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Research on the Collaborative Governance Effect of Internal Audit and External Financial Audit in the Digital Transformation of Enterprises

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ABSTRACT
With the rapid development of digital economy, the digital transformation of enterprises has become an irreversible trend of the times. The wide application of emerging technologies such as cloud computing, big data and artificial intelligence has changed the business model of enterprises. In this context, audit work is undergoing profound changes from manual sampling to full data analysis, from regular inspection to real-time monitoring, from single financial audit to multi-dimensional risk management. The audit object has expanded from structured financial data to unstructured business data, and the audit method has changed from manual judgment to intelligent analysis, which makes the relatively independent internal audit and external financial audit have the pressure of transformation and upgrading, and also creates new possibilities for the collaborative governance of the two.

KEYWORDS
Enterprise digital Transformation; Internal audit; External financial audit; Synergetic governance effect

1 Introduction

At present, the academic research on audit collaborative governance under the background of digital transformation is still in the exploratory stage, and the relevant practical guidance needs to be improved. From a practical perspective, collaborative governance can effectively integrate audit resources, reduce the cost of repetitive work, improve the ability of risk identification, and create greater governance value for enterprises. From a theoretical perspective, this research helps to expand the connotation of audit theory, deepen the understanding of the evolution law of audit function in the digital environment, and provide an ideological basis for building a new audit paradigm to adapt to the digital economy era. This study aims to explore the implementation path of collaborative governance between internal audit and external financial audit in the process of digital transformation, and provide practical guidance for improving corporate governance efficiency.

2 Reality driven audit collaboration in the context of digital transformation

2.1 Data sharing and technical foundation improvement

Digital transformation reconstructs the enterprise data ecology and provides the underlying support for internal and external audit collaboration. Under the traditional audit mode, the internal audit department and the external accounting firm are separated due to the data barrier. There are often time differences and caliber differences between the operation data mastered by the internal audit and the financial reports relied on by the external audit, resulting in low audit efficiency. With the in-depth application of enterprise ERP, CRM and other systems, as well as the maturity of blockchain and API interface technology, real-time data sharing and cross validation can be achieved among audit entities. At the same time, the penetration of artificial intelligence technology further strengthens the collaborative ability. The machine learning model can carry out correlation analysis on the historical findings of internal and external audit, and automatically mark the high-risk areas. For example, a commercial bank uses natural language processing technology to analyze the abnormal description in the internal audit report, and intelligently generate the list of key points of external financial audit. Technical iteration is clearing up the physical boundary of collaboration, but it is necessary to be alert to the risk of trade secret disclosure caused by excessive data sharing, and require enterprises to establish a hierarchical authorization mechanism, such as only opening the hash value verification permission for core process parameters rather than the original data.

2.2 Diversification of governance needs and complexity of risks

The digital transformation of enterprises has spawned a new type of governance problem, which forces the audit collaboration from "passive response" to "active defense". On the one hand, the digital business scenario has significantly expanded the risk dimension. The traditional financial misstatement risk is intertwined with the emerging data security

risk, algorithm ethics risk, and cross-border compliance risk, which makes it difficult for a single audit entity to fully cover. On the other hand, stakeholders' requirements for governance transparency are increasing. Institutional investors are no longer satisfied with the standard unqualified report, but pay more attention to non-financial information such as ESG performance audit and carbon footprint data authenticity, and require collaborative innovation in methodology between internal and external audit. For example, a new energy vehicle enterprise mixed its internal ESG audit team with external assurance agencies to jointly develop a power battery recycling blockchain traceability system, so that the carbon emission data obtained dual certification and successfully passed the review of international green bond issuance. The evolution of governance needs means that collaboration is no longer a technical option but a necessity for survival. However, to balance the depth of collaboration and audit independence, we can ensure the objectivity of the cross validation process by introducing a third-party technical supervisor.

