

Study on the Impact of Digital Transformation on Audit Risks of Accounting Firms: The Case of Grant Thornton

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Abstract: As the external environment changes, digital transformation is becoming increasingly necessary for accounting firms. Firstly the '14th Five-Year Plan' for the development of the digital economy emphasizes the importance of accelerating the digitalization of the industry. Secondly audit plays an important third-party supervisory role in the capital market and the volume of audit engagements has been growing in recent years, but the corresponding increase in audit risk due to manpower shortage, lack of time and limited resources. Finally the outbreak of the new crown epidemic reveals the problem of unenforceable on-site audits, which affects investor effectiveness and capital market efficiency. Therefore, it is important to study the impact of audit risk in accounting firms from the perspective of digital transformation to promote the digital transformation of accounting firms. In this paper, we take the example of Grant Thornton, which has a long history of development, comprehensive business lines, and is a pioneer and leader in promoting digital reform among domestic accounting firm, and is representative in digital reform. This paper firstly reveals the advantages of digital audit in the digital economy by comparing traditional audit and digital audit; secondly, it analyzes the impact mechanism of digital transformation on audit risk in accounting firms; then it examines what measures accounting firms can take to reduce audit risk, improve audit efficiency and save audit cost in the context of digital transformation. Finally, the problems of digital transformation of accounting firms are explored, and corresponding suggestions and measures are proposed. This has important guiding significance for promoting digital reform in the audit industry.

Keywords: Digital Transformation, Audit Risk, Accounting Firm, Grant Thornton.

1. Introduction

The 14th Five-Year Plan for the Development of Digital Economy emphasizes the importance of accelerating the digitization of industries and digital industrialization, calls for the key role of data elements, and proposes a new goal of achieving a prosperous and mature digital economy by 2035. The 2022 government work report also emphasizes the goal of "building a digital China and developing a digital economy", which is to promote the construction of digital information infrastructure and the development of the industrial Internet, foster the continuous development and growth of digital industries, and promote the close integration of digital technology with the real economy. Auditing plays an important third-party supervisory role in the capital market and has a greater role in alleviating the information asymmetry between listed companies and investors. In recent years, China's capital market has developed rapidly, and the ensuing volume of audit business will show a continuous growth, correspondingly increasing the workload of auditors. At the same time, it may greatly increase the audit risk due to factors such as manpower shortage, lack of time and limited resources.

The outbreak of the New Crown Pneumonia epidemic has had a significant impact on the audit profession. The epidemic provides an unprecedented opportunity for the audit industry in China to transform and develop. In order to adapt to the rapidly changing external environment, accounting firms, as one of the audit entities, will actively promote digital transformation, establish a large number of audit databases and accumulate typical audit cases, thereby improving audit efficiency, optimizing audit workflow, and further promoting audit by implementing a parallel change management

approach of online and offline audit The digitalization of business is implemented. The "Information Construction Plan for the CPA Industry (2021-2025)" also indicates that the CPA industry should closely follow the pace of the times, make up for the shortcomings of information construction as soon as possible through the innovation of concepts, methods, technologies and tools, promote the overall digital transformation of the industry with the help of information technology, and ensure that the domestic and international digital economy develops at the same frequency.

Audit risk as one of the issues of high concern to audit subjects, mainly based on its significant impact on the quality of audit practice. If the audit risk is too high, it may lead to audit failure, damage the image and reputation of the audit subject, and have a large negative effect on the subsequent development of the audit subject. Therefore, accounting firms, as one of the audit subjects, should strive to control audit risks within a reasonable range to promote the overall healthy development of the CPA industry and thus help the orderly development of China's capital market.

