of these financial statements. It can be said that the main reason for the emergence of this type of accounting is the principle of personality separation. This principle made possible the participation of capitalists who did not engage in business and led to businesses' growth and development. This type of partnership led to the emergence of stocks and the stock market. Of course, the main reason for creating a stock market can be the increase in the number of joint-stock companies.

### **5-3- Government accounting:**

Public accounting is a type of accounting that focuses on preparing, analyzing, recording, and classifying financial information related to government agencies. Government accounting is like business accounting in numerous ways. The difference between the two is in matters such as showing the surplus account instead of the capital account, the precedence of the law over the accepted principles of accounting for the proper management of government budgets, and some general definitions. Accounting in the for-profit and non-profit activities of government agencies is slightly different, but the accounting principles are the same.

### **5-4- Management accounting:**

To deal with financial matters related to management accounting, management is defined as accounting sub-branches. Management accounting focuses on calculating the economic costs of producing or selling services and goods. For example, a management accountant in a chair manufacturing company should calculate the cost of repairing or purchasing the screws used in the chair and suggest the more cost-effective option in the long run or short term (depending on company policies).

### **5-5- Human resource accounting:**

Human resource accounting, one of the new branches of accounting science, is related to identifying and reporting human resource investments. Human resources are valuable resources for any business because fate and success are in its employees' hands.

Human resource accounting is divided into three sections:

- Identification: Identifying the quantity and quality of human resources of an organization and preparing statistics.
- Evaluation: measuring the economic value of human resources.
- Reporting: Which branch of accounting is better to supply appropriate financial reports about the organization's human resources?

## **6- ICT in accounting:**

After the computer's advent in 1950, the computer's first scientific use was the 1951 US presidential election. In 1960, with the presence of the big computer, the idea of developing

centralized databases and the concept of informatics (data processing) was formed, and its application in the field of information management became more popular. In the 1970s and 1980s, this idea was used as intelligent systems and decision support. It took on a more tangible form and strengthened the basic idea of office automation and paperless systems. In other countries such as Japan, Germany, and the United Kingdom, the computer is applied in banking, hotel management, project management, etc.

The weakness of these services and applications in the deficiency of solid communication systems became more apparent. With the advent of telephones and telegraphs, high-volume data transmission was not possible, and the power of computing systems and informatics applications could be used only in limited areas. The ability to send information in addition to voice over telecommunications networks in the 1980s, the range of information applications through the web increased. Then, information technology was established with the historical connection of computers' computing power and the possibility of sending information.

The Information Technology Committee of the American Accounting Association (AICPA), as the foremost and most prominent professional accountant association in the world, has stated in the report of the top technologies affecting the accounting profession as follows:

- Communication technologies and bandwidth
- Telecommunication tools
- Laptops and mobile
- Possibility of issuing electronic licenses - digital signatures
- Electronic verification - a digital certificate
- Image Processing
- Simultaneous data mining and analytical processing
- Communication tools

### **6-1- Types of technologies used in accounting:**

Today, the computer is at the top of the pyramid of information technology and the role of maintaining and processing information in all disciplines and branches of science, industry, society, politics, business, services, applications, and the possibility of systematic analysis of organized collections from new perspectives. And by examining and evaluating the interrelationships between various factors and variables supplied application development. The computer in accounting led to the evolution of the accounting information system. It led to the combination of accounting and scientific knowledge of information and computer, a system for designing and using financial information, information and communication, financial information in decision-making, and public relations and financial reporting. Computer-based accounting minimizes boredom and duplication of office work, simplifies calculations, and performs economic units' financial operations speedily. The computer is the main crossroads of most technologies and is composed of two parts [10].

#### **1- Hardware:**

Hardware is the physical equipment responsible for the electronic data processing in a system and includes the central and peripheral processing unit, input, output, storage, and

telecommunication devices. It is generally the physical and tangible part of a computer system [11].

## **2- Software:**

Software is defined commands that control the activities and functions of the hardware. The set of commands that tells a computer how to perform an action or task is called a computer program. The process of writing a software program to complete tasks and activities is called computer programming.

Software is divided into two categories: application software and system software

- System software interprets application commands and slowly determines how the hardware executes them and prepares user programs to be completed by a machine language translation. There are three types of software: Systems: operating systems, applications, and communication software

- Application software is software that is written to perform a specific task and help users. This software is a rare commodity that companies spend a lot of money designing and developing to benefit from their economic advantages. Application software has been the essential software for accountants, and this software performs accounting and information processing operations effectively [12].

## **6-2- Objectives of information and communication technology accounting:**

In the past, accounting required a large number of accountants for paperwork, paperwork, and transcripts. Due to the computerization of accounting systems and the possibility of using computers in accounting, this type of service is supplied with less manpower but more accurately and speedily. The most important goals of information technology accounting can be considered as follows [13]:

- Information validity
- Asset protection
- System efficiency
- The economics of the system

## **6-3- The effect of information technology on the accounting profession:**

Information technology has had a vast impact on the accounting profession in the last two decades [14].

1. Accounting firms are progressively using electronic worksheets to facilitate their documentation.
2. Large accounting firms are progressively applying computer decision-making patterns.
3. Even small accounting firms are encouraged to use information technology.
4. Information technology affects people's behavior and attitudes working in the accounting firm and the firm's structure and processes.
5. Information technology increases the quality and efficiency of accounting through automated accounting, removes specific accounting methods, and improves the possibility of transferring information and knowledge.

