ISSN: 2688-9323

How Accounting Firms Can Use AI Technology to Reduce Audit Risk in the Context of Digital Transformation

Jun He*, Zhaohui Chu

School of Accountancy, Anhui University of Finance and Economics, Bengbu, Anhui, China

*Corresponding Author: 1661990462@qq.com

Abstract

With the popularity of ChatGPT and the booming development of AI technology, many fields have begun to utilize AI technology with a view to improving quality and efficiency, and in the face of this disruptive technological change, we should be done how to accept and utilize it, rather than rejecting it. The use of artificial intelligence can enhance the efficiency and quality of audit work performed by accounting firms, especially in the period of risk-oriented auditing, the reasonable use of artificial intelligence technology in the audit business can effectively reduce the audit risk and improve the quality of audit work. The purpose of this paper is to briefly explain how artificial intelligence can be utilized to reduce audit risk in the process of understanding the auditee and its environment and risk assessment in the early stage, performing specific audit procedures to identify and respond to the risk of material misstatement in the middle stage, and forming audit conclusions and expressing audit opinions in the late stage, on the basis of the author's understanding of the current auditing work. First of all, the stage of understanding the audited unit can use artificial intelligence to collect data from various aspects to enhance the rigor of the CPA's decision; secondly, the stage of executing specific audit procedures can use artificial intelligence to reduce the sampling risk by full-sample sampling, reduce the control risk by the intelligent processing of internal control, and reduce the operational risk by intelligent processing of the audit procedure; and finally, in the stage of arriving at the audit conclusions, the use of the analytical ability of artificial intelligence can be used to Enhance the accuracy of the audit opinion.

Keywords

Artificial Intelligence; Digital Transformation; Audit Risk; Audit Findings.

1. Introduction

Artificial Intelligence's fast data analysis ability and text integration processing ability ability ability has brought a great impact to all walks of life, and in the face of the advent of new technology, it is important to learn to utilize it rather than just deny it; it is true that the use of ChatGPT sometimes does damage the ability of the practitioners, including cultural communicators who use ChatGPT to write manuscripts, students who write assignments, and financial practitioners who conduct data analysis, ChatGPT is undermining the ability of major practitioners, and the use of AI technology in the auditing industry can similarly undermine the ability of junior practitioners [1]; however, looking at it from a different perspective, the application of AI technology in auditing does enhance the quality of auditing, reduce audit risk, and result in a more accurate audit opinion. And for the audit practitioners, artificial intelligence is just an auxiliary tool in time, in the specific audit work to be used and how to use depends on the judgment of the certified public accountant for their own ability to work, artificial intelligence technology is on the basis of the previous logical knowledge to making

ISSN: 2688-9323

audit judgments, the certified public accountant can learn the way of processing of artificial intelligence to improve their personal ability. High-quality auditing work includes high efficiency and low risk factors, and the use of artificial intelligence technology in auditing work can effectively reduce the risk of various processes in the audit work, and can enhance the efficiency of certified public accountants to carry out various auditing work, which can greatly promote the development of the auditing industry.

2. Status of Digital Transformation of Accounting Firms

Since digital technology has been accessed for economic development, the Big Four accounting firms have long stood on the cutting edge of the industry; Ernst & Young has enabled its auditors to realize off-site auditing through EY Canvas, an online audit platform, and in addition, EY Atlas uses big data analytics to provide auditors and clients with detailed audit information in real time; KPMG has created its own intelligent audit platform, KPMG Clara, which largely strengthens the ability of its auditors to integrate and analyze audit data; Deloitte has also put the Xiaoqin robot into its daily audit activities, improving the efficiency and effectiveness of its auditors in completing audits; and PricewaterhouseCoopers has also made a major breakthrough in artificial intelligence. The China Institute of Certified Public Accountants has started to disclose information on the number of information technology personnel in the "Information on the Ranking of 100 Accounting Firms in Comprehensive Evaluation" from 2019, which indirectly indicates the increasing impact of information technology on the auditing industry, and the top 100 accounting firms are equipped with a certain number of information technology personnel, which implies a change in auditing business, and with the development of the digital economy, accounting firms have been actively undergoing digital transformation and actively exploring new technologies with a view to improving the quality and efficiency of audit operations [2].