2.3 Convergence of internal and external audit objectives and demands for resource integration

Under the wave of digitalization, the functional boundaries of internal and external audit are gradually blurred, and the consistency of objectives promotes resource reconstruction. Traditional theory holds that internal audit focuses on operation improvement and external audit focuses on fair statements, but digital enterprises require both to serve sustainable value creation. For example, when the internal audit finds the abnormal growth of sales revenue in a region through customer portrait analysis, it needs to work with the external audit to determine whether the phenomenon is a market breakthrough or revenue fraud. This judgment depends on the sharing of user behavior logs and channel rebate data between the two parties. The convergence of goals leads to the economic demands of resource integration. The practice of a retail group shows that when carrying out digital audit alone, the internal audit team needs to repeatedly purchase the same big data analysis software as the external audit, and after establishing a collaborative platform, through the sharing of AI audit module and cloud storage resources. The deeper integration is reflected in the talent structure. PwC's survey in 2024 showed that the effectiveness of compound talents with certified information system auditors and CPA qualifications in collaborative projects was 1.8 times higher than those with a single qualification, prompting enterprises to integrate internal and external audit training systems. For example, a securities firm set up a "digital audit laboratory" and invited experts from accounting firms and internal risk control teams to discuss smart contract audit cases. The ultimate form of resource integration may be the "audit as a service" mode, that is, enterprises outsource some audit functions to a professional platform, which coordinates the dynamic allocation of internal and external audit resources, but this mode needs to solve the problems of responsibility division and quality control standardization.

3 The dilemma of collaborative governance between internal audit and external audit

3.1 System segmentation and unclear responsibility boundary

Although digital transformation provides technical possibilities for audit collaboration, institutional barriers are still the key bottleneck hindering in-depth collaboration. The internal audit of an enterprise is usually subordinate to the board of directors or the audit committee, which aims at risk control and process optimization, while the external audit is employed by shareholders, mainly to express opinions on the fairness of the financial statements. There is a natural separation between the legal responsibilities and the reporting path of the two. This institutional difference leads to the ambiguous definition of rights and responsibilities in the coordination process. For example, in the continuous audit scenario, whether the financial anomalies found by the internal audit through the real-time monitoring system should automatically trigger the adjustment of the external audit is currently lack of clear guidelines. The more complex contradiction is reflected in the cross-border audit scenario. When multinational enterprises use the shared service center mode, the internal audit may carry out digital inspection on overseas subsidiaries according to the group's unified standards, while the external audit needs to comply with local accounting standards. The two may have different judgments on the capitalization of the same r&d expense. Institutional friction is also reflected in the evaluation mechanism. Internal audit performance is often linked to cost savings, while external auditors are more inclined to control working hours under the pressure of audit fee competition, and the conflict of objectives makes data sharing become formalism. To solve this dilemma, it is necessary to promote the regulatory authorities to issue the guidance on Digital Collaborative audit, clarify the scope of cross inspection, the effectiveness of joint signature and dispute resolution mechanism, but the current auditing standards for certified public accountants and the internal auditing standards for enterprises have not yet formed a connecting frame.

3.2 Unbalanced application level of audit technology

The head enterprise and the four major accounting firms have deployed an intelligent audit platform, which can automatically analyze unstructured data and generate a risk map. However, the internal audit of a large number of small and medium-sized enterprises is still at the stage of manual reconciliation in Excel, which makes it difficult to match the collaborative interface due to poor technology. The technology imbalance is also reflected in the algorithm bias. When the external audit uses the machine learning model to screen abnormal transactions, its training data may not contain the industry-specific risk cases accumulated by the enterprise's internal audit. The deeper problem is the competition for technological sovereignty. Some enterprises worry that excessive reliance on SaaS tools provided by external audit will lead to the loss of control of core data. For example, a pharmaceutical group refuses to access the intelligent audit system of accounting firms and instead independently develops collaborative modules with intellectual property protection. However, the long development cycle makes the project fall into "digital lag". The third-party audit technology companies began to provide "technical translation" services, and the audit data of different standards were converted to the common format of the middle tier, but this compromise scheme also brought new risks of information loss in data conversion.

3.3 Weak foundation of collaboration willingness and trust

The essence of collaborative governance is the change of production relations, and the psychological defense line of stakeholders is often more difficult to break through than technical barriers. Due to the consideration of independence, the external audit institution is cautious about the digital evidence provided by the internal audit. The partner of an accounting firm admitted: "we must assume that the SQL query log submitted by the customer may be tampered, resulting in the need to re verify each data, which will increase the workload. " This lack of trust has institutional roots. When the SOX act forced the external audit to issue a separate opinion on internal control after the Enron incident, the accounting industry has formed a muscle memory of "maintaining professional suspicion with customers". The internal audit department of the enterprise also has a defensive mentality. The audit director of an energy enterprise revealed that "sharing all the audit drafts may expose our professional weaknesses and affect the Department's budget application." the trust crisis is more prominent in cross-border coordination. The internal audit of the German headquarters of a multinational car company refused to open the production system log to the external audit in China on the grounds that it was worried that the data would be exported in violation of the EU data protection regulations, although the data is very important for verifying inventory impairment.

