Impact of Information Technology on Accounting Systems

Francis Pol C. Lim

Abstract

The emergence of information technology in accounting is an innovative system. Nowadays, most business entities, from large corporations down to micro enterprises, are aided by their Accounting Information Systems in managing their operations. This paper provides a review on the impact of information technology on accounting systems. This paper also discusses things about the accounting processes and its types. Accounting is a critical factor for the business, having the touch of IT can enhance speed and accurateness of computations as well as to enhance its flexibility to change and safety storage of information.

Keywords: Information Technology, Accounting System

1. Introduction

Accounting is the art of recording, classifying and summarizing in a significant manner and in terms of money, transactions and events which are, in part at least, of financial character, and interpreting the results thereof [1]. Accounting can also be referred to as an information system that measures, processes and communicates financial information about an economic entity [2]. Advancements in information technology have dramatically improved accounting systems and transformed economic life. Computers and other digital technologies have increased office productivity facilitating the rapid exchange of documents, research, collaboration with far-flung partners and the collection and analysis of data. Information technology gave all sorts of individual economic actors the new valuable tools for identifying and pursuing economic and business opportunities [3].

2. Information Technology

Information Technology (IT) deals with the application of computers and telecommunications equipment to store, retrieve, transmit and manipulate data [4]. This may also be described as anything that renders data, information, or perceived knowledge in any visual format through any multimedia distribution mechanism [5].
Applying in the context of business, it is designed to help management in their stewardship function, support management in their day-to-day operations and decision making. In 1880, machines where invented to help in the accounting system [6]. As year years passed by, advancements on information technology also transformed accounting systems and its processes. There were many developments in the Accounting Information System (AIS). This is designed to help in the management and control of activities related to the firms’ economic and financial area. Accounting system is essential for majority of the business entities. The advancements of technology have lead in the creation a computerized accounting system which is commonly adopted by business entities at present. This has created a competitive market. Thus, entities need to improve their systems in order to match their information needs for better decision making.

3. Accounting Information System

An information system is a set of interrelated subsystems that work together to collect, process, and store, transform, and distribute information for planning, decisions making and control [7]. The use of computer in information systems can improve the efficiency of information collection, processing, storing, transformation and distribution [8].

Accounting information system (AIS) is a tool which was incorporated in the field of Information and Technology systems. It is very important for business entities. This is the one responsible in generating reliable financial information needed for decision making. There are many varying designs of the system for they must consider factors that influence the way in which information is gathered and reported. It will still depend on the anticipated users of the information and the types of decisions they are expected to make. The design of the system may also depend on the size of the firm, volume of transaction data, nature of operations, organizational structure and business form.

3.1 General Model of Accounting Information System

Figure 1 shows the general model for Accounting Information System. It is considered as a general model because it is applicable to all information systems, regardless of the technological architecture [9]. The elements include end users, data sources, data collection, data processing, database management, information generation and feedback.
The first operational stage in AIS is the data collection. Its objective is to ensure that the data entering are valid, complete and free from material error. This stage promotes relevance and efficiency. The system must only capture relevant data and collects them only once. Data sources can either be from Internal or external sources.

After the data have been collected it will then be stored in the database management and will be processed into information. Tasks which pertain to data processing varies from simple to complex, this includes algorithms, statistical techniques, sales forecasting, and summarizing procedures used in accounting.

The information generated will then be forwarded to the external end users and the internal end users. External end users include creditors, stockholders, investors, regulatory agencies, suppliers and customers. On the other hand, the internal end user is the management at every level of the organization. Feedbacks are then sent back to the entity so that they would know what things to retain and what things to improve.

### 3.2 Types of Accounting Information Systems

In general terms, business entities use three types of information systems namely manual system, computer-based transaction systems and database systems [3].

#### 3.2.1 Manual System

This is the first type of accounting system. It utilizes paper-based journals and ledgers. Nowadays, Computer-based transaction systems replaced some paper records into computer records.

Manual system is labor intensive for this system relies on human processing. Because manual system relies on human processing, they may be prone to error.
3.2.2 Computer-Based Transaction System

Organizations employ multiple forms of information technology in their accounting information system [10-14]. Because of the advancements in information technology computer-based transaction system were created. In this system, accounting data are kept separately from other operating data. At this point, there is a greater degree of compartmentalization of work in order to preserve the integrity of accounting information system.

