



# Research on Enterprise Internal Audit Work in Big Data Environment

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**Abstract:** Enterprise internal audit and internal control work are important parts of enterprise management, To increase corporate operating profit and to promote sustainable development of enterprises, corporate managers should professionally cope with the relationship between the internal audit and internal control of the enterprise and enhance the performance in both tasks simultaneously. Recently, due to the rapid development of Internet equipment and mobile communications, the advent of the big data era has brought some challenges to the internal audit work of enterprises. This article focuses on the internal audit of enterprises in the era of big data. The problems with the internal audit work of the enterprise will be analyzed and the corresponding internal audit work countermeasures will be provided.

**Key words:** Big Data;Internal audit;Internal work

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## 1.Introduction

The term big data started to be used a long time ago and it refers to the way by which massive data is investigated and analyzed to reach intended purpose. Internet technology was originated in the military field so the big data is also applied initially in military activities. As early as in the 1990s, U.S. military intelligence officers has established real-time association between the bank database with the military's combat plan database. Through the monitoring of funds in Al Qaeda accounts, such association allows for effective guidance for the combat operations of the U.S. front-line forces<sup>[1]</sup>. The "Prism Project" launched by the U.S. government in 2007 has greatly expanded the application scope of big data. According to media disclosure, some U.S. telecommunications and Internet giants continuously provide user information for nearly ten years to the National Security Agency, expecting to seek for support from the U.S. government in relevant fields. The information related to user privacy provides important clues about the U.S. decision-making strategies. After the "Broadband in China" and "Internet +" strategies were proposed, Internet technology and Internet of Things technology is quickly applied into all aspects of people's lives. In the era of big data, massive data streams and redundant information are a huge challenge for internal auditors. The links between different data, the association of various information requires the internal auditors in enterprises to be competent of independent thinking and more accurate professional judgments.

At the beginning of the big data era, the amount of data is increased and data redundancy appears from time to time, which undoubtedly brings new challenges to the work of enterprise internal auditors. Therefore, in the era of big data, corporate internal audit should be combined with financial internal control construction to increase audit efficiency, to reduce corporate risks, and to promote economic development.

## 2.Problems in corporate internal audits under the big data environment

### 2.1 Lagging development of corporate internal audit

Currently, the vast majority of large and medium-sized enterprises have completed the computerization of financial data, which means that financial software like SAP and UFIDA are applied into the accounting. However, the informatization of financial data can not meet the requirements of enterprise in the era of big data<sup>[2]</sup>. At this stage,

the data of the company's internal database is collected from the financial data of the company's sales, production, purchasing and other departments, so the data collected is mainly structured financial data that is in cross-checking relationship with each other. Nevertheless, the big data era determines that enterprises need massive amounts of data and unstructured data. The present database fails to meet the development needs of the enterprise in the era of big data in terms of the scale and nature of the data.

## **2.2 Inadequate proficiency of internal audit team**

The big data era requires that an enterprise should recruit the internal audit team with adequate financial knowledge, the IT personnel to be proficient in Internet technology, the statisticians with high competence of data collection, and analysts who are proficient in data processing. However, the current corporate internal audit work is mainly completed via traditional audit methods, and the team is primarily composed of auditors and limited enterprises recruit technical support personnel, data statistics personnel and big data processing personnel. The present auditors' data processing and analysis mainly depends on the causal relationship and cross-checking relationship between different financial data for analysis, so it is difficult to carry out effective audits of the increasing off-balance sheet business of enterprises and the derivative financial instruments that have been developing rapidly. That is exactly the key reasons for the shutdown of giant companies that are popular in the whole world, including Enron and WorldCom.

## **2.3 Greater risk of internal data leakage**

Big data is a double-edged sword, which means that it can be an invincible sword for business operators, or the tool used by competitors to be the sword of Damocles for predicting corporate behavior. In May 2014, "Nandu Weekly" once published an article to introduce the event of Everton football team. Before the 2013/14 Premier League season, the management of the Everton team recruits a data analysis expert, who casts big data analysis of various physical fitness indicators of the players of the team, so as to design appropriate and efficient training plans based on the targets of training, and to make adjustments to the opponent's situation. Hence, the analysis helps the team achieve unprecedented scores. Thus, it can be deducted that big data applications have replaced the traditional post-event supervision with pre-event prediction, and brought remarkable achievements.

Big data analysis helps with decision-making but it brings data breaches, which is also threatening businesses. The "2015 Data Breach Investigation Report" released by the US mobile communications operator Verizon shows that most world-renowned companies have been attacked by hackers, and the data leakage from inside the enterprise is even more shocking. Corporate internal auditors often have easier access to the core data of corporate operations, and the leakage of these data will seriously damage the interests of enterprises.

