

# IT Auditing, Types and Dimensions

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## Abstract

The tangible presence of information technology, as a collection of tools to produce, process, save and exchange information, leads to creating information systems; on the other hand, nowadays that most companies use different systems of electronic data processing for accounting data process, the only way to analyze and validate reports is IT auditing. IT auditing is a systematic process of unbiased collection and evaluation of evidences as a backup for one or more claim of information systems, methods and organization operations. Evidence evaluation obtained in auditing shows that if information systems are secure, preserved data will be correct and firm's operation will be effective. On the other hand, observation of control activities and access to effective separation of duties through security control in information banks are the other benefits of using electronic programs of auditing. Since the main role of auditors is to accredit the auditing information, it is necessary for them to turn to this kind of auditing for presenting broader and up-to-date auditing services about auditing electronic data and they also should turn to this kind of auditing for collecting and testing auditing information and increase in auditing. IT auditing is a way for make sure of efficiency and effectiveness IT tools applied in providing reliable and correct financial lists and reports in organization which is in line with achieving the goals.

**Keywords:** Information technology, auditing, internal control, accounting information system, auditing IT

## Introduction

Daily expansion of Information Technology, together with its growing speed, covers all aspects

of human society. The need to quick access to detailed and healthy information, related and timely, with the minimum price and maximum efficiency, tendency to use new technology is mentioned as a dominant factor on organizations and made to align with conditions. Need and necessity is the main factor of progress and information technology in present world is a necessity and requirement. This new rapid wave has transformed methods of doing works and caused the change of paper-based systems to electronic and software information systems. Information technology is the tool for working on information (including data and knowledge), processing, saving and transferring data (Bad Avar Nahandi, 2011). Information technology leads to change and transformation of traditional structures and creates various spaces and capabilities in the working environment and cause deep changes in missions and objectives of organizations and the most important features of it is high speed in processing data, high speed in accessing information, up to date access to electronic exchange of information, high quality, very low price. With regard to these features and expansion of operations and more complexity of affairs, we do not need to excuse using information technology in today's world and auditing must also use all or part of new methods in giving their service and duty. Accounting and auditing profession more than other areas of financial knowledge may encounter having and using facilities of new environment. The new space of recording and reporting information created much new outputs in efficiency and effectiveness of this profession (Mohammadi, 2012). Development of IT, although makes auditing environment more complex, provides time, newer methods and tools for auditors to encounter auditing. In a complex environment, using IT auditing method will become more necessary (Arab Mazar, 2001). In these conditions, using comput-

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er auditing methods will enable independent auditors to represent a written comment on the case under study by using a collection of reports that are created simultaneously or in a short period of time after event (Ansari, 2010). Therefore, in IT auditing auditors need to have sound and suitable capabilities about IT in order to be able to do auditing exactly and in detail and lack of knowledge in this field can negatively affect the way of doing the job and the quality of the work done (Rabiei, 2012). IT auditing or information system auditing is the test of controlling IT structures. In fact, IT auditing as the systematic process of unbiased collection and evaluation of evidence is the support of one or more claims of information systems, organization methods and systems. IT auditing should not be mistaken with financial auditing. Although it is possible that there are some small mistakes between these two auditing, the primary purpose of financial auditing is to evaluate where financial lists of a company match with auditing principles and standards (Medvinsky & Neuman, 2003). But one of the main duties of IT auditor is to evaluate system efficiency and its security programs, especially evaluation of organization capability in supporting information properties and correct transference and distribution of information between legal people (Ansari, 2010).

## Information technology

Information technology is a science that studies the application of computers in reporting and information systems. Information technology is a collection of tools and methods used for production, processing and providing information for the human user. This new science includes technologies about computer hardware and software to process, store, exchange and transfer information (Arab Mazar, 2001). This new science and skill has rapidly grew and made fundamental changes in all aspects of human life. Using IT, shortens the required time for accountants in providing and presenting financial information to management and even allows them to provide rapid and easy personal reports for manager's decision making. Other capabilities of information technology include enhancement of function, improving accuracy, faster process and better output reports (Moein Oldin, 2012).