4 Path analysis of improving audit collaborative governance effect

4.1 Establish audit collaboration mechanism and interface standards

The institutionalization of audit collaboration should start with the top-level design and build a unified rule framework to bridge the functional gap between internal and external audit. The core lies in the formulation of mandatory coordination criteria, clarifying the rights and responsibilities boundaries of both parties in terms of data sharing, risk sharing, joint reporting, etc., and avoiding buck passing caused by vague responsibilities. This framework should cover the audit plan coordination mechanism to ensure that the risk assessment results of internal audit can dynamically adjust the key areas of external audit. At the same time, external audit is required to refer to the operation insight of internal audit on key judgments to form a two-way feedback closed loop. At the technical level, it is necessary to promote the standardization of audit data interface, including data format, transmission protocol, authority classification, etc., to ensure the seamless connection between different systems. In addition, a collaborative quality evaluation system should be established to monitor collaborative effectiveness through quantitative indicators, and the evaluation results should be incorporated into the performance evaluation of audit institutions to form institutional constraints.

4.2 Building an intelligent audit sharing platform

Collaborative governance under the digital transformation depends on the technical carrier. The intelligent audit sharing platform can integrate internal and external audit resources and realize the deep integration of data, tools and knowledge. The platform should be designed with a modular architecture, which not only retains the proprietary data space of internal audit, but also opens the necessary interfaces for external audit. The platform should have the function of dynamic rights management, and automatically adjust the access rights according to the audit stage, data type and sensitivity level to avoid the compliance risk caused by excessive sharing. In terms of security architecture, it is necessary to adopt the zero trust model to continuously verify all access requests to ensure that even in the process of collaboration,

there will be no data leakage or unauthorized operation. The ultimate goal of the intelligent platform is to realize the "i.e. service" of audit resources, so that internal and external audits can call computing power, analysis models and industry benchmark data on demand, reduce the cost of repeated investment, and form a scale effect.

4.3 Promote the normalization of communication and consultation and joint audit mechanism

The essence of collaborative governance is a dynamic game involving multiple parties. It is necessary to reduce information asymmetry and trust deficit through institutionalized communication channels. The establishment of a normalized joint audit committee mechanism is a necessary path. The enterprise audit committee, the head of internal audit and the partners of external audit projects meet regularly to reach a consensus on issues such as major risk areas, audit resource allocation and technical standard alignment. The normalization of joint audit requires the design of flexible collaboration mode, and the use of differentiated collaboration strategies for different types of audit projects to avoid resource mismatch caused by "one size fits all". At the same time, it is necessary to build a dispute resolution mechanism. When there are differences in the judgment of the internal and external auditors on the same matter, the contradictions can be quickly resolved through the review of third-party experts or the predefined arbitration process, so as to prevent the collaborative process from stalling due to local disputes. The stability of the communication mechanism depends on the accumulation of long-term trust. Common cultural identity can be cultivated through the sharing of audit knowledge base and joint training, and the psychological defense line can be gradually eliminated.

4.4 Improve the compound ability of Auditors

The implementation of collaborative governance ultimately depends on the adaptation of human resources. The single skill structure of traditional auditors has been unable to meet the needs of digital collaboration. Within the enterprise, we should break the functional barriers between the audit department and the IT department, and cultivate interdisciplinary talents through job rotation and cross departmental project teams, so that they can understand the business logic behind the data architecture and accurately deliver technical requirements in collaboration. The career development path should also be adjusted accordingly, and new posts such as "collaborative audit expert" should be established to reward those members who have outstanding performance in cross team cooperation and form a positive incentive for ability upgrading. In addition, we should pay attention to the cultivation of ethical literacy. Auditors in a collaborative environment face more complex conflicts of interest. We should strengthen professional judgment through case teaching to ensure that technology empowerment will not erode the core value of audit independence.

5 Conclusion

The digital transformation of enterprises is reshaping the underlying logic of audit. The traditional clear-cut internal audit and external financial audit are gradually moving towards deep integration under the data drive. In this process, the functional boundary of audit has been redefined, from one-way supervision to dynamic co governance, and from static compliance to risk foresight. However, collaboration is not an unconditional integration, but to find a dynamic balance between efficiency and balance, transparency and confidentiality, automation and professional judgment. The future audit ecology may evolve into an open and rigorous network. Internal and external audits are both independent and closely coordinated, and work together to build a new governance paradigm suitable for the digital economy.

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