

# Impact of the Information Technology on the Accounting System

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**Abstract**—This research aims to study the impact of information technology on the accounting information system (AIS) in companies and measure the role of information technology in enhancing the quality and performance of accounting transactions transparently and safely. The researchers review many resources and related literature about the impact of information technology on the accounting profession to determine the main effects, enhance the development of these technologies to strengthen the AIS, and reduce the errors in this system. The researchers conclude that information technology innovation contributed to the development of corporate accounting systems, improved business performance, and helped the emergence of cloud accounting, and one of the most important downsides of employing information technologies in AISs is the lack of standardized technologies used in all systems, as companies are usually selective in choosing technologies that suit their activities and this weakens the transparency of the outputs of AISs. Hence, they recommend that all companies should invest part of their profits in developing software for accounting systems, developing human resources, and training accountants for important accounting software and they must use accounting software efficiently and effectively to obtain the highest level of advantages of this software to overcome the disadvantages of implementation of information technology in an AIS.

**Keywords**—Accounting system, Audit, Decision making, E-system, Information Technology, Security

## I. INTRODUCTION

The accounting system is one of the most important foundations for the success of any company, as the correct and efficient application of the accounting system contributes to enhancing the economic efficiency of the company, reduces the excess costs, and reduces the risks that the company can be faced (Kamal, 2015. p. 13).

Therefore, the development of the accounting system was largely coincident with the continuous development in corporate management and the emergence and great development of information technologies had a major impact on the company's accounting system and its efficiency (Cavalluzzo and Ittner, 2003. p. 247). The accounting system still faces many obstacles due to poor implementation or delay by accountants (Rahman et al., 2017. p. 9). As a result, it was necessary to strengthen the partnership between information technologies and the accounting system to reach the optimum point in the implementation of the accounting system in the company.

## II. RESEARCH PROBLEM

This research focuses on the impact of information technology on the accounting system; therefore, the problem of research can be summarized as follows:

1. Does information technology help to make accounting transactions more efficient and effective?
2. Does information technology have good security aspects to journalize accounting transactions safely?

## III. RESEARCH OBJECTIVES

The main objectives of this research can be illustrated as follows:

1. Present a detailed hypothetical coverage of the topic studied, with a focus on the concepts in companies as general and accounting disclosures.
2. Study the impact of information technology on the accounting information system (AIS) in companies.
3. Achieve adequate research results consisting of the problem examined and the conclusions of this study in an appropriate way.

4. Determine the security role that information technology performs in the AIS.

Therefore, the researchers will focus on methodological measures to achieve the aforementioned goals, which will be addressed in the next paragraphs, especially during the research methods meet.

#### IV. RESEARCH SIGNIFICANCE

The significance of this research stems from the explaining of the impact of information technologies on the accounting system and the role of information technologies in enhancing the level of efficiency and effectiveness of the accountant's skills. In addition, this research can provide researchers with a perspective to understand the importance of information technology.

#### V. RESEARCH HYPOTHESIS

The fundamental hypotheses of this research are as follows based on the research problem and objectives:

- Hypothesis<sub>1</sub>: The evaluation of information technology put up to minimize the time and cost of transactions journalizing.
- Hypothesis<sub>2</sub>: Information technology can increase the level of security in accounting books.

#### VI. RESEARCH SCOPE

The following restrictions apply to the research:

- Period: The years between 1990 and 2013.
- Scientific scope: The impact of information technology and accounting system.

#### VII. LITERATURE REVIEW

##### A. Information Technology

Information technology is a treaty with the operation of the data storage, processing, dissemination, and exploitation by computers and telecommunications systems (Hamlen et al., 2010. p. 40). This may do also be defined as anything that gives data or perceived information through any multimedia allocation mechanism in any visual format (Ghasemi, 2011. p. 114).

It is designed for managers, assist administrative in their daily activities and decision-making in the sense of industry. In 1880, computers for the accounting system were invented (Smith and Weingart, 1999. p. 841).