2. Traditional Versus Digital Auditing

Digital auditing reduces the reliance on manual and on-site audits, and has greater advantages over traditional auditing in terms of audit effectiveness, efficiency, and value enhancement. First, the selection of a sample audit sample, which is widely used in traditional audit activities, is done by CPAs based on their expertise, which not only increases audit risk by making the sample unrepresentative, but also increases the cost of audit work by increasing audit operations in order to reduce audit risk to an acceptable low level, but the full sample can be tested in the digital audit mode. This

reduces audit risk and increases the the credibility of the sample. Second, the selection of audit evidence and the drawing of conclusions in the traditional audit mode rely heavily on the subjective judgment of CPAs, which inevitably leads to human bias and subjective errors, while the switch to digital auditing can reduce errors caused by human bias. Thirdly, under the traditional audit mode, a lot of auditors' work is focused on collecting audit evidence and organizing information, while digital audit can search for problems by setting up procedures in advance, which can free auditors from the intensive work of collecting audit evidence, so that they can focus on analyzing and dealing with problems, which can largely improve the efficiency and effectiveness of audit. Fourth, under the traditional audit model, auditors conduct audits according to standard processes each time, and much time and energy is wasted on the same issues, while digital audits can reveal common issues through big data measurement, and can quantify and classify possible problems, thus achieving more value creation. Fifth, traditional auditing is characterized by regular and continuous phases, and the overall effect of auditing is poor; while digital auditing can achieve continuous and dynamic supervision through technical means, and improve efficiency and effectiveness through real-time auditing, ultimately achieving the goal of auditing.

3. The Mechanism of The Impact of Digital Transformation of Accounting Firms on Audit Risk

3.1. Improve audit efficiency and reduce audit costs

Auditors will face a large amount of audit data in the process of audit work, auditors can use big data technology to integrate data resources so as to improve quality and efficiency of audit work, auditors digitalize audit work by building big data analysis platform, constructing analysis model and constructing indicators for analysis, the digitalization of audit work makes audit data doubts can be efficiently screened by the data system, and at the same time It can also reduce the workload of auditors, avoiding the auditors to engage in a large number of repeated processes of collecting audit data and calculating various indicators. Of course, the data of audit projects can be collected in real time, reducing the time to obtain various types of audit data information, so that the digital empowerment of audit work can not only improve audit efficiency but also reduce the cost of audit work.

3.2. Improve the quality of audit work

The digitalization of the audit workflow enables the data of the entire audit process to be traced in the data analysis system, which is conducive to the implementation of quality control procedures by the accounting firm and enables it to trace back at any time and identify the source of problems in a timely manner, as well as to learn from the audit experience and lessons learned through each audit. In addition, the electronic data system greatly improves the accuracy of data compared to manual input processing, which greatly reduces errors or fraud caused by human factors.

3.3. Reduce audit risk

Digital auditing creates a new model of intelligent auditing, which enables focused focus, breakthroughs and key reviews

of audit issues through big data technology, enabling the discovery of deep-seated issues behind business models through data, rather than just the surface of financial data. Digital transformation of accounting firms enables auditors to use structured and unstructured data to carry out multi-dimensional and comprehensive data analysis and enhance the breadth and depth of analysis. Accounting firms undergo digital transformation to make the risk assessment aspect of auditing more complete, more comprehensive collection of all potential aspects of audit risk, the use of big data for systematic analysis and judgment, can be based on this to achieve accurate prevention of audit risk. In addition, the digital transformation of accounting firms can build audit big data analysis system, so that audit data to achieve interoperability and resource sharing, so the auditors will have access to audit information will be richer, but also more quickly and comprehensively to explore the connection between the audit data, to explore the hidden problems or clues.

4. Problems of Digital Transformation of Accounting Firms

4.1. Security of audit data

In today's booming global digital economy, the process of digital transformation is in full swing in all industries; accounting firms are actively promoting digital transformation in order to respond to the development of the digital era on the one hand, and to provide more high-quality and efficient assurance services on the other hand; however, as a third-party service provider, accounting firms will encounter many incompatible problems when they make drastic digital reforms. One of the most fatal problems is the security of audit data, audit data is the basis for the CPA to perform audit procedures, and is also the basis for the final audit conclusions and audit reports; therefore, if the security of audit data is in question, then it may lead to the failure of audit procedures and wrong audit conclusions, making the entire audit work invalid. Digital auditing on the cloud platform will certainly increase the inherent risks of auditing; firstly, at the stage of uploading raw data, if enterprises upload untrue data or manipulate data for certain purposes, the reliability of audit evidence will be affected. Secondly, in the transmission stage of audit data, due to the openness of the network, it may be attacked by hackers leading to the auditors getting wrong audit data. Finally, during the analysis of audit data, data that is confidential to the audited company may be used for profit due to the auditor's lack of professional ethics.