## **2.4 Insufficient internal control**

Currently, assessing risks with the internal control of a company primarily depends on the subjective judgment of the management. If the special department is lack of experience in risk assessment in business units, it will seriously threat the security of corporate assets. For instance, it is reported that the internal personnel of China Shipping Group Investment Co., Ltd. repeatedly intercepted company funds within a short period of time, and the total fund embezzled reached nearly 300 million yuan. The responsible personnel successfully transferred a huge amount of assets through more than one hundred operations, which proves that it is urgent to establish risk assessment mechanism within the company.

# **3. Internal audit promotion strategy under big data environment**

## **3.1 Construction of enterprise data platform**

The core fundamental features of big data include huge volume and diversification, so the establishment of a data

platform to cover all aspects of the enterprise is a top priority. It is necessary to establish a data platform within the enterprise that can collect data about the entire process of enterprise operations, to expand from financial data to non-financial data, and to expand the objects of audit from structured data to unstructured data. While collecting internal data, audit personnel in enterprises should pay attention to the enrichment of external data of the enterprise. Afterwards, they need to ensure that the company's data should be collected in a systematic and standardized way. Moreover, they need to ensure that the company's database is updated from time to time. After enriching the enterprise database, an enterprise could their staffs competence to make the best of the bid data analyzing software to make more research to enhance the development. Moreover, such competence will enable internal auditors to obtain the required data through analytical tools.

### **3.2 Optimize the audit team**

In the era of big data, the audit team must be composed of various talents, including the personnel proficient in auditing, the talents with knowledge of the Internet, Internet of Things, databases, etc. Human resources are crucial property of an enterprise. If an enterprise is expected to improve the efficiency of internal audit, the managers must standardize talent recruiting mechanism, and pay particular attention to the training and introduction of compound audit talents. All the key parts of talents should be paid with equal attention, including their auditing competence, professional skills and the performance in accordance with relevant moral rules. In terms of professional skills training, experts in related fields must be invited to release lectures in accordance with the requirements for staffs at different occupations. Relevant training institutions are requested to provide professional skills training for enterprise employees, and it is also necessary to regularly assess the learning of employees, to provide more chances for applying the skills into practical works, to reward employees with outstanding performance, to establish a competitive atmosphere of learning within the enterprise, and to continuously improve the professional proficiency of personnel. In terms of moral training, enterprises should make the best of the influence of moral models to spread moral rules among employees. It is necessary to set an example for employees to gain enlightenment on the professional ethics of employees and to improve the proficiency of the internal audit team of the company through vocational skills training and ethics training. At the same time, companies should pay attention to recruiting and training talents to grasp multiple relevant knowledge and skills, which will enable the internal audit team of an enterprise to obtain the internal power to promote the sustainable development of the enterprise. Besides, such mechanism will provide an enterprises with highly efficient audit work in the era of big data.

### **3.3 Establish a data security protection mechanism**

Single data is normally less valuable, but the combination of massive amounts of data will provide valuable information. The risk of a company's data leakage is in relational relationship with the number of terminals connected to the company's database. Only when a sound data protection mechanism and permission system are constructed in an enterprise, the risk of data leakage within the enterprise could be reduced to a certain extent. What's more, the enterprise must reset the database permissions after the database managing personnel quite the job or is fired, so as to ensure data security. In addition, it is necessary to train the employees to establish their consciousness to emphasize data security, to construct employees' safety awareness, to stimulate employees to recognize the serious consequences of a data breach, to motivate employees to constantly regulate their behavior at work, to eliminate all data leakage risks caused by employees' paralysis, and to further improve data security.

### **3.4 Improve the internal control management system of the enterprise**

To cope with internal audit and internal control simultaneously necessarily requires the comprehensive consideration of the characteristics of market economy development, the overall situation of the company and development goals. It is necessary to formulate feasible corporate financial internal control management standards, to introduce new accounting concepts into the audit of enterprises, to continuously improve the internal control

management system of the enterprise and to refine corporate financial internal control management process. A new financial management system, financial budget management mechanism, asset management mechanism, risk prevention and control mechanism, internal control management mechanism, management responsibility system and others should be reconstructed during the operation of the enterprise. That will, to some extent, provide managers with a standard procedure to follow in the daily financial management. The staffs at various departments could supervise the detailed accounting works in accordance with the specialized regulations of various works so as to prevent more problems with the financial management.

## **4. Conclusion**

In summary, the big data era brings not only development opportunities to the company but also a lot of challenges to the internal audit work of the enterprise. Only when an enterprise make the best of the opportunities brought by big data era to carry out efficient revolution, could their staffs construct comprehensive data base networks, construct a team of professional auditing staffs, guarantee the security of information so as to become competitive in the big data era.

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