Over the past years, developments in information technology have also changed the shape of management and accounting activities in the company; many departments were created such as information technology department, information technology maintenance department, and technical support department (Granlund, 2011. p. 7). Furthermore, many jobs were formed due to the inflection of

the information technology impact on the company and its management and accounting system (Hall, 2018. p. 78).

Hence, the result of the inflection of information technology in the accounting profession is the creation of the AIS which has undergone several changes over the years (Salehi and Abdipour, 2011. p. 80). This is directed at promoting the operation and regulation of the economic and financial operations of the companies (Alles et al., 2008. p. 209). For the majority of companies, an accounting system is necessary and technological developments must lead to the establishment of a computerized accounting system commonly employed by companies (Bagaeva, 2008. p. 158). Therefore, companies need to improve their systems to meet their information needs for better decision-making.

##### B. The AIS Concepts

An information system is an assortment of connected branches that gather, process, preserve, convert, and allocate preparation, decision-making, and handle information jointly (Dandago and Rufai, 2013. p. 656), (Al-Delawi, 2015. p. 442). Hence, computers can enhance data collection, retrieval, storage, transmission, and delivery performance in information systems (Moscove et al., 1999. p. 285).

In the field of information and technology, the AIS is a resource integrated. Thus, to companies, it is very critical due to its function in generating credible financial information for decision-making purposes (Salehi et al., 2010. p. 25).

There are numerous different systems because they need to take into account factors that influence how information is collected and recorded (Thabit and Jasim, 2019. p. 34). The information and the diverse kinds of decisions they are expectant to do will continue to depend on expected users based on company size, size of transaction data, nature of businesses, institutional structure, and investment formation, the system design can also depend (Jameel et al., 2017. p. 16).

##### General AIS model

The general accounting system model is shown in Fig. 1. This is a common model because, whatever the technological architecture it applies to all information systems (Hall, 2018. p. 90). Terminal, data sources, data gathering, data processing, data database control, data generation, and input are included in the study.

Data collecting is the first operational phase in AIS. It aims to behave the entry of data is valid, complete, and material-free. This process encourages pertinence and efficacy. The program only needs to collect and store relevant data once. Both internal and external sources can be data sources (Xu, 2015. p. 6). After obtaining data, it is stored and analyzed in database control. The analysis functions range from basic to sophisticated, including algorithms, statistical techniques, revenue allocation, and accounting summarization procedures (Thabit, 2013. p. 77).

The information generated is then transmitted to external users and internal end-users. Terminals outside of this sector include creditors, shareholders, investors, regulators, provisioners, and clients (Thabit and Jasim, 2017. p. 45). On the other hand, the main terminal is the organization's

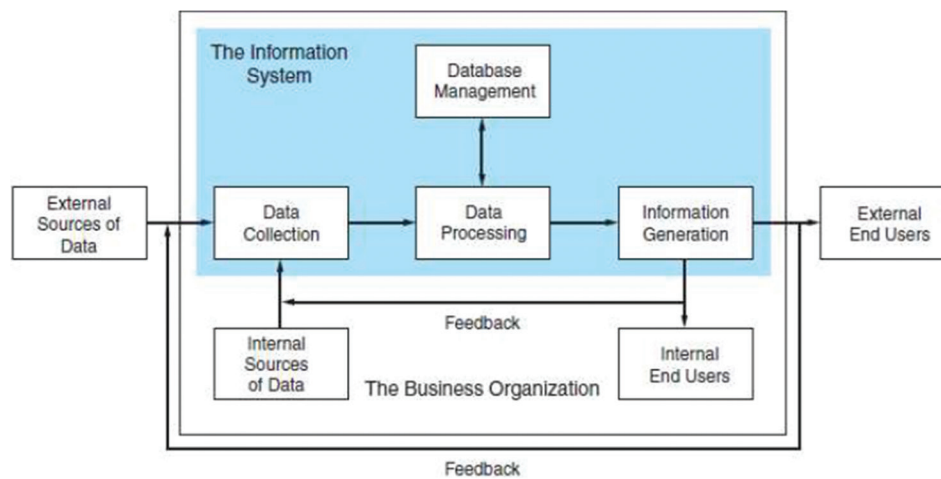


Fig. 1. Model of general accounting information system.