### *Necessity of applying information technology*

Potential and de facto user of auditing servic-

es day by day need related, trustworthy and timely information and IT-based environments pave the ground for meeting these needs. These environments enable information providers to provide information for decision makers from different resources and in different forms and let the users to meet their information needs on time and with high confirmation capability. In addition to changing the method of doing the job (from paper to electricity) IT leads to changing the method of presenting the work. Of course, this capability needs a basic functional and attitudinal change in the job. Auditors are one of the members of the supply chain of financial report that are somehow considered as information user. In an electronic environment that financial report benefits IT, auditors also can use this technology in handling, processing and analysis of a large amount of information and have timely, accurate and more comprehensive analysis of their data (Badavar Nahandi, 2001). At the present time, viewpoint of audit society turned from duty to analysis and auditors can promote their attention from data gathering and interpretation to analysis and instead of spending their force in collecting information, they increase reliability assurance and precision of financial lists and, in addition manage time in a way that timely reports and information is available to users (Mohammadi, 2012). Using information systems and auditing and accounting software and using electronic information has created new transformation in commercial units for a long period of time. Therefore, applying these developments is effective in promoting and improving the quality of audit (Edwin & Martin, 2008).

### *Auditing and information technology*

"Auditing is a regular and systematic process for unbiased collection and evaluation of evidence about claims of financial activities and events to determine degree of confirmation of these claims (comments) with predetermined criteria and reporting results to beneficiaries" (Nikhah Azad, 2000). Entrance of information technology into financial zone affects auditing profession, for example, for unbiased gathering and evaluation of evidence, instead of using paper document electronic documents should be used. Thus, auditors by using information technology are able to analyze and process information in a minimum time and with high quality. Computer auditing techniques enables auditors to implement auditing operation effectively

which leads to promotion of efficiency, profitability and quality of auditing (Moein Oldin, 2012). In IT auditing, auditors need to have sound and suitable capabilities in the field of information technology, by which they can do auditing exactly and in detail and lack of knowledge in this area can have negative effect on the method and quality of work done. Understanding this subject becomes more vital when auditors face cases that all auditing transactions are done electronically and without using paper. Then, the need for information and knowledge of IT increases. Auditors who provide services for customers who use high technologies in their works should both financially and technically be qualified in the field of IT (Rabiei, 2012). And, even it is necessary to be familiar with rules of IT, for example from 1997 up to now, a lot of different rules and regularities are established about IT auditing. Gramm, Leach and Bliley rule, Sarbanes Oxley rule, King II rule are instances of these rules (Edwin & Martin, 2008). Also auditing standard, number 94 of auditing standard board titled “the effect of IT on auditors’ evaluation from internal control in the process of auditing financial lists” is also in this area (Storretta, 2001 & Haber).

### *IT auditing*

Auditing means person, organization, system, project or product evaluation (Wikipedia, 2012). This regular evaluation is a kind of determining competence, the principle-based importance and value, standards and rules dominated on the issue under study (Ansari, 2010). In other words, IT auditing is analysis of the process of applying any kind of technology-based system in line with programming, implementation, control and providing financial information (Forghan Doost Haghighi, 2007). IT auditing is also called automatic processing of information, electronic processing of information and computer auditing. This kind of auditing enables auditors to access auditing subjects directly and through advanced connection tools.

In IT auditing, the auditor in order to do auditing and access credible evidence as a support for their comments, process and report and record information systems of the financial unit and analyze it by using accounting software and programs installed on computer. In this system, for saving time and money, the factor of human resource and paper tool are less used and by making a record and following that, all the information about forms and reports are entered into system and the auditor finds

the opportunity to receive different financial reports, the daily and general book and discovering the pitfalls of documents as well as security predictions. The responsibility of IT auditing is difficult and dangerous because there is no codified guide for IT auditing duties (Bad Avar Nahandi, 2011). But the main point in IT auditing is to specify the scope of duties of auditing group, this scope determines parts of activities that are handled; thus, in IT auditing the following items should always be considered by auditors, in the way that (Neuman, 2003 & Medvinsky):

A) Will computer systems be always usable for the company in case of organization needs (accessibility)?

B) Is the information available in systems only revealed for legal users (confidentiality)?

C) Is the information provided for systems always correct, reliable and timely (correctness)?

