AUDITING PROCESS ON ELECTRONIC COMMERCE SYSTEMS

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Abstract

Issues concerning electronic commerce are increasing as more companies are developing a web presence and conducting business on the Internet. The technological and economic development of the latest centuries resulted in the significant development of the electronic commerce, and the changes made in the manner of executing transactions had important repercussions on the manner of executing the audit. Electronic commerce has rapidly transformed the way auditing functions are performed, posing challenges to the auditing profession. A few guidelines exist for meeting some of these challenges. The purpose of our paper is to explain about how to undertake audit process on electronic commerce systems. This paper presents information systems auditing, electronic commerce and the stages of audit process which should be conducted by auditors in case of companies that use electronic commerce system and the manner in which these combine with the audit in the classic environment of transactions.

Keywords: Audit Process, Electronic Commerce, System

Abstrak

Berbagai isu yang berkenaan dengan perdagangan elektronik muncul seiring dengan semakin banyaknya perusahaan mengembangkan web dan melakukan aktivitas bisnis berbasis internet. Perkembangan ekonomi dan teknologi selama beberapa abad terakhir telah menghasilkan perkembangan perdagangan elektronik secara signifikan dan perubahan – perubahan dalam hal pelaksanaan transaksi juga telah membawa perubahan terhadap pelaksanaan audit. Perdagangan elektronik telah mengubah dengan cepat langkah pelaksanaan fungsi – fungsi audit dan memberi tantangan pada profesi audit. Sangat sedikit sekali panduan yang ada terhadap tantangan – tantangan ini. Tujuan dari paper ini adalah untuk menjelaskan tentang bagaimana melakukan proses audit atas sistem perdagangan elektronik. Paper ini menyajikan audit sistem informasi, perdagangan elektronik dan tahapan proses audit yang harus dilakukan oleh auditor dalam kasus perusahaan yang menggunakan sistem perdagangan elektronik dan mengkombinasikannya dengan audit dalam lingkungan klasik transaksi.

Kata Kunci: Proses Audit, Electronic Commerce, Sistem

INTRODUCTION

Electronic commerce is becoming popular among companies recently across the world. Upon hearing the term electronic commerce, many people think of browsing an electronic catalog on the Web or going Internet shopping at a virtual mall. This may be the predominate component of electronic commerce, but it is not the entire story (J.Hall, 2011).

Issues concerning e-commerce are increasing as more companies are developing a web presence and conducting business on the Internet (Julie Hicks, 2004). The technological and economic development of the latest centuries resulted in the significant development of the electronic commerce, and the changes made in the manner of executing transactions had important repercussions on the manner of executing the audit (Laura & Alexandru, 2008).

Electronic commerce has also increased the complexity of transactions as they are being increasingly done among parties who have never met. In such an environment, it is important to have an assurance about the quality and reliability of trading partners, financial viability of companies, data security, reliability of systems and many such issues. E-environment has, thus, changed the manner of audit, and the nature of services required from an auditor. It has become imperative for the auditors to be multi-skilled in the use of IT, apart from proficiency in their domain areas of expertise. As audits in the future become virtual, auditors will also be able to globalize their operations. Auditors will be able to concentrate on core management issues rather than routine functioning of scrutinizing various financial documents (Bansal & Sharma, 2009).

With the development of e-commerce, the audit of electronic commerce system is particularly important, and the audit target, content also has its characteristics (Hongming Chen & Ke Zheng, 2013). This paper set out to present the concept of information system auditing, electronic commerce and the audit process on electronic commerce systems.

INFORMATION SYSTEM AUDITING

To have a clear understanding on the concept of information system auditing, our paper will describe first what information, system, auditing, and

information system auditing are. Information is data that have been put into a meaningful and useful context (The Institute of Chartered Accountants of India, 2010). Meanwhile, the term system may be defined as an orderly arrangement of a set of interrelated and interdependent elements that operate collectively to accomplish some common purpose or goal (The Institute of Chartered Accountants of India, 2010). Another expert tells that A system is a group of two or more interrelated components or subsystems that serve a common Purpose (J. Hall, 2011). Based on the expert statements above it can be inferred that a system is arrangement of a set of interrelated and interdependent components or subsystems serve a common purpose or goal.