Source: Hall (2018). Accounting Information System, 10<sup>th</sup> Edition, Cengage Learning.

administration at all levels. Feedback is then sent back to the company to learn what to maintain and what to change.

#### *Information accounting system types*

In general, companies employ three kinds of IT systems, including unautomated systems, IT systems, and computer systems (Ballada and Ballada, 2008. p. 91).

- Unautomated system

This is the first portion of the accounting system. Where this system uses papers and books written on paper, computers have replaced some paper records with electronic processing structures of computer records (Li, 2013. p. 96). An unautomated system relies on human work and is labor-intensive. The manual system can be susceptible to errors because of human processing.

- Computer-based transaction system

In their AISs, organizations use multiple forms of information technology. A computer-based payment system was developed because of advances in information technology (Li, 2013: 97).

Accounting data are preserved independently from other processing data in this system. At this point, the work is more divided to maintain the integrity of the AIS (Arasteh et al., 2010. p. 414).

Information processing is the same as manual system processing, but the only distinction is that the accountant will register the text as the basis of the transaction on the computer screen, which can be processed automatically (Al-Delawi, 2019. p. 181).

There are many advantages of a machine transaction system, so transactions can be sent to specific accounts easily and bypassed by logging; comprehensive transaction records can be written to be checked at any time; internal reviews and change checks can be used for error avoidance and tracking, and the development of a large range of reports can be used (Thabit and Abbas, 2017. p. 843).

The market offers accounting services. These modules are comprised corporate accounting application modules. A basic accounting kit may also have a plugin or a stand-alone module.

However, it consists of more than one module most of the time. The QuickBooks and Peachtree are reminders of this.

- Database systems

This minimizes inefficiencies and excess in the information. The accounting process form of business management deviates from quantitative database systems, such as enterprise resource planning (ERP) systems.

This program apprehends both financial and non-financial information and then stores it in the database (Al-Delawi, 2015. p. 444). The benefits of this method contain market understanding rather than merely accounting; help to reduce organizational inefficiencies and removal of data duplication.

#### *AIS objectives*

To be considered as successful, an accounting system must fulfill the basic requirements of IT systems (Amidu et al., 2011: 150).

- First, the cost-benefit or cost-benefit equation must be embraced. Financial information is paid and not free; even other businesses expend millions each year gathering and organizing financial information to store them. In accordance with this principle, financial reporting costs in the financial statements should not prevail over the advantage for users of that information. If the company plans to improve its IT system, the cost-benefit principle must be considered.
- Second, the protection of the assets of companies ensures reliability of data, minimization of waste and the risk of robbery or fraud. The principle of control is also known.
- The third goal is to harmonize the operational and human aspects of the organization. The principle of consistency can also be called this.
- Ultimately, the versatility theory is also named, to respond to increases in transaction volume and organizational changes.

#### *Process of accounting*

The average speed of the accounting process is shown in Fig. 2. The four key stages involved are the review of sales, the documentation of results, and the processing of

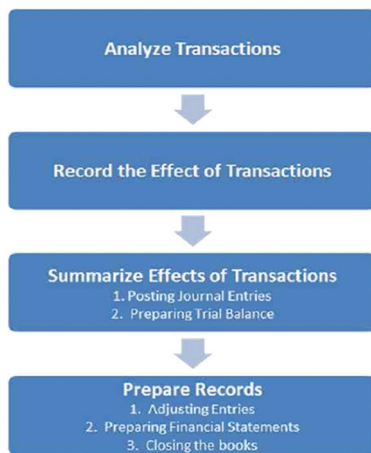


Fig. 2. Process of accounting.

Source: Hall (2018). Accounting Information System, 10<sup>th</sup> Edition, Cengage Learning.

documents. This is a balanced method, which ensures that the procedures can be used manually and technically.

