

The Roles of Information Technology in Accounting Information System Audit

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1. Introduction

The rapid development of Information Technology (IT) is in line with the development of human beings. The development of IT includes the development of infrastructure such as hardware, software storage system and communication technology or networking (Laudon *et al* 2006). It is not only influencing the business but also other sectors such as health, education, government and etc. Information Technology is an effective tools for striving to future (Jogiyanto, 2013). Less than one generation, information technology has changed business all over the world (Azhar, 2010). The quality of accounting information system is much influenced by information technology, business strategy and organizational cultures (Romney & Steinbart, 2009).

Technology and information system is the most important components from the the success of the business. The success of the information should also be measured with the information technology effectiveness in supporting organizational business strategy (O'Brien & Marakas, 2006). Information and technology system is a business tool used by the organisastion to search, store and change the information (Bagranoff, 2010).

Since the requirements of the Sarbanes-Oxley Act of 2002 have been instituted, some organizations are now faced with an even greater IT challenge. Computers are now entity-wide and are not just confined to the mainframe. The challenge is to develop plans that enable the achievement of entity-wide controls, such as identifying, assessing, and responding to IT risks. Since one of the objectives of auditing is to identify and mitigate risks, a well-planned and well-executed internal IT audit program is a valuable asset to an organization faced with this situation (J. P. Russell (2005).

There are some internal controls within accounting system in the information technology integration, they are caused by : (Arens et al. 2009):

- a. Computer controls which are used to manual control in which competitive advantages from information technology is the ability to manage complex business transaction in huge number efficiently.
- b. The availabilty of higher information as most of its compex transaction can be managed effectively as complexities need to be managed

Audits are necessary to carry out as audits are planned, objective, and independent investigations of products, processes, or systems. By examining documentation, implementation, and effectiveness, auditing is used to evaluate, confirm, or verify activities related to the audit criteria (such as standards, procedures, or customer requirements). "The audit may be a single occurrence or a repetitive activity, depending on the purpose and the results of both the audit and the product/service, process, or management system concerned. A properly conducted audit is a positive and constructive process. It helps prevent problems through the identification of activities likely to create problems. Problems generally arise from the inefficiency or inadequacy of the concerned activity. J. P. Russell (2005)

The knowledge mastered by the auditors on the general control will abviously develop the ability of the auditors in mesuring and controlling effective application to reduce risks. The auditors at the public accountant offices shall issue an opinion regarding the internal control on financial report. The knowlledge of the general control and application will definitely be very important. (Arens et al. 2009).

The technology will always provide dratical effect to almost all auditing processes. The audit programs developed by the computer are aimed at auditing software application which enables to test all clients data. The technology is very important for accountants to understand business process of their clients and compete with the paperless audit environment. Now the audits have switched to electronic data storage to develop efficiency. The auditor who benefit from new technology will be much appreciated with huge profits form audit efficiency and effectivity. (Bierstaker et al. 2001).

2. Review of Litrature

2.1. Technology, Information and Information Technology

Technology is a consideration in document management and change control. Many aspects of change control, such as revision levels, revision dates, signatures, distribution copies, distribution lists, distribution verifications,

master lists, and so forth, are holdovers in the development of systems to control what could be termed hardcopy documents. In the past, there were master and derivative blue (or sepia) prints, carbon or mimeographed copies of procedures, and other documents, and the management, distribution, and updating of controlled documents often required a full-time position

for one or more persons, depending on the size of the organization. J. P. Russell (2005)

The information is a result of data processing which provide meaning and benefits. (Azhar Susanto, 2008). O'Brien & Marakas (2010) states that information is a data used by organizations as a basis to take a decision, in which the data is the raw data which can represent the measurement or observation to activities which at the end change them into information that becomes a basis to take a decision.