3. How the Digitization of Audit Operations Promotes the Use of Artificial Intelligence Technology

With the development of artificial intelligence technology, more and more industries have begun to use artificial intelligence technology to optimize the quality of work and improve work efficiency, these industries that can use artificial intelligence technology have a common feature - highly digitalized, which is determined by the characteristics of artificial intelligence, it is not like the industrial revolution brought about by technological change is a change in the physical, artificial intelligence is relying on the Information that exists on the Internet, in order to use artificial intelligence technology to improve the quality and efficiency of the work, industry information must be highly digitalized to fit the characteristics of artificial intelligence technology [3]. However, auditing industry as an economic supervisor, there are still many physical information, small to original documents, ledgers and summary accounts; large to inquiry, inspection, observation and confirmations and other auditing procedures, there is a large proportion of the physical aspects of the audit, whether these physical aspects of the informatization process, is the key to the auditing industry can make use of artificial intelligence technology. Audit industry information processing of physical links is mainly reflected in the following aspects: first of all, for the paper version of the vouchers, financial statements of the information processing, you can use scanning, filming and other technologies to carry out; secondly, the computerization of audit procedures such as confirmations, inquiry, observation and inspection can be realized by using confirmations systems and intelligent monitoring technology; the previous Finally, it is the informationization of internal control, which can change the previous system of signing and sealing audit layer by layer to the information system of report approval, which can not only save costs but also improve the efficiency [4].

ISSN: 2688-9323

4. Sources of Audit Risk

Launched by the audit risk model, modern auditing is risk-oriented auditing, audit risk consists of risk of material misstatement and inspection risk, while the risk of material misstatement consists of inherent risk and control risk, inherent risk exists naturally and can not be eliminated [5]; control risk can be reduced by strengthening supervision and other ways. Inspection risk consists of sampling risk and quality control risk, both of which can be reduced through a more rigorous audit workflow.

4.1. Audit Sampling

In modern auditing practice, under the influence of risk-oriented auditing and the consideration of cost efficiency, CPAs often use sample auditing to collect audit evidence for a large number of transactions, account balances, and disclosures when testing manually-executed internal controls that have an operating track or performing detailed testing in substantive procedures, and inferring the rate of deviation or the amount of misstatement for the project as a whole on the basis of evaluating the samples. However, in the process of performing sample audits there are many influences that may lead to sampling risk. First, the selection of samples, the definition of the sample universe, and the selection of sampling methods are highly subjective, and different CPAs may make inconsistent choices under different scenarios [6]. Second, the representativeness of the sample selection determines the accuracy of the inferred overall situation. Finally, there is a great deal of uncertainty regarding the consideration of invalid samples and materiality, as well as the determination of tolerable deviation rates and tolerable misstatements. Influenced by the above factors, the CPA may have over-reliance risk and under-reliance risk in the process of audit sampling due to the deviation of inferred internal control effectiveness from actual internal control effectiveness; and may also have the risk of wrongful rejection and wrongful acceptance due to the deviation of inferred overall material misstatement from actual material misstatement. These risks not only result in compromising audit efficiency and wasting unnecessary resources and manpower; they may even affect the effectiveness of the audit and the correctness of the type of audit opinion issued at the end.