First, it is to evaluate transactions, to understand the financial aspects of the transaction, to distinguish recordable and unrecordable transactions (Hall, 2018. p. 93). The purchase is evaluated in this phase on how it impacts the balance of accounts. In this point, source documents such as invoices, instructions, and controls are useful.

The second step is the transaction impact. Transactions are documented by recording. These journal entries are the means by which an accountant records the impression of simple and complicated transactions (al-Delawi, 2015. p. 443). All journals record business transactions chronologically. The transaction dates, the amounts involved and the specific accounts stilted by the transactions are shown. Sometimes the transaction is also described in detail. The books with original records are also known.

The third stage involves summing up the effects of the exchange and then inserting the journal entries in the ledger and planning a trial balance (Emeka-Nwokeji, 2012. p. 87). On evaluating purchases and recording them in a diary, all related products must be listed and categorized. This is achieved by adding all the journal entries to the correct accounts in the bookkeeping system. Both accounts are kept in a book entitled directory. A notebook is known as the invoice book. The next step is to identify each account's total balance. Typically, a check balance is planned once the balances of the account have been calculated. Each account with debit or credit balance is listed in a test balance (Galani et al., 2010. p. 419).

The last step includes reviewing the accounts, including the correction of records, review, and closing of the financial statements (Grabski et al., 2011. p. 54). Many change entries appropriate for the duration will be recorded and posted. After that, the check equilibrium is repopulated again. The financial statements are then compiled from the check balance data (Haug et al., 2011. p. 172). The financial statement, the income statement, the cash flow report, and comments are

included in the report. The closing of the books is the last procedure.

Today, most businesses use their accounting systems for computers and electronic technology; computers helped the company to quantify millions of transactions per second (Jameel, 2018. p. 198). The time it takes to complete the work manually is far from the time it takes for computerized programs to be used.

In addition, all four processes are the same. The only distinction is that in manual processes the accountant estimates and checks the records manually while only the results are analyzed and placed in a computerized system and the computer measures the balances automatically.

The fact settles that machines are unable to think, and this is the responsibility of the accountant (Li, 2013. p. 100). The job of the accountant is only the two first activities in the accounting process in the computerized method. The accountant just has to evaluate the transactions and report their consequences. The machine is faced with key computations.

Fig. 3 illustrates how economic activities pass into the accounting process that generates the accountable outcomes, and then the information produced is applied to economic decision-making and initiatives by stakeholders (Ballada and Ballada, 2008. p. 96).

With a touch of information technology, fast communication is built. This can lead to increased management decision-making and organizational productivity. Communication channels such as e-mail servers, switches, internal company signs, and chat facilities may help facilitate communication with the client. Use computer-based communication systems, routine and critical business knowledge can be transmitted quickly and effectively (Thabit and Raewf, 2017. p. 61).

Information technology infrastructure can be used to submit corporate status reports to executives, to educate employees on key business initiatives, and to communicate with clients and consumers.

#### *Information technology impact in accounting*

The way businesses operate has modified computers, the internet, applications, or even personal digital gadgets. Advancements of information technology and the accounting system have also changed. As business information is managed by accounting, any change in this sector will have a positive impact on the company, especially in the accounting department (Hall, 2018. p. 108).

#### *A. Competitive Props*

The use of IT resources let businesses to retain their rival's competitive benefits (Abadi et al., 2013. p. 2410). IT can be used to generate and differentiate new and improved goods from the existing market. The implementation of IT systems at the organization will reduce costs. This can boost productivity and reduce overhead demands for workers. Businesses should incorporate IT into their offerings, too, making moving systems, or goods impossible for consumers.





Fig. 3. Economic activity flow.

Source: Hall, J. (2018). Accounting Information System, 10th Edition, Cengage Learning.

### *Economic efficiencies*

The IT services were able to reduce accounting costs significantly (Thabit et al., 2016: 40). Within one location, multiple activities can be consolidated using IT resources. Based on high-cost functions transitioning in an online platform, economic productivity can be accomplished.