Treatment of information is the same with that of the manual system. The only difference is that the user here is simply filing in a computer screen that looks and often times acts as the source document of the transaction.

The following are the advantages of computer-based transaction system as described by Ballada, 2011. Transactions can be quickly posted to the appropriate accounts, by passing the journalizing process; detailed listings of transactions can be printed for review anytime; internal controls and edit checks can be used to prevent and detect errors and; a wide variety of reports can be prepared.

Accounting packages are available in the market. This is consist of modules that deals with the business accounting systems. A simple accounting package might also contain one module or also referred to as stand-alone module. But most of the time, it will consist of several modules. Examples of this are the QuickBooks and Peachtree.

3.2.3 Database Systems

This system reduces inefficiencies and information redundancies. Relational database systems such as enterprise resource planning (ERP) depart from the accounting equation method of organizing data. This system captures both financial and non-financial data, and then it stores that information in the data warehouse.

The advantages of this system include recognition of business rather than just accounting events; the support in the reduction in operating inefficiencies and; the elimination of data redundancy.

3.3 Objectives Accounting Information System

For an accounting system to be considered as effective it must meet the basic objectives of information systems.

The first objective is that they must pass the cost benefit principle or cost benefit relationship. Financial information is not free, other companies even spend millions every year just to gather and organize financial information to assemble into their financial statements. Under this principle, the cost of providing financial information in the financial statements must not outweigh the benefit of that information to the users [11]. If the firm is planning to improve their IT system, they must consider the cost-benefit principle.
The second objective is to protect the entities assets, to ensure that data are reliable and minimize wastes and the possibility of theft or fraud. This is also known as the control principle.

The third objective is to be in harmony with the entity’s organizational and human factors. This can also be referred to as the compatibility principle.

The last is to be able to accommodate growth in the volume of transactions and for the organizational changes, also called as the flexibility principle.

3.4 The Accounting Process

Figure 1 shows the general flow of the accounting process. The four basic steps involved are analyze transactions, record the effects of transaction, summarize the effects of transactions and prepare records. This procedure is neutral; this means that the steps involved can be applied both in manual and technology based.

![The Accounting Process Diagram]

The first step is the analyzing of transactions, the transaction must be known to be financial in nature, recordable and non-recordable transactions are separated. In this step the transaction is being analyzed on how it affects the accounting equation. Source documents such as invoices, orders, checks are helpful in this stage.

The second step is to record the effect of the transactions. Transactions are recorded using journal entries. These journal entries are the accountant’s way of recording the effect of both simple and complex business transactions. Journals provide a chronological record of all transactions of a business. They show the dates of the transactions, the amounts involved, and the particular accounts affected by the transactions. Sometimes a
detailed description of the transaction is also included. It is also known as the books of original entries.

The third step is to summarize the effects of transaction, under this step, the journal entries will be posted to the ledger and a trial balance will then be prepared. Once transactions have been analyzed and recorded in a journal, it is necessary to classify and group all similar items. This is accomplished by the bookkeeping procedure of posting all the journal entries to appropriate accounts. All accounts are maintained in an accounting record called a ledger. A ledger is also referred to as the book of accounts. The next step is to determine the total balance of each account. After the account balances have been determined, a trial balance is usually prepared. A trial balance lists each account with its debit or credit balance.

The fourth step is the preparation the reports, this includes adjusting entries, preparation of financial statements and closing of the books. There will be recording and posting of the some adjusting entries that is applicable for the period. Then the trial balance will again be recomputed. From the data in the trial balance, the financial statements are then prepared. This includes the statement of financial position, income statement, cash-flow statement and the notes. The last procedure will be the closing of the books.

In manual systems, journals and ledgers are paper based. Today, most business entities use computers and electronic technology as an integral part of their accounting systems. Computers helped business to make millions of calculations per second. The time spent in manually accomplishing the steps is far compared to the time spent in computerized systems.

The four processes involved is actually still the same. The only difference is that in manual systems, the accountant is manually computing and preparing the papers while in computerized system, you only analyze and enter the data and the computer automatically calculates the balances. Some software even has the automatic update of financial statements. You can immediately track the progress of the business.

The fact still remains that computers can’t think and that’s the accountant’s job [10]. In the computerized system, the accountant’s job is just the first two steps in the accounting process. The accountant just needs to analyze the transactions and record their effects and adjust entries. Major computations are left to the computer.