4.2. Professional Judgment and Professional Skepticism

Professional judgment and professional skepticism are at the core of a CPA's work competency and are present throughout the audit. Because they are so subjective, the potential for risk generation is also higher. Professional judgment and professional skepticism are required from determining whether to accept an engagement, to risk assessment, to risk response, and finally to determining which type of audit opinion to issue. The use of professional judgment and professional skepticism in different parts of the audit process increases the corresponding risks. Judgment of the first acceptance or maintenance of the client relationship affects the subsequent work, judgment of the degree of trust in internal control affects the actual implementation of the audit procedures and the results obtained therefrom, reasonable suspicion of the risk of fraud affects the type of audit opinion to be issued. judgments about related party relationships and their transactions affect the overall fairness of the financial statements, judgments about the going concern assumption may directly affect the type of audit report, and ultimately, the CPA relies on professional judgment when expressing an audit opinion on whether the financial statements are prepared in accordance with an appropriate financial reporting basis and whether they present fairly, in all material respects, the financial position, results of operations, and cash flows of the enterprise [7].

ISSN: 2688-9323

4.3. Internal Control

Internal control refers to the policies and procedures designed and implemented by governance, management, and other personnel of the audited entity to ensure the reliability of financial reporting, the efficiency and effectiveness of operations, and compliance with laws and regulations. However, the natural limitations of internal control make control risk unavoidable. First, all enterprises will exist management override the internal control situation; Second, in the internal control operation process due to fraud, judgmental bias, omissions and other reasons may lead to the operation of internal control is ineffective; Finally, the degree of rigor with which internal controls are monitored will have a significant impact on the effectiveness of internal controls [8]. CPA's evaluation of the effectiveness of internal control is achieved through control testing, and sample auditing methods will be used in control testing, so the CPA can not be absolute assurance of the effectiveness of internal control; therefore, in the reliance on the basis of internal control to reduce the audit process is a certain risk.

4.4. Audit Procedures

Audit procedures refer to further procedures performed by the CPA to address the risks of material misstatement identified and assessed, with the primary objective of detecting material misstatements at the financial statement level and at the determination level. It includes inquiries, observations, inspections, confirmations, recalculations, re-executions, and analytical procedures. First of all, the analysis procedure refers to the CPA through the study of financial data and financial data, financial data and non-financial data to make the relationship between the financial information disclosed by the audited entity to make an evaluation of its principle is based on a large number of data analysis in the future to form the expected value, and the inherent logic of the expected value, and with the disclosure of the audited entity to compare the value of the disclosure, in order to find the misstatement. One disadvantage of this procedure is that the CPA may not be able to collect all the information related to the audited entity, so the expected value analyzed by the CPA is likely to be inaccurate, which will also bring audit risk [9]. Secondly, the inquiry, observation, inspection and other procedures are performed in the field, its trustworthiness is not absolutely reliable, the audited unit may be deliberately "performance" during the audit period, resulting in the CPA's final conclusions with the actual situation deviation, which may also generate audit risk. Finally, the effectiveness of the implementation of the confirmations program depends on the independence of the two sides to go to the confirmations, confirmations process with the audited unit of contact are likely to improve the audit risk, but the current confirmations program must go through a series of processes such as the design, send a letter, letter and so on, the complexity of the process undoubtedly gives the audited unit to operate the possibility of also indirectly enhance the audit risk.

5. How to Use Artificial Intelligence Technology to Reduce Audit Risk

5.1. Full Sample Sampling

As mentioned above, the unrepresentative nature of samples in audit sampling and the bias arising from inferring the overall situation through samples will constitute audit risk, therefore, on the basis of the digitization of the accounting firm and the audited unit, importing all the auditing information into the big data analysis system, realizing the analysis of full samples, and allowing artificial intelligence like ChatGPT to accurately analyze the entire project through process-oriented training and guidance, we can effectively avoid the sampling risk caused by sampling audit. of all misstatements, you can effectively avoid the sampling risk associated with sample auditing. To realize full sample analysis using AI technology, the following foundations should be constructed. The first is the informatization of audit evidence, artificial intelligence

ISSN: 2688-9323

can only logically analyze the digitized data and text, and can't identify the physical evidence, and the digitization of audit evidence is the starting point for realizing full-sample sampling [10]; the second is to build a system that can guarantee the collection, transmission and storage of data security, and the openness of the network will increase the risk of data security, which is the guarantee of getting effective audit conclusions. Only the correct data can be analyzed to get the correct conclusion. Finally, it is to train the logic of artificial intelligence analysis, which can be inputted into the data of past auditing experience so that the artificial intelligence can quickly and accurately identify misstatements and get the correct amount of misstatements.

