Discussion on the Change and Development of Big Data Auditing

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Abstract

With the advent of the information age, the application of big data technology in the field of auditing continues to expand, giving audits a new way of working. This paper discusses the development process of big data auditing, the significance of developing big data auditing, and the changes in work content under big data auditing, and then analyze the problems faced in the development process and proposes solutions. This article provides a certain direction for the development of big data auditing.

Keywords

Big Data; Audit; Informatization; Data Analysis.

1. Introduction

In the information age, information technology has become an important part of life, generating massive and diverse data. The acquisition, processing, disclosure, and feedback of information all need the support of data. In 2011, the famous American consulting firm McKinsey first proposed the concept of "big data", which defined it as a data set that cannot be captured, managed, and processed by conventional software within a certain period. British scholar Victor Meyer Schoenberg pointed out in the book "The Age of Big Data": "Big data is what people can do based on large-scale data, and these things are based on small-scale data. impossible to complete".[1] Big data has emerged as a data collection with large capacity, various types, and fast access speed, and related issues have also become an important research topic in the digital transformation of enterprises.

Big data is not only changing the way we live, it is also changing the work of the audit industry. In December 2015, Auditor General Liu further proposed at the National Audit Work Conference: "Promoting the construction of audit informatization with big data as the core is an important magic weapon to meet future challenges and the only way to achieve full audit coverage". [2] The era of big data gives audits a new way of working, and the model of "big data + audit" has formed a new form of audit work. Faced with such a background, the development of big data auditing has become our focus. This paper discusses the development process of big data auditing, the significance of developing big data auditing, the changes in work content under big data auditing, and analyzes the problems and solutions in the development process, providing a reference for the development of it.

2. The Development Process of Big Data Auditing

This paper mainly uses the maturity model for the development of big data auditing and analyzes it from five stages: basic stage, application stage, management stage, automatic stage, and monitoring stage.[3]

In the basic stage, only a small number of auditors have received introductory technical training and use big data analysis tools to analyze specific projects. Simple query and comparative analysis are mostly used, lack horizontal and vertical analysis procedures, and it is difficult to meet the needs of information auditing. At the same time, as an auxiliary means, big data

auditing is still based on a single project, and comprehensive analysis across industries and fields has not been realized.

Compared with the previous stage, the big data audit in the application stage is more mature and complete, and the traditional audit method is completely replaced, creating a "big data analysis-driven audit program". Big data assists auditors in implementing audit procedures and accomplishing audit objectives. In some areas, reusable test procedures have been established, which greatly improves audit efficiency.

During the management phase, big data analytics becomes the core of the audit process. Institutions engaged in auditing have prepared professional personnel, equipment, and technology. In the audit work, most of the work will be achieved through big data analysis programs.

The audit in the automatic stage realizes continuous auditing and moves towards full automation. At this stage, a complete set of test procedures is developed and widely used in some industries. Compared with traditional auditing, continuous auditing in the automatic phase has no time limit for issuing audit reports, and the entire process is continuously supervised. At the same time, this threatens the employment of some basic auditors who do not have data analysis skills.

In the monitoring phase, big data analysis will be extended to a wider range of fields, basically achieving full coverage. Automated audit procedures can continuously monitor and issue problem reports to some institutions or enterprises that have problems, to urge them to take measures to rectify promptly.

3. The Significance of Developing Big Data Auditing

3.1. Conducive to Improving Audit Efficiency and Saving Resources

Under the big data audit, all the data of the audited unit is entered into the platform, which reduces the mechanical and repetitive work of the grassroots auditors and saves the audit time. Based on the powerful computing and summarizing functions of big data technology, auditors can directly select data and preliminarily judge audit risks. Compared with many problems in the traditional auditing mode, such as invalid waiting, data entry, sampling calculation, etc., big data auditing greatly improves the auditing efficiency, so that auditors have more energy and time for risk judgment and data analysis.

3.2. Promote the Transformation of Audit Mode and Realize Continuous Audit

The traditional audit mode is mainly based on a post-event audit, and the auditors first lock the doubtful points through the analysis program and then implement further audit procedures. This practice has a lag and cannot effectively detect and prevent fraud promptly. In the big data environment, auditors can continuously audit the data of the audited units and observe changes in financial, business and management data in real-time, which not only improves the audit efficiency but also improves the timeliness of audit reports. The application of big data auditing technology transforms the post-event audit mode into pre-event, in-event, and post-event continuous auditing, which greatly reduces audit risks and reduces the occurrence of fraudulent behaviors.