Here the important point is that, IT accounting adds to organization’s value by reducing danger – improving controls and security – compliance with rules and facilitating the relationship between information technology and business management and also leads to improvement of strategic system of IT in the organization under study (Moein Oldin, 2012).

### *The role of IT in auditing fraud detection*

IT can help both in internal control section and in auditing section, however in the area of fraud detection IT can help detecting fraud by proving new technical tools and data mining. Data mining is the process of investigating relationship, patterns and meaningful procedures that with the technology of pattern identification analyze a huge amount of information saved in data storage. This process needs recognizing business, identifying data (how data are produced and collected), preparing data (the quality of these data), modeling, evaluation of model and development and expansion of it. Thus, it is expected to search by increase in data volume through data mining and finally extract data that could be effective in decision making (Ebrahimi, 2011).

### *Types of IT auditing*

Experts in auditing profession introduce different classifications for IT auditing. But there are three systematic methods and specially for implementing IT auditing:

1) Auditing the technical innovation process:

the goal of this auditing is designing a form of risk for the current and future projects (ISO/IEC, 1997). This auditing evaluates various technics used in the company and also evaluates markets on these technologies, organization of each project and componential analysis of the structure of industries that are related to this project or organization product.

2) Comparative auditing of innovations: but another form of IT auditing is comparative auditing. This auditing as the name suggests, means analyzing innovation capabilities and inventions of companies audited compared to other competitor companies (ISO/IEC, 1997). This type of auditing tests researches and innovations of companies and facilities and equipment of development and growth and analyzes the documents and evidences that support new products.

3) Auditing the technology status: the third form of auditing of IT is auditing the technology status. This auditing also examines technologies that exist in the company and technologies that company requires to achieve, (Singleton, 2008).

#### *Auditing documentations in IT auditing*

Standard board of auditing board of computer information systems defines auditing as follows: “documents of auditing done and evidences supporting auditing findings and auditors’ conclusions about computer systems”. In fact anything that is tested, heard and observed in relation with subject under study are auditing evidences and should be documented (Hassas Yeganeh, 2002). On the other hand in today’s commercial environment, companies should provide reliable and up to date information for beneficiaries. Today most of developed companies identify, record, measure and report their financial events without paper documents and electronically. With regard to changes that are forming in the process of accounting, procedures of financial auditing needs fundamental changes and relative to today’s electronic environment. In fact, we should try to replace auditing processes based on paper documents that are now used by most of auditing institutes in Iran with continuous electronic auditing procedures. Nowadays, in most of countries around the world using electronic exchange of data is so common. In Iran, although some companies use this way of exchange but this process still cannot find his place. Using electronic transactions makes companies save money and time indirectly and without using paper documents. However, in this regard, the fundamental change that

could happen in auditing profession is that investors by access to up to date information of companies’ information banks may not be so interested in annual financial lists based on date information and as a result the periodical comments of auditors in this matter. Instead, beneficiaries’ demands of auditing profession have changed and they want to know what auditors comment about quality and reliability of up to date information available in information banks of companies. In fact, it should be studied whether all these information mentioned in information banks are audited and reliable (Ansari, 2010).

#### *Dimensions of IT auditing*

IT auditing needs systematic evaluation of the applying environment, information system, inter-system connections, resources and inputs of system, the method of management and finally effectiveness of IT in the section and era assessed (Kian Khah, 2012).

This systematic analysis can be implemented in three parts, information system auditing, management auditing and effectiveness, and resources and information security auditing.

#### *Information systems and resource auditing*

Information system is a collection of dependent and interactive components (hardware, software and human resource) that takes suitable information to reach defined objective of system and turn into reliable information for decision making and guidelines in the value chain by collecting, processing and saving. IT auditing is a set of evidence evaluation for determining the comprehensive and integration level of data, organization to reach goals and save properties (Dube, 2008). IT systems and resources includes harmony and suitability of structure, components and value chain of information system, collected data and its strategic elements with expected objectives and functions.

#### *Management and efficiency auditing*

Management means to administer, supervise, control, harmonize, schedule and organize and efficiency is the level and degree that organization reaches his desired objectives. Management auditing and IT efficiency is pictured as the analysis of the method of applying information systems and creating convergence and effective and constructive interaction between components for realization and effectiveness of viewpoint.