5.2. Intelligent Judgment

Following on from the above, one of the foundations of full sample analysis is that AI can have the ability to analyze accurately, and achieving this ability requires human training in its analytical logic. The objective of a financial statement audit is to express an audit opinion as to whether the financial statements of the audited entity have been prepared in accordance with applicable accounting standards and the relevant accounting system, and whether they present fairly, in all material respects, the financial position, results of operations, and cash flows of the audited entity. The audit involves both data analysis in the expectation of checking for misstatements, and judgment on the reasonableness of specific operations, accounting estimates and accounting policies. The part involving data analysis is relatively easy to realize, artificial intelligence for before and after the data reasonableness of the comparison of logic is sometimes more accurate than human judgment; but involves the reasonableness of specific auditing business, the correctness of accounting estimates, the reasonableness of the application of accounting policies, and the judgment of the sustainability of the unit being audited requires the professional judgment of the CPA [11]. In order to utilize artificial intelligence technology in this part, it is necessary to realize it through artificial training, and the main measure is to input the judgment logic of the CPAs, and the AI learns and then carries out the practical application, and the key step is to input the logical knowledge of the CPAs, and in order to realize the accuracy of the judgment of the AIs, it is necessary to ensure that the input of the correctness of the logical knowledge as well as the extensiveness. The correctness can ensure the accuracy of judgment and the extensiveness can ensure the feasibility of complex business. Therefore, the CPA industry should be the main focus and other industries should be supplemented in the artificial logic input, so that the accuracy of the intelligent judgment can be ensured. According to Table 1, it can be seen that the number of people using ChatGPT shows a spurt of growth, which invariably enhances the breadth of logical knowledge input, so that accounting firms will be more reasonable in the use of artificial intelligence technology, which can make the audit report more convincing [12].

Table 1. ChatGPT First Six Months Monthly Visits

period of time	November 2022	December 2022	January 2023	February 2023	March 2023	April 2023
Monthly visits (billions)	0.15	2.66	6.16	10	16	18

5.3. Intelligent Internal Control

As mentioned above, internal control is embodied in the rules and regulations of the enterprise, but the management and staff of the implementation of internal control and the effectiveness of the implementation of the individual self-consciousness, not mandatory, which will lead to internal control deficiencies, thereby triggering the risk of fraud. In this regard, corporations can use artificial intelligence to build information technology-based internal control, intelligent internal control can effectively deal with the large volume of transactions and data, less likely to be bypassed, automated information systems, databases and operating systems related to

ISSN: 2688-9323

security control can be achieved effectively segregation of duties [13]. To achieve the above purpose requires the following measures, firstly, the construction of internal control digital system, the company's reports, approvals, communication and online meetings are implemented through this system; secondly, the governance level for the definition of the duties and responsibilities of the authorities, to give different levels of management and departments of different authority to achieve the separation of powers is the key to the effectiveness of the operation of the internal control; and lastly, to ensure that the digital internal control system of security, enterprises need to be equipped with professional systems and security control. Security, enterprises need to be equipped with professional system maintenance personnel to ensure that data processing errors can be corrected in a timely manner, data loss due to system paralysis can be recovered in a timely manner, the inoperability of human intervention,non-authorized access, false transactions,processing errors caused by ultra vires access to the corrections and so on. Guaranteeing the safe operation of information technology internal control is a top priority [14].