3.3. Preventing Fraud and Discovering Audit Clues

In the era of big data, audit data collection channels are widely extended. These data are no longer limited to the financial data of a certain audited unit in traditional audits and may involve information related to various fields. These intricate relationships make fraud more difficult, because it is difficult for fraudsters to tamper with all data, so auditors can easily find fraud through big data analysis. The discovery of a certain fraud may involve various fields and break

the restrictions of the industry. In big data audit, through the correlation of information in various fields, the possibility of these problems being discovered is greatly improved. When auditing whether there is a problem of benefit transmission in the transaction process between an enterprise and its suppliers or customers, it is difficult to conduct comprehensive and in-depth mining of large-scale enterprises' suppliers and customers through traditional auditing. However, using big data technology, not only can all transaction information be easily obtained, It can also realize automatic online queries of counterparty information of trading companies through Python scripts, such as querying its shareholders, board of directors, and business conditions on "Qixinbao", and automatically listed in the database to form structured data. [4]

4. Changes in Work Content under Big Data Auditing

4.1. Chain Audit Procedures

In the traditional audit model, recalculation, re-execution, and analysis procedures are performed at the mid-term or end-of-term. The development of big data auditing has transformed these auditing procedures into continuous auditing to solve the time difference between audit results and economic activities.[5] The information required for the audit will be generated in the information system of the audited unit. Big data technology continuously records the transaction data and index changes of the unit. Auditors can quickly identify the abnormality of the audited unit and urge it to correct it in time.

Correspondence, as an essential audit procedure in the audit process, has also been affected by the big data audit revolution. Under the traditional audit mode, the implementation of the confirmation procedure is that the auditor sends an audit letter to the person being consulted and asks for a reply, but it often happens that the person being consulted does not reply, resulting in passive audit work, or the content of the reply cannot be determined. The authenticity of the audit evidence obtained by corroboration is limited. Under big data auditing, auditors can view the data stored in the cloud, both passive and limited.

The procedures of inspection, observation, and inquiry may be replaced by data analysis. Auditors no longer need to spend too much time and energy on-detailed test visits, but rely on data analysis to obtain high-quality audit evidence. Today, some dangerous goods inventory counts have been transformed into virtual reality methods. Due to changes in audit forensics, data analysis will become the core content of auditing in the era of big data and truly realize data creation value.

4.2. Changes in Risk Assessment Procedures

The impact of big data on risk assessment procedures is mainly reflected in the following aspects. First, it is more convenient to consult documents, and auditors can directly query and organize them in the cloud. Second, auditors can better understand the industry background and external environment, because big data makes information more transparent, and information asymmetry will be greatly reduced. Third, better understand the internal control of the audited unit. Behind the data lies the behavior patterns and potential risks of the enterprise. As the carrier of this information, big data requires auditors to identify and mine the required information through data analysis, analyze and evaluate the environment of the audited unit, and conduct fraud risk assessments. identify.

4.3. Changes in Audit Sampling

In the traditional audit mode, due to the limitations of time, manpower, and tools for analyzing data, auditors cannot implement 100% audit procedures for all audit-related audit procedures, and can only analyze a small amount of data by sampling. However, this method has inevitable sampling risks, which deviates from the actual situation. This deviation, whether in the control

test or the data, will cause the CPA to issue an inappropriate audit opinion and reduce audit efficiency.

The emergence of big data and the application of related technologies make the processing of data more and more convenient, and it is possible to comprehensively collect and organize massive information, realize inspection and data analysis of all items in the population, avoid sampling risks, and truly achieve " Let the data speak", realizing the transition from sampling analysis to the overall analysis. As Dave Inbar, senior director of big data products at data integration specialist Pervasive Software-ware, said, "In the past, we used sample data, and there may have been economic cost considerations or technical inaccessibility reasons. But today, these reasons are No more. Data sampling is antithetical at the best of times in the past, but I think it's time is over." [6]