4.2. Backward facilities and technology

The late 19th century in the United Kingdom has formed a civil form of audit institutions, audit as a traditional testimonial agency, has always been innovative with the times; whether in the audit standards or in the audit form, accounting firms will take advantage of the products of the times, and constantly improve audit efficiency and audit quality to comply with the development of the times. But the digital economy is an emerging thing in recent years, digital audit is a new audit technology, different from the traditional audit technology and methods, it no longer relies on a large number of manual integrated data collection and analysis mode, but the audit process is fully data-driven, audit collection, storage and analysis procedures are completed by computer. The combined use of big data and cloud computing requires

accounting firms to be equipped with high-end computers and unobstructed networks, but few accounting firms in China are equipped with these facilities considering the cost and manpower factors.

4.3. Limited capacity of small and medium accounting firms

Since digital technology has been introduced into the economy, the Big Four accounting firms have been on the cutting edge of the industry by making use of it. KPMG has created its own intelligent audit platform, KPMG Clara, which has largely strengthened its auditors' ability to integrate and analyze audit data; Deloitte has also already put the small audit robot into its daily audit activities to improve the efficiency and effectiveness of its auditors' audit work; PwC has also achieved a major breakthrough in artificial intelligence. In general, the Big Four accounting firms have been effective in driving digital transformation. Relatively speaking, small and medium-sized accounting firms that do not have sufficient capital and resources are still stuck in performance, industry competition and staff turnover, and do not have extra human and material resources to invest in digital transformation.

Compared to the strong large accounting firms, first of all, small and medium-sized accounting firms provide a single business model, but with the improvement of China's economic regulations, SMEs have an increasing demand for service type to enhance the management capabilities of enterprises; however, due to the limited level of corporate accounting staff, many SMEs are not able to identify the value-added accounting services they need; Secondly, SMEs are unable to obtain relevant professional information of accounting firms accurately and quickly, and small and medium-sized accounting firms do not have a special platform to promote their professional services, which limits enterprises' understanding of professional information of accounting firms and further development of small and medium-sized accounting firms; Finally, the widespread business model of referral by acquaintances of small and medium accounting firms in China hinders cross-regional business services, which makes it difficult for accounting firms in different regions to obtain equal competition rights. All these reasons lead to a single business model, insufficient industry competitiveness and inadequate access to industry information, which seriously restrict the possibility of digital transformation of small and medium-sized accounting firms and limit the healthy development of small and medium-sized accounting firms.

4.4. Lack of specialized technical personnel

The digital transformation of accounting firms has raised the requirements of auditors in terms of computer technology and has put forward higher requirements for auditors' competence; in the traditional auditing field, the requirements for auditors are mainly on the level of accounting and auditing knowledge and work experience. However, with the rise of digital economy and the advent of digital auditing, SMEs have raised higher requirements for CPAs, requiring them to abandon the traditional sampling audit and substantive procedures, and to improve their professional skills while having data sensitivity and data analysis and processing capabilities; to be able to skillfully operate relevant data analysis software, to take in the data needed for their business from the cloud platform in a timely manner, and to analyze

and process the data to reach real and reliable conclusions. In addition, in the face of increasingly sophisticated enterprise development, auditors should also have legal knowledge, economic knowledge, management knowledge, interpersonal skills and the ability to evaluate internal control, etc. Therefore, what is needed is a composite of highly professional audit personnel, the current stage of university education and human resources reserves are unable to keep pace with the digital economy, so it is vital to change the relevant talent training mode.

5. Case Study of Grant Thornton

5.1. Case Study

Founded in 2011, Grant Thornton is located in Beijing, China, and is a business service oriented firm with Managing Partner Huiqi Li, who is able to provide clients with a full range of high quality services in auditing, taxation, consulting, appraisal and valuation, and engineering management.

As a long-established accounting firm in China, Grant Thornton not only strictly requires itself in the control of audit risks, but also pays close attention to the technological changes of the times and has been using emerging technologies to improve audit quality and reduce audit risks since its establishment. With the advent of the data era, Grant Thornton also seizes the opportunity of the times and actively practices digital transformation to improve audit quality and control audit risk. Therefore, the case study of the impact of digital transformation on audit risk is of great value to other accounting firms.