5.4. Audit Procedure Intelligence

The above mentioned seven major auditing procedures will be used by CPAs in the process of performing audits, and the disadvantages of these auditing procedures and the risks that may be brought about by them have also been analyzed in detail. Now mainly proposed the use of artificial intelligence technology to improve the disadvantages of the audit procedures. First, for the incomplete data collection problem in the analysis procedure, the use of artificial intelligence can be widely used to collect data from different industries, to avoid the limitations of the information collected by the certified public accountant, in order to realize the completeness of the analysis information, and get more accurate conclusions [15]. Secondly, for the inquiry, inspection, observation and other procedures that need to be carried out in the field, in order to avoid the "performance behavior" of the audited unit, it is possible to build a digital system based on monitoring, data tagging and anonymous spot checking to avoid such risks, and to integrate the networked real-time monitoring system into the intelligent auditing system so as to realize the effective and unpredictable observation procedures, and to combine the data tagging with the code scanning gun. The data tag through the scanning gun combined with the monitoring system can achieve the effectiveness of the observation procedure, the implementation of anonymous Q&A in the information-based internal control system can ensure the effectiveness of the interrogation procedure. Finally, for the confirmations program can not be tracked throughout the defects caused by the construction of a safe and reliable confirmations information system to improve, confirmations between the two sides can be through the confirmations system for real-time confirmations to ensure that the confirmations program of timeliness and controllability [16]. In general, the main purpose of the CPA to implement the audit process is to identify and identify misstatements, the determination of the nature, timing and scope of audit procedures depends on the judgment of the CPA, and the implementation of unpredictable audit procedures can effectively identify and respond to misstatements, which requires the CPA to have creative thinking, but the CPA's ability to a person is limited, can be through the creative logical thinking of the general public to identify and detect misstatements, specific measures are through artificial intelligence to collect information from different The specific measure is to collect thinking judgment logic from different subjects through artificial intelligence to implement more creative audit procedures to identify and discover misstatements as much as possible. Table 1 shows the age distribution of ChatGPT users, in which young and middle-aged users occupy the majority, and such people have a deeper understanding of emerging technologies and their thinking logic is more creative, which can undoubtedly improve the quality of audit procedures [17].

ISSN: 2688-9323

Table 2. ChatGPT Users' Age Segmentation

ChatGPT Usage Level	18 to 29 years old	30 to 44 years old	45 to 64 years old	65+ years old
I have used it to generate text	15%	17%	9%	5%
I have seen text generated by others, but have not used it myself	48%	46%	27%	30%
I have never used it and have not seen others use it	20%	31%	55%	59%
Not sure	17%	6%	8%	6%

6. Shortcomings

Overall, the utilization of AI techniques to reduce audit risk has a lot of merit and the theoretical logic is very effective. However, everything has its disadvantages, and so does the utilization of AI technology. First of all, it is difficult and expensive to build a diversified data system, which may be difficult for small and medium-sized accounting firms to realize, and the combination of network monitoring system, confirmations system, internal control system and big data analysis system is a difficult problem, plus how to extract data from the audited unit, preservation, and transmission is even more difficult, and the construction and maintenance costs of the system will be very high. In addition, it is the problem of data security, the system, no matter how perfect, can not get the right data will not come up with appropriate audit conclusions, so for the audit of the data in the extraction and transmission of the security issues on the way is crucial, but the extraction and transmission of the data are audited units to perform, which undoubtedly increases the risk of fraud, and in the open network of data transmission may be subject to network attacks, which may lead to data loss or the risk of erroneous changes [18]. Finally, the dataization of audit evidence gives the audited unit more room for operation, which may lead to the risk of fraud, and many abstract audit evidence can not be digitized, such as the environment of the audited unit, corporate culture, managerial personality and other information need to be field visits to the CPA to get the correct conclusions, and the cold data does not provide accurate information.

7. Conclusion

In general, the use of artificial intelligence technology to reduce audit risk has its natural advantages, but also has some disadvantages. The implementation of full sample sampling can effectively avoid sampling risk, intelligent judgment that brings together the thinking of many experienced CPAs can improve the accuracy of professional judgment, intelligent internal control can guarantee the separation of authority and responsibility, and intelligent auditing procedures can guarantee the accuracy of data analysis, avoid the uncontrollability of the correspondence procedures, and improve the unpredictability of the auditing procedures. Intelligent auditing also has a series of problems, the difficulty of building the system, high cost, audit data security is difficult to ensure, and some abstract audit evidence can not be expressed through the data and so on. In short, with the development of the digital economy and the increasing requirements of the audit business, the use of artificial intelligence technology to reduce audit risk is an effective and feasible path, as the audit industry practitioners should actively receive the convenience of new things, artificial intelligence as a tool to reduce audit risk and improve audit quality.