According to Ron Weber (1999) The management plays the part of converting the information into action through the familiar process of decision-making. Therefore, Information plays a vital role in the survival of a business. Some of the important attributes of useful and effective information are as follows :

- a. **Availability** : Availability or Timeliness is a very important property of information. If information is not available at the time of need, it is useless. Data is organized in the form of facts and figures in databases and files from where various information is derived for useful purpose.
- b. **Purpose** : Information must have purposes at the time it is transmitted to a person or machine, otherwise it is simple data. Information communicated to people has a variety of purposes because of the variety of activities performed by them in business organizations. The basic purpose of information is to inform, evaluate, persuade, and organize. It helps in creating new concepts, identifying problems, solving problems, decision making, planning, initiating, and controlling. These are just some of the purposes to which information is directed to human activity in business organizations.
- c. **Mode and format** : The modes of communicating information to humans are sensory (through sight, hear, taste, touch and smell) but in business they are either visual, verbal or in written form.
- d. **Format of information** should be so designed that it assists in decision making, solving problems, initiating planning, controlling and searching. Therefore, all the statistical rules of compiling statistical tables and presenting information by means of diagram, graphs, curves, etc., should be considered. Format of information dissemination is a matter of imagination and perception. It should be simple, relevant and should highlight important points but should not be too cluttered up.
- e. **Decay** : Value of information usually decays with time and usage and so it should be refreshed from time to time. For example, we access the running score sheet of a cricket match through Internet sites and this score sheet is continually refreshed at a fixed interval or based on status of the state. Similarly, in highly fluctuating share market a broker is always interested about the latest information of a particular stock/s.
- f. **Rate** : The rate of transmission/reception of information may be represented by the time required to understand a particular situation. A useful information is the one which is transmitted at a rate which matches with the rate at which the recipient wants to receive, Quantitatively, the rate for humans may be measure by the number of numeric characters transmitted per minute, such as sales reports from a district office. For machines the rate may be based on the number of bits of information per character (sign) per unit of time.
- g. **Frequency** : The frequency with which information is transmitted or received affects its value. Financial reports prepared weekly may show so little changes that they have small value, whereas monthly reports may indicate changes big enough to show problems or trends.
- h. **Completeness** : The information should be as complete as possible. For example - Hartz's model for investment decisions provides information on mean, standard deviation and the shape of the distribution of ROI and NPV. With this complete information, the manager is in a much better position to decide whether or not to undertake the venture.
- i. **Reliability** : It is just not authenticity or correctness of information; rather technically it is a measure of failure or success of using information for decision-making. If an information leads to correct decision on many occasions, we say the information is reliable.
- j. **Validity** : It measures the closeness of the information to the purpose which it purports to serve. For example, some productivity measure may not measure, for the given situation, what they are supposed to do e.g., the real rise or fall in productivity. The measure suiting the organization may have to be carefully selected or evolved.
- k. **Quality** : Quality refers to the correctness of information. Information is likely to be spoiled by personal bias. For example, an over-optimistic salesman may give rather too high estimates of the sales. This problem, however, can be circumvented by maintaining records of salesman's estimates and actual sales and deflating or inflating the estimates in the light of this.

- l. **Transparency** : If information does not reveal directly what we want to know for decision-making, it is not transparent. For example, total amount of advance does not give true picture of utilization of fund for decision about future course of action; rather deposit-advance ratio is perhaps more transparent information in this matter.
- m. **Value of information** : It is defined as difference between the value of the change in decision behavior caused by the information and the cost of the information. In other words, given a set of possible decisions, a decision-maker may select one on basis of the information at hand. If new information causes a different decision to be made, the value of the new information is the difference in value between the outcome of the old decision and that of the new decision, less the cost of obtaining the information.
- n. **Adequacy** : To be useful, an information must be adequate so that the desired actions can be initiated. Required information should flow on different directions within the organization and to and from its environment. Further, the type of information that flows within the organization or across, it should have adequate and relevant contents.

Information technology is one the managerial tools to prevent or overcome the change. (Laudon et al, 2006). The definition of Information Technology is completely described by Martin et al. (2002), that IT is computer technology used to proceed and store information and communication technology used to send the information. The definition of IT is very varied and covers all types of technology used to catch, manipulate, communicate, provide and use the data which will be changed into information. (Martin *et al.*, 2002).

2.2 Information Technology Risks

The use of information Technology is at first to develop internal control of the organization, it can also be used to control risks of the organization as a whole. There are too many risks on the manual systems that can be reduced and in some cases even it can be diminished. This risk can cause mistatements, while the risk on the IT system can cover all (Arens *et al* 2009) :

- a. The risk on the hardware and data can cover the followings

The dependency on the ability of the hard and software. The hard and soft ware can function optimally if they are well maintained. That's why it is important to protect hard and software and data phisically to avoid damage which can be caused by sabotage, misuse or environmental causes.

Sistematic versus random mistakes.