5.2. Measures to reduce audit risk by digital transformation of Grant Thornton

5.2.1. Active use of big data technology to improve audit risk assessment

As we all know, risk assessment is an important audit procedure in audit activities, and it is a prerequisite for designing subsequent specific audit procedures. In traditional audit activities, risk assessment is done by CPAs through the implementation of inquiry, observation, inspection, analysis and other audit procedures, which is subjective in nature. A minor deviations has a huge impact on subsequent audit activities, and therefore there is a possibility of increased audit risk. By actively utilizing Big Data technology, Grant Thornton is able to gain a comprehensive and timely understanding of the business environment and the level of performance of the audited entity and improve the implementation of risk assessment procedures. Compared with traditional auditing, Big Data can handle more comprehensive audit data, make more accurate analysis, and have a clearer grasp of the company's daily operations and management. Auditors can also cross-check internal and external data to verify its authenticity, identify audit risks more accurately, and improve the efficiency of risk assessment procedures. As the digital economy grows, so does the digital transformation of the audited entity. The integration and digitization of audit data helps accounting firms to collect and analyze large amounts of financial data in order to respond to the changing business models of the audited entity. In the era of digital economy, the requirements for audit entities are gradually increasing, and accounting firms should accelerate the pace of digital transformation, strengthen internal information construction, and improve their big data analysis capabilities, so that they can better

understand the business model and business model of the audited entity through data, identify potential risk points in the operation process, and more effectively identify and assess the risk of the audited entity.

5.2.2. Establishing a digital correspondence center to reduce the risk of fraud

External confirmation is a very important audit procedure in audit activities, and since CPAs obtain written responses directly from third parties as audit evidence, the possibility of favoritism and fraud is likely to exist. To avoid this risk as much as possible, Grant Thornton established the external confirmations Center as early as 2018, with the aim of improving the security, reliability and effectiveness of the correspondence procedure and reducing the possibility of audit failure. After years of development, the external confirmations Center has standardized the electronic archiving of external confirmations and achieved comprehensive business functions. Nowadays, the external confirmation process of Grant Thornton is basically digitalized, which includes the preparation of external confirmation data, issuance of external confirmation, receipt of external confirmation, comparison and analysis, and collection of external confirmation. Grant Thornton also manage the external confirmation process at the firm level rather than on a project basis, which not only improves management efficiency, but also enables us to identify problems with various types of external confirmation in a timely manner. Grant Thornton have been actively developing data software to manage the external confirmation center, and want to visualize the data related to external confirmation, so that all kinds of graphical data can be clearly displayed in the data column of the platform, and the project team can have a clear understanding of the stage of external confirmation, and timely identify the problems in the external confirmation process. Due to the high incidence of fraud in the external confirmation process, Grant Thornton actively uses digital technology to retrieve signs of fraud and thus improve the quality of the external confirmation process. A common means of detecting fraudulent external confirmation is by comparing the return address with the address provided by the audited entity to check the reliability of the return. In addition, Grant Thornton use technologies such as watermarking and blockchain to detect the authenticity of external confirmation. When building the e-Confidence Center, Grant Thornton focuses on the coordination and cooperation of multiple parties, treats all aspects of the external confirmation with care, and tracks the content of each external confirmation node in the whole process, which fully improves the reliability and validity of the external confirmation procedure. At the same time, Grant Thornton also actively researched the iterations of electronic external confirmation technology updates and continuously optimized the external confirmation technology to avoid problems such as stealing and tampering during the external confirmation process.

