

Research on Internal Audit Informatization Construction of J Company in Big Data Environment

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Abstract: In the new era, the Party and the state have entrusted new missions to internal audit. National Audit Office and General Secretary Xi has successively put forward the initiatives of "actively promoting big data audit" and "insisting on strengthening audit through science and technology and strengthening audit information construction". At the same time, the operation and management of modern enterprises often rely on the Internet, cloud computing and other high-tech means. Therefore, it is the main trend in the process of audit informatization to apply big data thinking, combine informatization means, integrate and develop computer audit, and promote the transformation and development of internal audit. This paper selects J Company, a representative company in the process of building an internal audit information system under the big data environment, as the research object, to comprehensively explore the problem of insufficient matching between the enterprise's current audit mode and development management, and based on the enterprise's information environment, according to the national big data strategy and the specific requirements of the enterprise in the field of audit information work, put forward practical suggestions and plans.

Keywords: Big data, Internal audit, Information construction.

1. Introduction

1.1. Research Background and Significance

1.1.1. Research Background

Global informatization has given birth to the inevitable product of big data, and information technology is gradually popularized in all walks of life. As an important part of the enterprise management and supervision system, the internal audit objects are increasingly presented in electronic data, which leads to the traditional audit methods can not keep up with the development of the big data era. Therefore, it is urgent to update audit methods and audit concepts and adopt information-based audit means. In 2017, the International Association of Internal Auditors published an audit guide called Understanding and Auditing Big Data. In April of the same year, under the urging and guidance of the National Audit Office, the first meeting of the INTOSAI Big Data Audit Working Group was held in Nanjing. In 2018, the Auditor General of the National Audit Office said at the National People's Congress that "we should actively promote big data audit". To sum up, the Party and the state have put forward new requirements for audit work.

1.1.2. Research Significance

In recent years, the types and scale of data contacted in the internal audit work have shown a rapid growth trend. The dispersion of data and the correlation between internal and external data have significantly improved, which makes it difficult to find problems from a single internal financial book data. Therefore, it is urgent to use big data thinking, expand the analysis and comparison between related data, find and solve problems from them, make reasonable judgments on violations and accurate verification to improve audit effectiveness. Informational internal audit can analyze the massive data of the audited object through big data analysis technology, reducing the heavy workload in traditional audit[1]. At present, auditors are no longer limited to post investigation, but transform the audit work by making

predictions in advance and correcting errors in the event. Under the thinking of big data, the problems faced by traditional audit, such as data fault and business confusion, can be solved easily, and business data can be obtained in real time through the information system. By letting more auditors learn and master big data audit knowledge and information-based audit means, it will help internal auditors find business data problems from a more comprehensive and accurate perspective, quickly analyze the business risks that enterprises may face, and provide reasonable suggestions for enterprises to make economic decisions. The big data environment not only helps the enterprise's information transformation, but also promotes the internal audit work to play a greater role.

1.2. Analysis of Research Status at Home and Abroad

At present, there is a big gap in the progress of internal audit informatization construction of domestic enterprises. Smaller companies and even some industries are still in the stage of passive informatization transformation, and have not been able to use big data thinking for daily management and operation like the communication industry and the State Grid, which have basically established and improved information systems. The informatization degree of internal audit is even more uneven. Some state-owned enterprises that pay attention to the informatization level construction have been trying to bring all aspects of enterprises into the construction process[2]. Some scholars have successively studied and found that Sinopec, China Unicom, Industrial and Commercial Bank of China and other enterprises have established audit information systems or big data audit system platforms. However, the informatization of internal audit in SMEs is often just starting or stagnant, lacking the necessary application of informatization audit technology, and can not keep up with the pace of global informatization, which greatly increases the difficulty in practical work.

As early as the last century, the trend of electronic data was

noticed by American auditors. Not long after realizing this situation, Los Angeles started to establish the Electronic Data Processing Auditors Association (EDPAA), and people in that period learned about the information theory through the audit system successively issued by the Association. After changes, it has now become a computer audit institution. The Association issued the Audit in the Electronic Data Processing Environment, which enables people to further understand the content of audit informatization from the theoretical level. Then Ravi, Michael G, Carlin Dowling and others successively explored the combination of audit and computer technology and published the research results to the public. The internal audit departments of many companies in the United States have actively adopted these results in combination with the industry situation and the company's current situation. Therefore, computer networking audit has been widely infiltrated into the internal audit work. The government audit department and some accounting firms, such as PricewaterhouseCoopers, have established their own Internet databases. When necessary, they only need to verify their identities and log in to the system to call the real-time updated data in the database, which can be remotely called on the computer equipment installed with the system, which greatly facilitates auditors.