When an organization changes its manual procedures to technology based procedures, it is likely that there will be a random mistakes as the lack of human involvement. While systematic mistakes will increase as after the procedures were instaled to the software and then the computer will proceed information consistently all transcation until the procedures are changed. it is also when the software and failure programes will influence to the realibility of the computer processes that can cause the misinterpretation significantly. When the system is not programmed specifically to identify and spot the uncommon transaction or audit trace, it will increase the risk of mistatements.

Illegal access. The IT based accounting system may enable online access to electronic data on the main file, software and other data. That's why the online access can be done form distance including the external party with the help of internet. It is likely to illegal access. If it is not limited through password or ID users, the illegal activities can be used by computer that can cause the changes on the software and the main file can have misappropriate changes.

The loss of the data. In the IT system, most of the data are stored in the centralised electronics files. This can increase the risks of loss or damage of all the file. It can also has greater consequencey as mistatement on the financial reports and in certain cases it can cause serius trouble or entity operation.

- b. the Lack of auditing trace

Mistatement is not likely to be detected with the increasing use of IT as a result of the loss of auditing trace and also the lack of the human involvement. While the computer can replace some types of traditional otorization to IT system.

Audit Tracing Visibility. As almost all information is input directly ito computer, the use of the IT will mostly reduce or even eliminate some documents which can probably be traced within the organization. Documents and notes can be put as the audit trace. The loss of audit trace can cause that the other controls must be put to replace the traditional ability that compares output information with the printed copy data.

The lack of human involvement. In the IT system, the employees who get involve in the data entry process will never see the outputs so they are not able to identify mistatement in the entry process. Eventhough there has a chance to see the output, they still have difficulties to identify mistatement as it is shown very briefly. While the employees seem to focus on the outputs from the use of technology as undebatable and correct.

The lack of traditional otorisation. Currently, modern and advanced IT system always pioneers the different types of transactions otomatically. It means that accurate otorization will be depend much on the software procedures and the accuracy of the main files which will be used to make the otorization policy.

c. The needs of IT experiance and the separation of IT functions.

An IT system can reduce traditional functions separation such as booking, otorization, storage and create additional needs on IT experiance.

The reduction of job separation. If the organization changes the system form manual to computerized, the computer shall carry out the activities perviously carried traditionally separating between booking and otorization. The combination of different activities from different departements to one IT function will center different responsibilities traditionally. The potential of taking the activa carried out by It personnel who has access to the software and main file, will be solved shall the important jobs be sepaated from the IT functions.

The needs of experiance in the IT. Eventhough the organization can buy accounting software packages especialy sold in public, the company shall also recruit personnels who have knowledge and experiance to install, maintain and run the systems. In line with the increasing use of It system, the needs of qualified IT specialist also increases. The reliability of the IT system and the information gathered always depend on the ability of the organization to employ persennel or recruit consultant who have abilities and experiance on the needed fields.

2.2. Accounting Information System and IT auditing

According to Wilkinson *et al.* (2000) Accounting Informtaion Sysytem is strucutred unity within the business entity which use physical resources and other components to change economics data to accounting information in order to satisfy the users. While Bodnar *et al.* (2004), states that accounting information system is a group of resources, such as human and tools desigend to change financial data and other data to information delivered to all parties to take a decision. The elements of accounting information system according to Hall (2001), consists of end users, data sources, data collection, data processing, database managemen, information resources and feed back.

An *audit* is a “systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which audit criteria are fulfilled. There are three distinct types of audits: product (which includes services), process, and system. J. P. Russell (2005), Auditing is part of the quality assurance function. It is important to ensure quality because it is used to compare actual conditions with requirements and to report those results to management. “An audit is not an alternative to an inspection operation. . . . The auditor may use inspection techniques as an evaluation tool, but the audit should not be involved in carrying out any verification activities leading to the actual acceptance or rejection of a product or service. An audit should be involved with the evaluation of the process and controls covering the production and verification activities.”⁶ Auditors make observations and report their findings. During an audit or investigation, an *observation* could be information that may be evidence to support audit conclusions. J. P. Russell (2005), Information system audit is an evaluatin to know how the balance between information system application and procedures and know whether the inforation system has been designed and implemented effectively, efficiently and economically, have appropriate asset security system mechanism and also guarantee accurate data integrity. Gondodiyoto (2003).