5.2.3. Establishing an annual report analysis system to gain an in-depth understanding of business risks

Grant Thornton initially established an annual report analysis system as early as 2018, which automates activities such as key data extraction and annual report text information collation in the analysis of listed companies' annual reports. The annual report analysis system of Grant Thornton is fully functional and user-friendly, while contains more than 20 kinds of topics, which can realize the interconnection of data. Users can select different topics according to their needs and

search for the precise information they need. When carrying out audit operations, Grant Thornton's annual report analysis system enables a comprehensive understanding of the audited entity's operations, makes it easy to identify high-risk areas where material misstatements may exist, highlights audit priorities, and gives more accurate judgments through detailed analysis of areas where material misstatements may occur. It can realize the rational use of audit resources and guarantee the efficiency and quality of audit work. Due to the fierce competition in the audit industry, firms must take into account the principle of cost-effectiveness to complete the audit work efficiently on the basis of cost and time control, which requires the rational deployment of limited audit resources. With its developed annual report analysis system to accurately obtain the required audit information, to efficiently identify high-risk areas in the daily production and operation activities of the audited entity, and to focus audit resources on these areas to reduce audit risk.

5.2.4. Intelligent audit operations to reduce the risk of manual operations

Grant Thornton have developed and established an intelligent firm management system for large amount of data interconnection and interoperability, which enables large amount of data data interconnection and interoperability, improving the firm's data processing capability and the efficiency of internal information management. Grant Thornton have also created a new audit operation system, which enables the integration of the audit operation process with digital tools and improves the overall digitalization of audit work. The post-epidemic era has accelerated the change of auditors' working mode, and the remote audit mode has been widely used. By creating an internal audit operation system that allows the entire audit business process to be displayed online, Grant Thornton's leadership can clearly understand the resource allocation of different audit segments, which helps coordinate the audit progress of different operation groups and flexibly deploy audit resources according to the issues identified during the audit process. Grant Thornton's intelligent audit system strengthens internal control and largely facilitates the efficiency of communication management among different departments. It also reduces operational risk, mainly by automatically determining whether the data is correctly formatted and whether the amounts are reasonable when auditors enter financial data, which helps to reduce operational risk and also helps to reduce the workload of post-checking and rework. By establishing an intelligent auditing platform, Cotion has improved its quality control and risk alerting to a great extent. The intelligence of Grant Thornton's audit operations has greatly improved communication and management efficiency within the firm, keeping project team members informed of project progress and improving the utilization of audit resources by sharing audit resources among all staff members through the use of intelligent audit systems.

In general, Grant Thornton keeps up with the development of the times and actively practices digital transformation, integrating audit work with digital technology and effectively preventing fraud in the audit process and reducing audit risks to a large extent through digital measures such as big data retrieval, annual report analysis, risk assessment system and electronic external confirmation center. Therefore, through digital technology, Grant Thornton has also achieved the improvement of audit technology, communication and management efficiency, and the rational allocation of audit

resources, enhancing its competitiveness in the audit industry and achieving good development.

6. Suggested Measures for Digital Transformation of Accounting Firms

6.1. Sound digital audit rules and regulations and build a perfect supervision system

Based on the current unsound development of information technology in China and the unsynchronized and insufficient development of each region, the degree of promoting digital auditing varies greatly from region to region, but the differences in the reality of technology and the real needs of large and medium-sized enterprises cannot prevent the digital transformation of the auditing industry from being promoted nationwide. Therefore, the establishment of a complete and detailed set of digital audit regulations is crucial to promote the digital transformation of the audit industry and ensure its long-term development. Whether at the national level, industry level or at the enterprise level, it is reasonable to explore the problems in the process of building digital auditing in your own enterprise or to absorb the successful experience of other countries. At the same time, the development of the audit industry also needs the assistance of a complete supervision system, accounting firms need to build a special supervision team to supervise the workflow and staff engaged in digital auditing in all aspects, to ensure that there is no data inflow or data tampering, deletion, and reduce the impact of network security vulnerabilities on digital auditing.

6.2. Accounting firms "change to change"

From the first industrial revolution to the present, any change in the industry will go through a painful period, and the same applies to the digital transformation of the auditing industry, the initial exploration process is certainly painful and blind, but the digital transformation is the general trend, accounting firms should actively take measures to digital transformation. First of all, accounting firms can start the digital transformation plan in stages, first reform basic audit procedures such as collecting audit evidence and organizing audit data, the initial liberation of the auditors, the initial transformation of the audit work, the resulting small changes to improve the audit efficiency of accounting firms, less audit costs; second, the initial digital transformation on the basis of the success of the use of savings in human and material resources for Further digital transformation, including cooperation with big data platforms, purchase or exchange audit data with other accounting firms to achieve the initial digitalization of the audit process, freeing up the auditors have extra time, which can be used to re-training, so that the auditors have the ability to use big data analysis tools; finally, on the premise that digital transformation brings partial benefits to the enterprise, in-depth reform is carried out, including the purchase of equipment and facilities needed for digital auditing and the construction of a big data analysis cloud platform, which is the most critical step for accounting firms to fully enter into digital auditing, and having their own big data analysis platform or cooperating with other accounting firms to build a fully integrated big data analysis platform marks the final completion of digital transformation.