On the other hand, some experts have declared their opinion regarding with the definition of information system. The information system is the set of formal procedures by which data are collected, processed into information, and distributed to users (James Hall, 2011). Another definition stated that an Information System can be considered as an arrangement of a number of elements that provides effective information for decision-making and/or control of some functionalities of an organization (The Institute of Chartered Accountants of India, 2010). Based on those statements above it can be inferred that information system is the set of formal procedures by which data are collected, processed into information, and distributed to users to provide effective information for decision-making and/or control of some functionalities of an organization.

In the mean time, to have better understanding on auditing, we have collected some opinions of experts. They are: (a) Auditing is the accumulation and evaluation of evidence about information to determine and report on the degree of correspondence between the information and established criteria (Aren, 2012); (b) Auditing is the process of providing assurance about the reliability of the information contained in a financial statement prepared in accordance with generally accepted accounting principles or other rules (Bahram Soltani, 2007); (c) Auditing is a systematic process of objectively obtaining and evaluating evidence regarding assertions about economic actions and events to ascertain the degree of

correspondence between those assertions and established criteria and communicating the results to interested users (Messier,2008).

Based on opinions of the experts above, it can be inferred that a systematic process of objectively obtaining and evaluating evidence regarding assertions about economic actions and events to ascertain the degree of correspondence between those assertions and established criteria to provide assurance about the reliability of the information contained in a financial statement prepared in accordance with generally accepted accounting principles or other rules and communicating the results to interested users. Hence, information systems auditing is the process of collecting and evaluating evidence to determine whether a computer system safeguard assets, maintains data integrity, allows organizational goals to be achieved effectively, and uses resources efficiently(Weber,1999).

ELECTRONIC COMMERCE

E-commerce or electronic commerce is often defined as the buying and selling of goods and services and, the transfer of funds, through digital communications via the internet, especially the web, but is perhaps more appropriately defined as a paperless inter-company/organization and/or intra-company/organization exchange of business information using a range of related information and communication related technologies (Tony Boczko,2007).

Electronic commerce involves the electronic processing and transmission of data. This broad definition encompasses many diverse activities, including the electronic buying and selling of goods and services, online delivery of digital products, electronic funds transfer (EFT), electronic trading of stocks, and direct consumer marketing (J.Hall, 2011).

Electronic commerce is a new concept describes the process of the sale or purchase or exchange of products and services and information through computerized networks including the Internet. There are several points of view in order to define this word (Mahd Ali Al- jabali & Ehab Nazmy, 2011): (a) The world of communication known as commerce as a means to deliver information, services or products via telephone lines or through a computerized network or through any technical means (Abu Fara, 2002). From a business point of view is the process of

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applying technology in order to make commercial transactions take place automatically and fast (Serafi, 2005); (b) While you know that the services of E-commerce as a tool to meet the demands of corporations and consumers, and managers in reducing the cost of the service and improve the delivery of service (Belkacem, 2002); (c) Finally, the online world define E-commerce : door open for the sale and purchase of products and services and information through the Internet (Obu fara, 2002).

The term electronic commerce refers to conducting business with computers and data communications. Some general categories of electronic commerce are (1) retail sales, (2) e-payments and e-wallets, and (3) electronic data interchange (Nancy,et.al,2009).

Based on the opinions of experts above, it can be inferred that Electronic commerce is conducting business activites through a computerized network and digital communications via the internet, especially the web, in order to make commercial transactions take place automatically and fast and to meet the demands of corporations and consumers, and managers in reducing the cost of the service and improve the delivery of service such as the electronic buying and selling of goods and services or retail sales, online delivery of digital products, electronic funds transfer (EFT), electronic trading of stocks, and direct consumer marketing, e-payments and e-wallets, and electronic data interchange.

AUDIT PROCESS ON ELECTRONIC COMMERCE SYSTEMS

Hongming Chen & Ke Zheng, (2013) states the audit target of e-commerce system that the first one is to utilize information technology, to audit the auditees' financial statements, relevant information and business activities, and to express an opinion on the financial statements of legality, fairness, consistency, which play a role in supervision and verification and service. The second one is to audit the auditees' information system, including electronic commerce system, in protecting assets security, data integrity and system effectiveness and efficiency, and then to express an opinion.