To sum up, foreign information technology originated earlier. A long time ago, they began to explore and explore the theory of audit information. The level of audit information technology is far ahead of our country. At present, a series of research achievements have been formed. Although the research on the Internet and big data started late in China, many enterprises have built their own database systems and information system platforms with the support of the Internet platform, and the internal audit is in constant transformation and upgrading.

1.3. Research Ideas

Taking Company J as an example, this paper introduces in detail the progress of its audit information system and the areas to be improved, analyzes in depth the specific requirements of enterprises in the big data environment in the field of audit information work in business management, and puts forward feasible suggestions and measures based on the current situation of enterprise development.

2. Status Quo of Internal Audit Informatization of J Company

2.1. Introduction to Internal Financial Information System

Company J and its branches currently use UFIDA software to help enterprises achieve the whole process management from accounting to statement analysis. At present, some branches use UFIDA U8, while the head office and other branches use UFIDA NC. UFIDA ERP-U8 financial accounting system includes: financial system, purchase, sales and inventory system, production and manufacturing system, distribution system, customer relationship management system, human resource system, business intelligence, e-commerce and customization tools (CIT). The system architecture of UFIDA U8 is composed of these functional modules. In operation and management, staff can either independently use the modules in the U8 system or combine them as a whole. UFIDA NC mainly provides all-round services for enterprise management. It builds a private cloud

for large enterprises by comprehensively utilizing emerging Internet technologies, cloud computing technologies, big data technologies, etc., so as to more comprehensively meet the operational needs of group enterprise management, whole industry chain management and control, and business development. At present, J Company, based on personalized needs, uses UFIDA software that integrates integration, implementation, operation and maintenance, and management to help enterprises achieve the information management mode, and adapt to business changes to improve the level of enterprise information, so as to achieve the goal of sustainable development.

2.2. Current situation of internal audit informatization construction

In the case of J Company's overall vigorous development of information construction, the head office and branches have made great achievements in information construction in combination with the specific needs of the company's internal audit.

The company's internal audit information construction can be roughly divided into two stages: the first stage is to use information technology to assist internal audit. On the basis of traditional internal audit, use computers to collect relevant data, and then use audit software to analyze, check, and calculate relevant data. The second stage is to build the internal audit information system and adapt to the informatization process of each department, other affiliated institutions of the Company and the industry. The audit of financial data gradually transits to the synchronous audit of financial data and business data, so as to realize the transformation from post audit to pre audit, post audit and post audit.

At the beginning of 2012, the internal auditors of J Company decided to implement the information audit mode that is convenient for resource integration after investigating the industry environment and judging the market trend. It is the goal of the company's R&D personnel to build an information-based audit system with business control and risk early warning functions. The system shall be able to directly interact with the financial information system of Company J, so as to obtain business information such as business sales data, inventory quantity and plant construction input. Informatization audit is an innovative audit mode with the mission of service business management, service audit plan implementation, providing audit auxiliary analysis technology and helping auditors to express audit opinions. According to the audit information construction plan and the current information construction progress of the company, the contents of the company's internal audit information system construction are summarized as follows: an audit work platform and three business systems - audit integrated management system, audit task implementation system and intelligent real-time audit system. Among them, the audit task implementation system is divided into ERP business audit system and control business audit system.

At present, the construction of the audit work platform, the audit comprehensive management system and the ERP business audit system has been completed. The management and control business audit system has preliminarily completed the construction within the system. The construction of integration with other systems and audit work platforms is ongoing. It is in the process of continuous upgrading and transformation. The intelligent real-time audit

system is currently in the design and development stages.