3.5 Flow of Economic Activities

Figure 2 illustrates how economic activities flow into the accounting process, which produces accounting information. The information generated is then used by the decision makers in making economic decisions and taking actions; thus, resulting in economic activities [3].
With the touch of information technology, rapid communications are formed. This can help increase productivity of the business and improve business decision-making. Communication channels such as email servers, routers, internal company billboards and chat services can help in the company’s communications. The utilization of computer-based communication systems help disseminates routine and critical business information in a speedy and efficient manner. IT equipment can be used to send business status reports to executives, to update employees on critical business projects and to connect with business partners and customers.

4. The Influence of Information Technology in Accounting

Computers, Internet, software or even personal digital devices have changed the way business entities operate. Information technology advancement also improved together with the accounting system. Since accounting deals with business information, any improvement in this area will create a positive impact on the entity more especially in the accounting department [9].

4.1 Competitive Advantage

Utilization of information technology resources allows companies to maintain a competitive advantage over their rivals [13]. Information technology can be used to make new and improved products and distance them from the existing market. Costs can be reduced adopting information technology solutions in business. This can increase productivity and reduce the need for employee overhead. Businesses can also build-in information technology to their products that makes it difficult for customers to switch platforms or products.
4.2 Economic Efficiencies

Information technology resources can significantly reduce accounting costs [15]. Redundant tasks can be centralized in one location through the use of information technology infrastructure.

Economic efficiencies can be realized by migrating high-cost functions into an online environment. Companies can also offer email support for customers that may have a lower cost than a live customer support call. Cost savings could also be found through outsourcing opportunities, remote work options and lower-cost communication options.

4.3 Improved Equipment

One way to see the technological advancement in business entities is through their equipment used in information processing. The presence of computers, printers, scanners, faxes or other innovative equipment in offices creates a competitive advantages compared to those who don’t have these things. However, in today’s situation, simple equipment such as computers can be acquired at affordable and reasonable prices. In the study of Amidu et. al. in 2011, survey showed that 97% of the business entity respondents were using computers in their operations. This serves as evidence on how essential computer is in business [10].

4.4 Software Tools in the Accounting Process

In a business entities’ point of view, software is considered as an intangible asset. This is a set of programs or procedures associated with a system. Commonly used software in business are accounting software, audit software, word processing software, graphics software and electronic data interchange.

4.4.1 Accounting Software

Accounting software is an application that records and processes accounting transactions within functional modules such as accounts payable, accounts receivable, payroll, and trial balance. It is a part of the accounting information system. Nowadays, simple accounting software can be acquired online. For software used in large companies they contact their trusted programming entities. These programs are used for organization and centralization of data.

There are three basic types of commercial accounting information system software. These are the turnkey systems, backbone systems, and vendor supported systems [11].

Turnkey systems are completely finished and tested systems. These are ready for implementation in the
business process. Examples of this system are Enterprise Resource Planning (ERP) systems, Oracle and SAP.

Backbone Systems consist of basic system structures on which to build. In this approach, the primary logic is preprogrammed and vendor will be the one to design the user interface that suits client needs.

Vendor-supported systems are referred to as customized systems. In this system, the software vendor designs, implements and maintains the system for its client.

4.4.2 Audit Software

Since computers were integrated with the accounting process, auditors can also audit in a computerized environment. There are available auditing software packages only for auditors. Computer technologies also provide digital audit trails to be used by the auditor.

4.4.3 Word Processing Software

This is the computer program used for the creation of word documents. Under this, textual data can also be edited, stored and printed. Accountants and other entity employees use word processing software in communicating information. They use word processing software in preparing reports, billings, memos and financial statements [5].

4.4.4 Spread Sheets

A spreadsheet is a form of an interactive computer application program usually used for organization and analysis of data in tabular form. This developed as computerized simulations of paper accounting worksheets.

Today, the two most popular spreadsheets are Excel and SPSS. This can be for virtual or any task that requires computations [12]. A company’s end-off period financial statements could be exported to a spreadsheet and presented graphically to the board of directors.

4.4.5 Graphics Software

This software creates photos, graphs and charts from data input in order to facilitate better understanding of the topic. This is usually used in financial reporting.

4.4.6 Electronic Data Interchange (EDI)

This is the intercompany exchange of computer-processed business information in standard format. It is an inter-organizational endeavor for there are two or more entities engaged. There is no presence of human intermediaries to approve or authorize transactions in a pure EDI environment.