### *Information security auditing*

Information security is a quality or state in which information is secured or far from any danger and protected from any damage or treat. Information security means protection of information and information systems against any kind of risk and treats like illegal access, function, reveal, cut, change and destruction of information. Information security includes three viewpoints:

- 1) Preserving data from random changes, destruction, reveal and invasion of Aggressive code.
- 2) Methods for preserving data in computer and connection systems against illegal access, transference, change, delay or destruction randomly and purposefully.
- 3) Limiting users' access to data that should only be accessed in a special time and place.

Managing information security means designing a purposeful and dynamic process to reach a desired level of security. Desirable level is determined with regard to the importance of applied information system. Maintaining the desirability level is dependent on the permanent supervision of controlled systems and identifying risks, treats and vulnerabilities. "IT auditing" is to control and analyze activities done to ascertain preservation and improvement of information security of objectives (Kian Khah, 2012).

### *IT auditing controls*

Many experts are trying to divide audit controls into several areas. Some IT auditing professionals in the field of IT insurance, suggests that regardless of the type of audit performed, there are three main types of control in the field of IT auditing; Security controls, access controls and IT controls (Marne & Anderson, 2006).

At a more fundamental level, one can show that each of these controls include three more basic controls; prevention / protection control, detection control, and modifying/reaction control (Asokan et al., 2007).

At the first level, preventive/protective controls have a more broad scope and their emphasis is on compliance with accepted rules of behavior (ISO, 2005). For example, the General Accounting is defined by a set of rules that must be observed publicly by all commercial firms. Generally, each part of a company should be responsible for the confirmation between financial and accounting methods applied with the accepted principles. Accounting standards and necessities of Securities and Ex-

change Commission can be named as preventive or protective controls.

At the second level, there are detective controls that are mostly considered as "auditing controls" that surely it is unnecessary to limit them only to auditing controls. Any factor that implements a supervision activity can be considered as a detective control. In fact, one of the controls that firms should do in addition to protective controls is to audit their financial results by an independent official accountant (Bassaerts, 2008). In fact, any auditor acts as a detective control. If the organization under study generally follows the accounting principles, auditor should be able to identify slight faults that causes some controls of the firm do not function effectively.

The third level of IT auditing controls includes reformative reaction controls. These controls react in response to detective control. Responding in this way, in fact plays the role of informative and corrective role. Auditing committee of the company under study or the Securities and Exchange Commission itself can do some reformative actions based on the reports by independent auditors. Thus, they can be taken into account as reformative or reactive controls (Francis, 2008).

## **Conclusion**

Whenever manager of an organization or financial unit use an accounting and computer software for recording and processing of information that is important and assessable, the existence of computer information system is realized. For handling these kinds of systems, auditor should have enough skills, competencies and knowledge about computer information systems and if necessary use competent expert people in the fields needed. In order to program auditing and obtain effective result from auditing one should acquire enough knowledge of auditing systems and internal controls. IT provides the possibility of uniform process of large amounts of information for the unit under study and increases its power in supervising the implementation of control activities and achieving effectiveness separation from duties by practicing security control in functional programs, information banks and operating system. Financial report in an electronic environment reduces costs of production and application of information significantly. More feasibility of data exchange improves the form of communication and increase in the rate of information transfer

and leads to the increase in effectiveness and efficiency. By the entrance of new information technologies to business, significant changes occurred in IT auditing. Nowadays, in most companies that different electronic processing systems are used for processing accounting information, the only way to analyze and validate reports is IT auditing. In fact, these technologies provide up to date accounting information for users. Thus, users by access to timely information of companies may not be much interested in historical information and periodical comments of auditors. Thus it can be said that; advances in IT increase demands for IT auditing. Therefore, independent auditors whose main role is crediting accounting information turned to IT auditing in order to provide up to date auditing services in accounting electronic data and also gathering and testing accounting information and to increase the efficiency of auditing. IT auditing enables auditors to directly access auditing subjects through advanced communication tools. Nowadays, most of companies use different systems of electronic data processing for processing accounting information, the only way to examine and validate reports is IT auditing. On the other hand, one of the main challenges of IT auditors is to be aligned with high speed of modern technology; thus, auditors in IT auditing should have computer knowledge, expert and experience for programming and implementation and familiarity of auditors with IT auditing tools which seems necessary.

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