6.3. Building a cloud platform for small and medium-sized accounting firms

The construction of a cloud platform can simultaneously connect several small and medium-sized accounting firms with different needs and interdependencies, and provide a platform for mutual communication between the subjects and objects of services, so as to promote interaction and matching between different groups and meet their different needs; based on the interactive properties of the cloud platform, different groups can fully express their needs and rely on the data collection and analysis functions of the platform to Based on the economic advantages brought by the cloud platform, it is important to combine the cloud platform in the supply and demand of accounting firms and enterprises. First of all, the introduction of the existing domestic market data of client resources into the cloud platform can to a certain extent eliminate the time and geographical restrictions of small and medium-sized accounting firms in business competition; secondly, the cloud platform can collect, store, process and analyze the market information with the help of big data technology; and share these data to other service subjects, which can reduce the information asymmetry of services; This can, to a certain extent, enhance the transparency of practice information as well as fee information of accounting firms, optimize the market competition model, and avoid vicious competition among firms to undercut prices and thus increase audit risks. Finally, the combination of cloud platform and big data technology can digitize the audit procedures of accounting firms, which can not only improve the efficiency of audit activities, but also use the cloud platform to conduct comprehensive and integrated analysis of data, thus reducing audit risks.

6.4. Develop digital auditor talent training program

With the rise of the digital economy, more and more accounting firms have increasing demand for digital talent; however, at present, China's big data talent is still in a very scarce stage, talent with both big data skills and auditing experience is even rarer Therefore, the audit industry wants to better develop digital audit must do a good job of talent training program and establish a set of CPA assessment system to adapt to the era of big data, through cooperation with data exchanges, re-education of existing CPAs to jointly train new talent to promote the development of the industry. Accounting firms should focus on cultivating the ideology as well as the mindset of auditors from the present moment. In the process of training, they should do so on a case-by-case basis, avoid wasting educational resources and cultivating homogeneous talents, and truly personalize the cultivation of talents, so as to cultivate a group of outstanding big data auditors who can adapt to the digital economy and lay the foundation for promoting the development of the auditing industry in the 21st century.

7. Conclusion

In this paper, we take Grant Thornton as a representative research object and dig deeper into its digital transformation measures. The study found that:

For the majority of accounting firms, the Big 4 have made slight achievements in the field of digital transformation and have begun to show results in their audit work; however, it is very difficult for small and medium-sized accounting firms.

On the one hand, they are trapped by the competitive quagmire, small and medium-sized accounting firms are already less profitable than large accounting firms under the malicious competition strategy of lowering audit fees, and the business model of small and medium-sized accounting firms. On the other hand, small and medium-sized accounting firms do not have enough talents to support the digital transformation because they are not as full as large accounting firms in terms of resources; and compared with large accounting firms, small and medium-sized accounting firms do not have enough big data resources to cooperate, so it is difficult for them to make achievements in digital audit. This paper provides an in-depth analysis of the advantages and disadvantages, and suggests that in order to promote digital transformation, accounting firms should first of all start with the training of talents and the updating of hardware facilities, with big data talent and hardware facilities is the basis for building a digital audit system; secondly, the establishment of digital audit rules and regulations should be strengthened, although digital audit is still in its infancy. But according to the actual situation or learn from the practical experience of other countries to improve digital audit rules and regulations is the most important to ensure the long-term and good development of digital audit; Finally, the construction of a reasonable and perfect supervision system is an important means of digital audit for self-improvement, digital auditing has just started and there will be many loopholes, and it is important to build a sound monitoring system for better digital transformation.

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