Organizations can also provide a less costly online e-mail service than a live customer service call. Cost savings could be achieved by recycling, remote working opportunities, and economic connectivity as well (Jameel and Ahmed, 2018: 44).

### *B. Improved Instruments*

Another approach to see technological progress in businesses is through their information processing systems. The availability in offices with computers, printers, routers, faxes, or other creative technology provides a competitive advantage over those who do not. Nevertheless, basic devices like computers can be bought at inexpensive and fair rates in today's situation (Li, 2013: 101).

### *C. Accounting Process Software Tools*

The software is an immaterial commodity from a commercial point of view. This is a collection of systems-related programs or procedures. Common business software includes software for accounting, auditing software, software for word processing, multimedia software, and electronic data exchange.

#### *Software for accounting*

Accounting software packages for payments and expenses handled in usable systems such as accrued, payable, compensation, and evaluation balance. It is included in the financial information report. Now it is possible to purchase simple online accounting software.

They contact their trusted programming companies for software used in large companies. This software is used to organize and centralize data. Hence, three different forms of company accounting software exist (Amidu et al., 2011. p. 152):

- Core applications are fully completed and tested. We are designed for business system execution. ERP, Oracle, and

SAP are examples of this framework.

- Backbone systems consist of basic device architectures. The main logic for this approach is programmed and the seller designs the user interface that meets customer requirements.
- Customized systems are known as custom systems supported by vendors.

#### *Software for audit*

As computers are incorporated by the accounting process, in a computerized environment auditors may also be able to conduct audits (Thabit, 2019. p. 3). Software packages for auditors are available only. Electronic auditing trails for auditors are also created by digital technology (Thabit et al., 2016. p. 37).

#### *Software for word processing*

This is the software application for word document formation. This also allows the editing, storing, and printing of textual data. In the exchange of information, accountants and other organizations use tools for word processing. In the planning of papers, billings, and memos, they are using word processing tools (Ghasemi, 2011. p. 115).

#### *Workbooks*

A workbook is a type of active and dynamic computer application system that is typically used for tabular data structure and analysis. The paper worksheets have been developed as computerized simulations.

Today, Excel and SPSS are the two most popular tablets. This may be for computer or electronic functions (Amidu et al., 2011. p. 153). The financial statements of the end-off period could be issued to a table and submitted to the board of directors graphically.

#### *Graphics software*

To better understand the issue, this program produces pictures, graphs, and charts from the data input (Hamlen et al., 2010: 44). It is also used to report financially.

#### *Electronic data interchange (EDI)*

This is the swap of business information in a standard format by computer-processed companies. It is an inter-agency endeavor because two or more entities are involved (Ghasemi, 2011. p. 115). There is no human agent in the mere EDI system to accept or sanction transactions.

#### *Security*

Informatics is broadly used in the security of accounting. When accessing secret information on the company, the use of identification and passwords provides powerful control. Instead of ties and papers, the safety with the correct computer programs is greatly enhanced (Hamlen et al., 2010. p. 46). The use of a system will encrypt accounting information in such a way that it is not illegal and secure. For example, the security software obtained by the company will control a missing, damaged or faulty laptop or desktop computer.

#### *Internet*

The internet offers massive information sources that can be used by organizations, in particular in the field of accounting. This allows document sharing, research, and taxation in certain countries to be filed online (Dandago and Rufai,

2013. p. 671). This means that documents can be shared by a wireless and easy internet connection.

Malls and department stores are widely used for the point of sale method. The internet assists customers in the payment process through a real-time credit card connected to their banks. The employ of bar codes aids to improve the processing process and correct inventory information automatically.

#### *Cloud*

The latest trend for accounting software is online hosting off-site or named as the cloud. The program remains on a server at a different location instead of running a program on the machine of the organization (Hamlen et al., 2010. p. 48). The cloud technology also connects to the internet and stores the files or documents online. The term “worked in the cloud” may also be used (Al-Nasrawi and Thabit, 2020. p. 71). It allows companies to save money on their sales of software and hardware by registering with their cloud providers and employing their data saving systems and resources. This does not mean a greater hard drive or device versions have to worry around.