According to Hongming Chen & Ke Zheng, (2013), the characteristics of e-commerce system audit are as follows :

a. **Electronic data.** The transaction data and program/system operating data of Electronic-commerce enterprise are stored in the database. To collect the data, the auditors must adopt audit interface technology, and then obtain the audit analysis data through cleaning and converting the data into a data warehouse.

b. **The application of computer-aided audit technologies (CAATs).** Because the e-commerce business and program/system operating data is fully electronic, auditors must use computer-aided audit technologies, otherwise they are unable to get audit clues to carry out compliance test and substantive test, and also unable to draw any audit conclusion.

c. **The change of audit risk control.** With the technological innovations being used as commercial weapons, the growth of audit risk in e-commerce has been more or less contemporaneous. Many changes tell the auditors little about how to identify the new risks, assess them, control them and who is responsible for them. While the traditional audit is 'transaction based' and the risk management goal is oriented towards compliance ,the evolving audit used in e-commerce is 'risk based' and its risk management goal is to establish a complete system of risk control to caution the risk effectively.

d. **The innovation of the audit report content.** Besides the disclosure of traditional handicraft audit information, the audit report of E-commerce system also include: the security of economic transaction information and customer privacy information; ensuring customer private information will not be used for other irrelevant aspects; electronic clearing system and its security; Change especially in the highlight of auditing its internal control.

e. **Real-time audit.** Real-time audit is an audit mode, which makes use of computer technology, network and communication technology, establishing real-time connection with the auditees' information system, and then obtaining audit evidence, updating its audit content, and providing real-time audit report. In an e-commerce environment, economic transactions are measured and reported on a real-time basis without internal human intervention. And accordingly, the information produced by e-commerce system needs to be audited on a real-time basis.

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Hongming Chen & Ke Zheng, (2013) divided the audit process on electronic commerce systems into seven aspects:the system development life cycle audit, system hardware and software resources audit, system security audit, system management audit, internal control auditing, e-commerce business audit, disaster recovery and business continuity plan audit.

1. **The system development life cycle audit**

   The system life cycle is the process of setting up a computer system, which is built up by system analyst, software engineer, Programmer and users. The audit of the systems life cycle can be divided into five parts: (a) System planning stage audit: whether to adopt reasonable system programming method (critical success factor method, strategy set transformation method, business system planning, etc.); whether or not take feasibility analysis; whether have enough fund, technician to support the development of information system; (b) The system development phase audit: to make sure the development process is in compliance with the established policies and to get relevant examination and approval; to confirm the system development files is existed, accurate and complete; to confirm whether to implement total quality control during this time; (c) System acceptance stage audit: whether to conduct a comprehensive test, and achieve system planning standards; system development or purchase cost is reasonable; (d) The system operation stage audit: determine the system function is perfect, effective; whether those systems receive timely maintenance; (e) System maintenance phase audit: to affirm whether the enterprise exist and carry out the maintenance plan; whether the staff change system settings on key issues without permission during maintenance; whether to take some necessary protections and restoration measures, such as creating Protection point, data backups, etc..

2. **System hardware and software resources audit**

   The audit goal: to confirm the authenticity integrity and legality of the auditees' software and hardware; whether the hardware and software resources can meet the needs of e-commerce business; whether those software and hardware resources be up to national laws and regulations.

3. **System security audit**

    a. **Network data security audit**. Network data security audit consists of the network data security technology and its safety management. The auditor can usually audit it from the following several aspects: network anti-virus technology and its realization ways (antivirus technology, monitoring virus technology, network killing virus technique), firewall technology, data encryption technology, the authentication technology (digital signature technology, the identification technology, digital digest, digital certificate, etc.) and authorization and the implementation of those technologies; analyze the security log; review the implementation of relevant laws and regulations, such as "the safety protection regulations of computer information system ".

    b. **Network access control audit.** The network access control audit consists of authority control and user authentication. Authority control audit check mainly on whether there are authority when customer access resources nodes and user nodes. Resource nodes provide service or data, user nodes access resources services provided by the resource nodes. For example, if the customers access to electronic business system, who can only check some resources data (products name, price, quantity) under authorization, but cannot visit the data (purchase price, inventories amount, pricing strategy, etc.) without authorization. The method of user authentication can be divided into general user/password authentication, token authentication, the biological characteristics of the authentication, etc., and the former two methods are widely used of. The audit content of user authentication: these kinds of the authentication method and their implementation.