4.5 Security
Information technology is used widely in accounting security. The use of identifications and passwords provides a strong control in accessing confidential information about the entity. Instead of binders and papers lying around, security greatly enhanced with the proper computer programs. Using a program, accounting information can be encrypted in a way to prevent unauthorized use, making it quite safe. For instance, a lost, stolen or misplaced laptop or desktop computer can be tracked using the security software acquired by the entity.

4.6 Internet

The Internet provides vast sources of information that can be used by business, especially in the accounting area. Through this, documents can be shared, research can be conducted and taxes in some countries can be filed-all online [7]. Connection to the Internet can be wireless and simple.

The Point-of-Sale (POS) system is commonly used by malls and department stores. Internet helps in the payment procedure of customers through real-time connection of their credit card to their respective banks. The use of barcodes helps in the improving sales transaction time and automatically updating of their inventory records [11].

4.7 Cloud

Web hosting off-site or called as cloud is the latest trend with accounting applications. Instead of installing a program onto the entity’s computer and saving data there, the program resides on a server in a different location. This cloud technology also uses the Internet to connect and save their information or documents online. This can also be referred to as "working in the cloud." In this way, businesses can save money in software and hardware purchases by just signing up with a cloud provider and using its programs and space for saving data. Through this, there is no need to get a bigger hard-drive or worry about program versions. The other advantage of the cloud is that you have access to your information anywhere you may be. This new cloud technology is also associated with the improved security of accounting information. Information is not open to all netizens, the administrator can restrict access to the information.

4.8 Efficiency

One of the key features of any system or activity is the efficiency [12]. Efficiency means having the best possible results using limited resources. In the accounting system, the things that increase efficiency are the streamlined work flow systems, shared storage and collaborative work. This also allow employees to process a
greater level of work in a shorter period of time. Information technology systems can be used in automating routine tasks in order to make data analysis easier to perform and store data in a manner that can easily be retrieved for future use. Technology can also be used to answer customer inquiries. In order to be more efficient, the entity can contact the customers through email, in a real-time chat session or through a telephone routing system.

4.9 Speed

Speed is the hallmark of information technology. The utilization of multiple technologies results in faster transactions and results. Through the integration of information technology, multiple calculations can be done in a second, resulting in the speeding up of the information generation of the system.

4.10 Accuracy

Information technology assists in the computations. Since accounting work is very detailed, accuracy in recording and reporting is greatly valued. One of the positive effects of this system is the fact that it lessens the possibility of incurring mathematical errors which is one of the problems experienced in the manual system.

4.11 Improved Internal and External Reporting

Because of the improved speed and accuracy in the processing of information, financial reports can be easily generated and reported to internal and external users. External users can use these reports to assess the condition of the entity. Internal user which is the management benefits from this development for they need to know the details first in making economic decisions.

On the impact of computer technology on accounting, Nickels et al. [16][17] observed that most companies have found that computers greatly simplify the task, enabling managers and other employees to get financial reports exactly when they want them.

4.12 Flexibility

Flexible technology is severely needed in accounting departments. The accounting system must have the capability to adapt with changes in business practices. Information technology associated with accounting creates flexibility to accommodate the changes. Some systems are capable for upgrade when the entity’s volume of transaction increases.
4.13 Reduction of Paper Usage

The utilization of electronic envelops and documents reduce the usage of papers in accounting processes. Thus, it reduces costs and of course it draws the entity away from the environmental issues regarding trees and paper usage.

5. Conclusion

Information technology advancements have greatly helped the accounting systems of business entities. Because of today’s computerized accounting information systems, business performance seems to improve. Many transaction processes were simplified thus creating efficient operations. The affordability of computer technology for small business entities creates great opportunities for these entities to improve their business.

Information technology advancements made effective and efficient information flow that enhances managerial decision-making, thereby increasing the firm’s ability to achieve corporate and business strategy objectives. This in turn, may increase the prospects of the firm’s survival.

Information technology applied in accounting is not perfect. Sometimes we must consider the fact that they are just piece of technology. With regards to the accounting information system of a business, these systems greatly help in the accounting processes. However, we must consider the possibility that the system might be ineffective sometimes, same with some accounting software. Business entities much choose compatible systems and software for them to be effective.

In these advanced days in information technology, computers have improved the accounting processes but computers can’t replace the role of man in the accounting systems.
References