The audit work platform is a platform for logging in to the audit information system and uploading and presenting audit information. The head office will report the latest work of the audit department in the "Audit News" column of the audit work platform; Each branch releases relevant information in the "Audit Progress" column on the platform, and the audit staff of the whole company can understand each other's work dynamics; Understand and learn the latest audit standards and standards and audit techniques outside the company and within the industry through the "Audit Vision" column; Exchange and learn from audit experience through the "thinking collision" column. In September 2013, the audit work platform started trial operation, and then continued to improve. In June 2014, the audit work platform was revised and upgraded. In 2015, according to the deployment of the head office, we began to promote the installation and registration of the audit platform in each branch. Now, internal auditors have used the platform to arrange audit plans, report audit progress and make audit recommendations in their daily work.

The construction of the comprehensive audit management system was completed at the end of December 2013. The system was continuously improved in 2014 and 2015, during which the business plan management, report management and audit report generation functions were optimized. The system adopts the first level deployment mode, and has daily audit business supervision functions, including online business processing, unified collection of audit data, allocation of audit resources, archiving of audit results, etc. The comprehensive audit management system can solve most of the work tasks, and can be combined with on-site audit when necessary.

The audit task implementation system is the most important tool for auditors in specific audit work. The system carries out audit work based on the data in the business application system, and assesses possible risks by identifying data and problems in business processing. The audit operation implementation system is divided into two categories due to the impact of different business and technical routes of the company. One is the ERP business audit system, which conducts audit operations against the closely linked ERP system of the company; The other is the management and control business audit system, which conducts audit work on the company's relatively independent management and control systems. Among them, the ERP business audit system adopts a two-level deployment, mainly auditing the five modules of financial status, human resources, equipment assets, business projects and production materials. The system was constructed in 2012, promoted and implemented in the head office in 2013, and promoted and implemented in the branch office in 2014. With the help of this system, auditors can understand the company's situation more clearly, which promotes the smooth implementation of on-site audit. At the same time, the improvement of information sharing has created conditions for remote off-site audit and online real-time audit of the whole process before, during and after the event. In 2016, the Audit Department designed and developed the monitoring indicator system of the ERP business audit system, which can be used to view online users, statistics login ratio, statistics report export, etc., to have a clearer understanding of the application of the audit system. The marketing audit, engineering audit and financial audit modules are responsible for the projects not included in the ERP business audit system. The three modules are

collectively referred to as the management and control business audit system. The system is deployed at the first level. In 2016, the application of the financial and marketing module in the head office and financial company was completed.

3. Problems in Internal Audit Informatization Construction of J Company

3.1. Lack of Construction Standards for Internal Audit Informatization

At present, China's auditors are mainly based on the Accounting Standards for Business Enterprises and the Auditing Standards, which can basically meet the traditional audit work. Since the end of the 20th century, our government has also gradually introduced several documents, including the Notice of the General Office of the State Council on Issues Related to the Use of Computer Information Systems for Auditing and the Provisional Regulations of the National Audit Office on Computer Auditing. However, under the influence of big data environment, the scope of enterprise internal audit has become larger, and the audit work methods and requirements have also changed significantly[3]. Therefore, the audit only based on the existing audit guidance documents cannot meet the needs of information audit, and many provisions in the legal documents that restrict and regulate the informatization of audit work have been unable to adapt to the content and requirements of modern internal audit work. Some western countries have established cloud computing maintenance, information security and confidentiality standards related to audit work in a timely manner, but China still lacks restraint systems in this regard. This will affect the construction and promotion of internal audit informatization in China. It is necessary for China to formulate some new relevant legal documents to guide and standardize the internal audit work of enterprise informatization.

3.2. Data Barriers and Insufficient Data Analysis

The audit information system mainly reviews the data directly imported from the financial information system, which requires that the data must be complete and correct. However, many departments have the problem of keeping their own business information independently and not participating in the internal data sharing of the company[4]. As a result, the enterprise has not entered all transaction and project data into the financial information system, or has not set the authority to open all relevant data to the internal audit staff and give them the authority to directly import data into the financial information system after logging into the audit information system. It is difficult for auditors subject to many restrictions to carry out necessary audit work and discover hidden potential risks through incomplete or even inaccurate data information, which also leads to biased audit conclusions, and the economic decisions made by the management based on them are also more likely to face losses in the end.