ISSN: 2688-9323

Acknowledgments

The study was funded by Anhui University of Finance and Economics Graduate Research Innovation Fund Project "A Study on the Impact of Digital Transformation on Audit Risks of Accounting Firms: The Case of Grant Thornton" (ACYC2022128).

References

[1] Zhang Xiaheng,LI Xiang: Audit model, audit risk and audit quality improvement under meta-universe technology, Research on Finance and Accounting,(2023)No. 4, p.58-64+80.

[2] Sun Mingqi: Hospital financial audit risk in the context of big data era, Modern Auditing and Accounting,(2023)No. 3,p.44-45.

[3] Ma Shuangshuang: Research on the Integration of Risk-Oriented Leather Enterprise Internal Audit and Artificial Intelligence Technology, Western Leather,(2022) No. 18, p.11-13.

[4] FAN Linlin,MENG Jin,DONG Kun et al: Research on Financial Income and Expenditure Audit of Colleges and Universities Based on Artificial Intelligence, Friends of Accounting,(2022) No. 19, p.18-23.

[5] Zhang Xinnan: Research on the Application of Enterprise Financial Audit in the Era of Artificial Intelligence, Marketing,(2022) No. 14, p.122-124.

[6] QI Xiaoyan,WANG Han,ZHAO Yangyang: Research on Ethical Issues and Countermeasures of Artificial Intelligence Auditing, China CPA,(2022) No. 6, p.68-71.

[7] Zhang Dan: Research on the integration of internal audit and artificial intelligence technology in leather enterprises, China Leather,(2022) No. 6, p.43-46.

[8] Jiang N: On the change and development of national audit in the era of artificial intelligence, Finance and Accounting Monthly,(2022) No. 11, p.104-109.

[9] Yang Zui: Research on Auditor Transformation under the Background of Intelligent Auditing, Old Brand Marketing,(2022) No. 8, p.167-169.

[10] Dong Yue. Analyzing the Opportunities and Challenges of Artificial Intelligence Auditing in the Informationization Era, Small and Medium-sized Enterprises Management and Technology,(2022) No. 4, p156-158.

[11] Gao Minghua: Blockchain audit risk identification and prevention in the context of digital economy, Finance and Economics, (2021) No. 36, p.176-177+190.

[12] Wei-Guo Zhao: Application of artificial intelligence in risk-oriented auditing, Cooperative Economy and Technology, (2021) No. 24, p.146-147.

[13] Gao Erquan: Exploration of the application strategy of enterprise financial audit in the era of artificial intelligence, Enterprise Reform and Management,(2021) No. 18, p.179-180.

[14] Luo Xianru: Exploration of risk control of artificial intelligence auditing, Business News,(2021) No. 20, p.153-155.

[15] Liu Guangqiang: Research on intelligent auditing based on blockchain auditing, Business Accounting, (2021) No. 13, p.4-14.

[16] Cheng Wanchuan: Application of Artificial Intelligence in Auditing Practice and Thoughts on Potential Problems--Taking Deloitte & Touche as an Example, Journal of Sichuan College of Arts and Sciences,Vol. 31 (2021) No. 2, p.145-149.

[17] Cheng Wanchuan: Research on the Impact of Artificial Intelligence on Auditing Industry and Countermeasures, Western Economic Management Forum,Vol. 32 (2021) No. 1, p.62-66.

[18] Chen Bo: Reflection on the impact of the development of artificial intelligence technology on auditing, Contemporary Accounting,(2020)No. 14,p.82-84.