5. Problems Faced by Big Data Audit and Countermeasures

5.1. Weak Awareness of Big Data Auditing

Today, most auditors still use traditional audit methods in their work. They do not have a good understanding of big data auditing, including auditing methods, auditing content, and data analysis, and do not make full use of big data analysis technology. On the other hand, my country's information-sharing platform is still lagging. Although various units in our country have gradually started the process of informatization and the database has been continuously expanded, the degree of informatization between units varies significantly, and the data is irregular, inaccurate, and incomplete. Data quality issues, which the development of big data auditing to a certain extent. Moreover, the acquisition cost of many data is very high. In practice, due to confidentiality and other reasons, customers will only provide some electronic data, and it is mainly limited to some financial data, including a lot of aggregated data, which is not suitable for big data analysis.[7]

Therefore, the state should continue to strengthen the assessment of audit institutions and personnel, enhance their understanding of big data, and insist on data as the core of their work. As auditors, we must keep pace with the times, improve our data analysis capabilities, and make full use of big data auditing technology. As the audit object, the audited unit should take the initiative to provide real business data and actively cooperate with the auditors to implement the audit business.

5.2. Relevant Laws and Regulations are not Perfect

Perfect rules and regulations are the premises of conducting audit work. At present, the relevant laws and regulations of the audit industry do not put forward clear requirements for audit institutions to use big data audit technology, and it is difficult to adapt to the audit requirements of the new era. The General Office of the Central Committee of the Communist Party of China and the General Office of the State Council's "Framework Opinions on Several Major Issues in Improving the Audit System" and its supporting documents put forward "the construction of a big data audit work model, the construction of a national audit data system and a digital audit platform, and the exploration and establishment of a real-time audit supervision system. , implement online audit", but the above policy documents have not been translated into laws and regulations.[8]

Therefore, relevant departments should improve the rules and regulations such as the use of audit data, the authority of auditors, the specification of audit procedures, and the security of data storage. It mainly includes two aspects; one is how auditors use big data technology to help the industry solve the confusion. The second is to ensure the security of data, the most important of which is data storage. In the era of big data, the value of data is extremely high. Although electronic data is not at risk of physical damage such as fire, tearing, etc., it may be

lost or destroyed by hacking. Therefore, it is necessary to improve the rules and regulations to maintain data security and increase punishment for illegal acts and those who are responsible.

5.3. The Lack of Informatization Auditors

Big data auditing has extremely high requirements on the comprehensive ability of auditors, not only to master audit theory, but also to master the knowledge of computers, mathematics, data analysis, and other related fields based on traditional audit methods, and to exercise the ability of data mining and analysis. In 2017, the Chinese Institute of Certified Public Accountants issued the "Accounting Firm Informatization Promotion Work Plan", which clearly stated that accounting firms should integrate the Internet, cloud computing, and big data technologies, build a functional audit operation system and a functional internal management information system, and enhance data analysis and application. ability etc. This provides a direction for the training of audit talents. On the one hand, colleges with auditing majors should add big data-related courses to their training programs, and offer compulsory courses such as computer and data analysis. Training students not only need to master the basic office software, but also only pay attention to learning Python, SPSS, SQL, and, other professional data processing tools, to cultivate students' ability to analyze data and find problems. On the other hand, audit practitioners should also focus on improving their abilities, keep pace with the times, and actively learn relevant knowledge of big data audit technology. In addition, the audit function is gradually changing from economic supervision to consulting and advice, which requires auditors to have different professional backgrounds to meet the requirements of various industries and to give full play to the functions of auditors.

6. Conclusion

With the wide application of big data technology in the field of auditing, it faces huge challenges for both the audit subject and the audit object. The requirements for auditors' informatization ability and professional judgment ability are greatly improved. The research conclusions of this paper are as follows: The development of big data auditing needs to go through five stages, and my country is still in the basic stage. Big data auditing has three advantages. First, it is conducive to improving audit efficiency and saving resources; second, it promotes the transformation of audit mode and realizes continuous auditing; third, it prevents fraud and discovers audit clues. In addition, big data auditing is different from the work content of traditional auditing, and its auditing procedures, risk assessment procedures, and audit sampling have all changed. However, there are still some problems in the development of big data auditing. This article describes and proposes three problems: weak awareness of big data auditing, imperfect relevant laws and regulations, and lack of informatization auditors.

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