3.3. Aging of Internal Audit Team

At present, the company's internal audit team is short of both information auditors and R&D and construction personnel of the audit information system[5]. Many auditors

and other personnel involved in the audit process focus on professional knowledge, but lack information technology knowledge; While R&D personnel focus on information technology knowledge, financial audit knowledge reserve is not enough. This has greatly increased the communication cost in the process of building the audit information system, and the lack of advanced talents with comprehensive quality has seriously affected the progress of internal audit information construction.

4. Improvement Measures for Internal Audit Informatization Construction of J Company

4.1. Develop Informatization Construction Standards

First, actively establish and improve the big data operation management laws and regulations. For example, propose scientific and compliant methods for collecting, sorting out and storing financial data information, and propose specific guidance and constraints on the implementation of audit information supervision and the construction of audit data system through the formulation of national laws.

Secondly, a strict disciplinary mechanism should be established for deliberately disclosing corporate data and trade secrets on the Internet to seek personal gain. In an open network environment, for the internal audit work of enterprises, only the development of confidential documents on internal audit information can effectively ensure the confidentiality and security of the transmission of audit data and avoid the spread or theft of business secrets of enterprises[5].

In addition, the personnel engaged in information audit shall formulate specific ability requirements indicators, specify the certificates or professional qualities they must have, and ensure the quality of internal audit work.

Finally, the enterprise should establish a supervision and protection system of audit information. Only by formulating more strict system constraints than the management and supervision system of traditional internal audit work and strictly implementing them, can the informatization of internal audit work be guaranteed, so as to ensure the smooth implementation of internal audit work.

4.2. Innovative Data Collection and Analysis Methods

Innovate data collection methods. In the big data environment, multi-dimensional data provides a data basis for auditors to expand audit ideas, and provides an important starting point for internal auditors to find audit clues from massive data[6]. On the basis of the original data collection methods, auditors should be good at using diversified data collection methods. They can obtain data from the enterprise's ERP and other information systems, find useful data from the information published or retained by microblogs and other social networks, and automatically collect and save data using Internet of Things sensors or intelligent devices. The above data collection methods are conducive to improving the timeliness, universality, accuracy and economy of information collection. Auditors can also use emerging technologies such as web crawlers and natural language analysis to obtain network data, breaking the "bottleneck" of data collection[7]; Data is stored through cloud computing,

distributed architecture and other new means, so as to solve the efficiency problems caused by massive data storage and analysis.

Innovate data analysis methods, and gradually transition from causal analysis to correlation analysis[8]. Under the traditional audit mode, the auditor's causal analysis based on internal data can only conduct post audit confirmation, which cannot meet the needs of modern audit development. Under the mode of audit informatization, data analysis should not be limited to a single department. Auditors should use the correlation of data to analyze data from multiple departments, multiple fields and multiple dimensions. They can make correlation analysis after connecting the phenomena with correlation, and then find the causal relationship behind them, so as to more comprehensively understand and analyze the development trend of the auditee, Capture the doubts and problems in the company.

4.3. Cultivate audit team adapting to big data environment

First of all, enterprises need to cultivate the legal awareness of internal auditors and improve the level of legal knowledge reserves, so as to ensure that the internal audit work is carried out in accordance with the law is the most basic requirement. At the same time, internal auditors should also enhance their own risk awareness to prevent the risk of disclosure and other risks when importing and processing financial information.

Secondly, the enterprise needs to provide big data skills training for relevant employees, help auditors establish big data thinking mode, understand and learn big data technology, improve employees' sensitivity to data, and thus improve the overall work efficiency of the enterprise. It can also stimulate employees' interest and enthusiasm through regular assessment of learning and work conditions, so that employees can actively learn information audit methods[9].

In addition, the procedures critical to digital audit are regularly checked and upgraded by the scientific researchers of the enterprise to better provide technical support for internal auditors, so as to obtain more accurate audit results and reasonable suggestions.

Finally, we can introduce compound audit talents through open recruitment. At present, many universities have set up intelligent accounting classes or added a large number of courses such as computer audit and financial information system in the teaching system of audit students to cultivate students who are both familiar with audit professional knowledge and computer related technology. In the big data environment, enterprises should seek such complex auditors to join the internal audit department of enterprises, and lead all auditors to better adapt to and use the information audit platform and tools to meet the needs of enterprise development.

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