#### **6-4- Developments in accounting education in the world:**

The recent developments in the business environment and remarkable developments in information technology have increased the requirement for advanced training courses. This necessitates the need to cover the following in university courses.

- 1- The role of accountant and accounting profession in society
- 2- Analysis of accounting information
- 3- How to use accounting information and decisions
- 4- Risk analysis and control
- 5- Accounting and auditing standards and how they are done
- 6- The use of information technology in business and decision making
- 7- Taxes.

On the other hand, accountants' knowledge and skills in responding to the business environment's requirements require that the following courses be included in the training courses.

Reporting; Working group; Risk management; customer orientation; Enterprise; English language; Office software including Excel and Word; Management information systems; electronic commerce; Tax Law; Accounting for non-profit units; Financial statement analysis; Accounting information systems; Advanced financial management; International Accounting [15].

#### **6-5- Technologies used continuously in accounting training:**

The list of technologies used in accounting training is graded based on the rate of continuous use by accounting professors [16]:

- E-mail, Internet, word processors (such as Word)
  - Use spreadsheets (Excel)
  - Point Power software to supply basic educational concepts
  - Use of visual aids in the classroom
  - Use of data analysis software (such as SPSS and SAS)
- And some of the rare technologies used in accounting education
- Use of audio technologies in the classroom
  - Distance Learning
  - Use of data analysis software such as (SPSS)
  - Special computer methods
  - Use of the film in classes or by students
  - Using multimedia technology in content presentation

#### **6-6- Information technology and data recording:**

The accounting department's first step in each unit is to record the data and information that, after processing, eventually leads to financial statements. Before the computerization of processors, accounting systems used manual technologies that were very easy to understand, but using that data to obtain the correct financial information was not easy. Getting useful and timely information requires time and effort. It was a lot of money. On the other hand, increasing the speed and accuracy of operations and decreasing information maintenance costs are the



advantages of using information technology in recording accounting data. Of course, it is essential to note that human error in data entry may lead to mistakes that can be minimized through in-service and in-service training and understanding the importance of increasing accuracy in performing accounting activities. In data entry, accounting event processing software is standard that can automate accounting methods that have been done manually for centuries. The most basic effect of information technology in this regard is that after the data is recorded - albeit correctly - by the user, despite the different needs, in the shortest time, we will be able to prepare and set up reports and offices such as the newspaper office. In some cases, information technology allows the accountant to enter and record the financial unit's data and economic events; the software automatically enters the relevant accounting records [17].

#### **6-7- Advantages of using information and communication technology:**

Today, information technology's importance to increase the speed and accuracy of various organizations' activities resulting from increasing their productivity has been identified. In particular, organizations whose different parts are located in geographical areas and far from each other, or institutions responsible for doing various tasks, solve numerous of their problems through this technology [18,19].

- Increase the accuracy of work
- Increase the speed of access to information
- Increase reliability
- Store large volumes of information
- Reduce corruption
- Supply full-time service
- Doing work remotely
- Reduce system or organization costs
- Elimination of air pollution and traffic
- Remove description expectation
- E-commerce

#### **6-8- Challenges of information technology and the requirement to vary the role of accounting to information system:**

Weaknesses in the accounting information system cause the information not to be supplied to the users promptly, and as a result, irreparable losses are inflicted on them. Accounting is defined as an information system whose job is to process raw data and turn it into understandable information [19].

Information technology affects the structure, operation, and management of organizations, and the development of business strategies in economic units is not possible without considering the process of information technology. On the other hand, changes in information technology are very rapid and widespread. In the past, when there were not numerous facilities for preparing information and the economic and market environment was not as complex as it is today, accounting systems supplied management information needs, but with increasing information needs, accounting systems expanded. Still, this development In the business environment, there was a lack of synchronization and the opportunity to move from separate and limited accounting

systems to comprehensive and integrated management information systems. Some of the challenges of using information and communication technology have been mentioned [20,21].

- Inexperienced project managers
- Disabilities of software companies
- Incomplete contracts
- Lack of specialized workforce
- Resistance of users and organizations in accepting new systems
- Communicating with customers and users and not involving users in the project
- Lack of adequate investment for research in the field of software
- Low investment in the private sector and lack of government support
- Failure in using a single standard
- Cheap software and not considering it as a product
- Months of the year, public holidays, and time planning
- Lack of recognition of copyright and copyright law

## **7- Conclusion:**

Prearranged the concepts and definitions of accounting and ICT mentioned above, it would be far-fetched and illogical to maximize our needs, despite the complexity and scope of financial events and operations, without the use of information technology, even where maximization Profit and cost reduction, as well as increasing customer satisfaction, are the most important goals and policies of any organization; Because the main advantage of using information technology is the reduction of costs (such as personnel costs, supplies, production planning, etc.), of course, some cases may increase instead of decreasing costs. But because they are part of the organization's main goals (such as timely and helpful preparation of financial reports that lead to increased user satisfaction with financial statements and the effect of information technology, in this case, was also expressed in the text of the paper). It is not possible. In keeping with the author and keeping with the contents as mentioned earlier, it can be understood that the advantages of using information technology in accounting will be the source of development and progress, even though there has always been resistance to vary from the old system to the new system. If the advantages are clearly expressed and further than professional and professional biases, we can see the widespread use of technology in accounting. Consequently, all companies and institutions have to invest in this field for the sake of survival, and accountants must reduce its risks by training and learning while recognizing new technologies and using them optimally with appropriate solutions because technology and information vary everything. It is a new post-industrial, wealth-producing paradigm that replaces the current industrial paradigm and significantly changes business practices.

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