IT auditing is an integral part of the audit function because it supports the auditor’s judgment on the quality of the information processed by computer systems. Initially, auditors with IT audit skills are viewed as the technological resource for the audit staff . Ā e audit staff often looked to them for technical assistance. As you will see in this textbook, there are many types of audit needs within IT auditing, such as organizational IT audits (management control over IT), technical IT audits (infrastructure, data centers, data communication), application IT audit (business/fi nancial/operational), development/implementation IT audits (specifi cation/requirements, design, development, and postimplementation phases), and compliance IT audits involving national or international standards. Ā IT auditor’s role has evolved to provide assurance that adequate and appropriate controls are in place. Of course, the responsibility for ensuring that adequate internal controls are in place rests with the management. Ā audit’s primary role, except in areas of management advisory services, is to provide a statement of assurance as to whether adequate and reliable internal controls are in place and are operating in an effi cient and effective manner. Today IT auditing is a profession with conduct, aims, and qualities that are characterized by worldwide technical standards, an ethical set of rules (Information Systems Audit and Control Association [ISACA] Code of Ethics), and a professional certification program (Certified Information Systems Auditor [CISA]). It requires specialized knowledge and practicable ability, and often long and intensive

academic preparation. Often, where academic programs were unavailable, significant in-house training and professional development had to be expended by employers. Most accounting, auditing, and IT professional societies believe that improvements in research and education will definitely provide an IT auditor with better theoretical and empirical knowledge base to the IT audit function. They feel that emphasis should be placed on education obtained at the university level. Senft Sandra and Frederick Gallegos (2009)

While according to Ron Weber (1999) Information systems auditing is the process of collecting and evaluating evidence to determine whether a computer system safeguards assets, maintains data integrity, allows organizational goals to be achieved effectively, and uses resources efficiently” and there are some reasons why information technology audit is necessary to do.

Such as :

- a. The financial loss as a result of data loss.
- b. The mistakes on the decision making
- c. The risk of data leaking
- d. The misuse of the computer
- e. The financial loss as a result of counting process mistakes.

Some of method Information system audit, According to Weber (1999), meliputi:

- a. Auditing around the computer is an audit approach which use the computer as a black box. It means that this method does not test the process directly but it only focuses on the input and outputs from the computer system. The weakness of this approach is if the environment changes, there will be a possibility that the system shall also be adjusted. As a result the auditor can not judge whether the system still runs well or not. The advantage from this method is the audit process is simple and for the auditor who has limited knowledge in the computer can be trained easily before the audit process.
- b. Auditing through the computer is an audit approach which focuses on the computer by opening black box and directly focus on the operation process within the computer system. The advantage from this method is it can develop the strength of the application system test effectively in which the auditing process can be expanded until the trust level on the accuracy of the data collecting and proof evaluation can be developed. The weakness of this method is the high cost and need the great expertise technically.
- c. Auditing with the computer is an audit approach which use own computer to help audit processes. Information system auditing will be based on the use of the computer itself. This auditing technique is useful when the substantive test on the file and record of the organization. While auditing technique through computer is a technique which help test the good governance.

3. Conclusion

The technology develop very rapidly in which the infrastructure development includes on the hardware, software data storage and communication technology or network. And the development of the technology can influence all sectors such as business, health, education, government and etc.

Business operations are also changing, sometimes very rapidly, because of the fast continuing improvement of technology. Events such as September 11, 2001, and financial upheavals from corporate scandals such as Enron and Global Crossing have resulted in increased awareness. Senft Sandra and Frederick Gallegos (2009),

The development of technology has spread all over the world. The development especially for the business has helped the company improve the accounting information system quality.

Technology support the individual decision to use or not to use in accomplishing the job. The auditors who use the latest technology will be much appreciated with the huge profit on the efficient and effective audit.

Where IT auditing is a profession with conduct, aims, and qualities that are characterized by worldwide technical standards, an ethical set of rules (Information Systems Audit and Control Association [ISACA] Code of Ethics), and a professional certification program (Certified Information Systems Auditor [CISA]).

The auditors can choose and use three different approaches when auditing the information system.

1. They are auditing around the computer, an audit approach which use the computer as a black box, It means that this method does not test the process directly but it only focuses on the input and outputs from the computer system.
2. Auditing Through The Computer, an audit approach which focuses on the computer by opening black box and directly focus on the operation process within the computer system. and
3. Auditing With The Computer, an audit approach which use own computer to help audit processes. Information system auditing will be based on the use of the computer itself.

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