4. **System management audit**

    The electronic commerce system management can be divided into three aspects: system monitoring, system configuration and system operation management; event correlation and automation processing; business impact management. The goal is to guarantee the performance of the system and its

usability; guarantee the integrity of data and other information resources; system security. The audit contents are: (a) The system monitoring, system configuration and system operation management; whether to register and update the hardware and software; whether to schedule and apply job sequencing and job plan, etc; (b) The event correlation and automation processing: overall analysis different reasons leading to error report, these reasons may be from network, server system, database or application logic; find the root causes and do corresponding disposal, such as giving a alarm or starting a engine procedures, etc; (c) Business impact management is a system management, which can guarantee the business service at a high level, and will connect the business system performance with all the possible influencing factors, which will help the user find the change of the performance and the reason of these changes.

5. **Internal control audit**

Internal control auditing includes two aspects: the audit of general control and the audit of application control. The audit of general control mainly concentrates on internal control environment, including the management concept of the e-commerce system, organizational culture and staff's loyalty and the sense of belonging, the information system structure and the rationality of the division of responsibilities, human resources policies. Application control audit focuses on effectiveness, legality and propriety of control activities, mainly including authorization, separation of incompatible duties, accounts being consistent with the fact, the necessary risk control activities and its countermeasures. Additionally, the auditor should check the risk of data processing in internal control activities. Namely, check the accuracy, integrity and security of the data, and goes as follows: (a) The system and program can't correctly deal with data, process the incorrect data or two circumstances coexist; (b) Whether there is unauthorized access to data, it may lead to modifying or even damaging the data; (c) Whether there is unauthorized access phenomenon, which may damage original labor division in the e-commerce system; (d) Without authorization, change the main document data; (e)

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Without authorization, the adaptation of system or program; (f) Cannot do the necessary configuration or modify to programs; (g) Inappropriate human intervention; (h) May lost data or unable to access data.

6. E-commerce business audit

At present, there are many types of e-commerce, but most of them can be classified by distribution channels into two kinds: online direct trading platform and online indirect trading platform. Although the business process is not the same, both of them include three core parts: emotion communication, capital delivery, commodity distribution. So, we don't distinguish commodities trading process in the e-commerce business audit. In order to ensure the authenticity, reliability and integrity of the trading information, auditors have to audit the following informations: (a) The basic information of commodities, including name, price, performance, etc. (b) The commodity trading information, such as the delivery time, distance, payment terms, the return policy, etc. (c) After-sales service and related technical support, such as warranty time, three packets of policy, etc. (d) The related process risk and processing procedures, such as delivery errors, lost and legal dispute processing scheme, etc. (e) The customer rights and obligations.

To ensure that the above information is audit, the auditor needs to make the following work: (a) The customer electronic contract situation test: check every transaction or service accuracy, integrity, authenticity, after the deal to reconfirm; (b) Payment system test: before the payment by electronic bill, review sales price and all related expenses; according to the electronic bill ,carry out the liquidation; if the staff make mistakes in electronic bill, whether the man in charge inform the customer timely or not; (c) The goods distribution test: goods are distribution in the right place at the right time, with good quantity; whether the enterprise promptly notify the customer, and take remedial measures when they meet some special circumstances; (d) The client id information and transaction records test: confirm whether there are customer id information and transaction records preservation measures, including the integrity, accuracy and authenticity of those records; test the

implementation and execution of those management; (e) Supervision test: trade authenticity is effectively monitoring; if the enterprise fails to carry out control measures, they shall promptly issue a public notice and take remedial measures.

7. **Disaster recovery and business continuity plan audit**

Disaster recovery and business continuity plan is a plan, which can prevent business behavior from interruption in the case of natural or man-made disasters. The main content of the audit test is: whether this plan has feasibility and validity or not. Confirm the related resources (hardware and software) would have been backup and evaluate its safety; whether the test results meet the expected requirements or not.

CONCLUSION

Based on literature review above it can be inferred that audit process on electronic commerce systems can be divided into seven stages :the system development life cycle audit, system hardware and software resources audit, system security audit, system management audit, internal control auditing, e-commerce business audit, disaster recovery and business continuity plan audit. By undertaking those stages, it is expected that the objective of electronic commerce audit can be achieved they are : the first one is to utilize information technology, to audit the auditees' financial statements, relevant information and business activities, and to express an opinion on the financial statements of legality, fairness, consistency, which play a role in supervision and verification and service. The second one is to audit the auditees' information system, including electronic commerce system, in protecting assets security, data integrity and system effectiveness and efficiency, and then to express an opinion.

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