The other advantage of the cloud is that you have access to information everywhere. This new cloud technology combines enhanced security of accounting information. Data cannot be accessed by all citizens; managers could restrict information access. There may be limited information.

#### *Adequacy*

Adequacy is the main attribute in every program or operation (Amidu et al., 2011. p.154). Adequacy means that limited resources are the best possible outcomes. In the accounting system, streamline management processes, shared storage, and group practices are the aspects that increase efficiency. This also helps employees to work at a higher level in less time. IT solutions can be used in the management of standard tasks to enable data analyses and store data in a way that is easy to access for future use (Al-Nasrawi and Thabit, 2020. p. 71). Customer inquiries may also be answered by technology. The entity can communicate with clients by e-mail, in an interactive chat session or through a phone standard system to make it more efficient.

#### *Velocity*

Velocity is an essential feature of IT. The use of many innovations contributes to quicker purchases and performance (Thabit and Jasim, 2017. p. 53). Multiple computations can be achieved in a second by means of the integration of information technology which leads to the acceleration of system information production.

#### *Accuracy*

Calculation encourages the technology of information. The consistency of documentation and documenting is critical because of the very thorough accounting work (Thabit and Jasim, 2017. p. 70). One of the system’s positive effects is that statistical error probability reduces, which is one of the problems of the management program.

#### *Internal and external reporting strengthened*

It is easy to generate and send financial reports to internal and external customers based on increasing data processing

speed and accuracy. External users can use these reports for an entity status assessment. Public customers supervising this infrastructure profit from knowing the details when making economic decisions.

Nickels et al. pointed out that computers make the job much easier and allow administrators and other workers to access their financial reports precisely when they want them (Bae and Ashcroft, 2004. p. 3).

#### *Flexibility*

In accounting departments, flexible technology is critically needed. The accounting system must be able to adapt to business practices changes (Thabit, 2015. p. 45). Accounting-related information technology provides opportunities for transition adaptation. Certain systems can upgrade the transaction volume of the entity.

#### *Paper use reduction*

The use of accounting systems in paper envelopes and accounts reduces the use of books (Thabit and Raewf, 2016. p. 22). It reduces costs and removes the entity’s environmental concerns about the use of trees and paper.

## VIII. CONCLUSIONS

Based on the related literature and previous studies, the researchers can conclude the following:

- The use of information technologies to simplify accounting processes and reduce the effort of the accountant started more than 140 years ago.
- One of the most important bases on which the organization depends on managing its business and organizing its accounts is information technology.
- Information technology innovation contributed to the development of corporate accounting systems, improved business performance, and helped the emergence of cloud accounting.
- The simplification of accounting procedures while enhancing their efficiency and effectiveness due to the use of information technologies has resulted in greater opportunities for companies to expand their commercial deals and enhance public confidence in them.
- The employment of information technology mechanisms in the AIS contributed to reducing unintended errors and thus contributed to the development of the auditing profession.
- The efficient application of information technologies contributed to the flow of information effectively, which facilitated the taking of management decisions, and improved the company’s ability to meet strategic and commercial goals.
- The application of information technologies in AISs will not make them systems free of defects but make them systems capable of development and continuous updating.
- One of the most important downsides of employing information technologies in AISs is the lack of standardized technologies used in all systems, as companies are usually selective in choosing technologies that suit their activities and this weakens the transparency of the outputs of AISs.

## IX. RECOMMENDATIONS

According to the conclusions of the research, the researchers recommend the following:

- The use of information technologies in accounting must be determined by international standards issued by relevant professional organizations.
- Companies should invest part of their profits in developing software for accounting systems, developing human resources, and training accountants for important accounting software.
- All companies must use accounting software efficiently and effectively to obtain the highest level of advantages of this software to overcome the disadvantages of the implementation of information technology in an AIS.

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