Study on the Coordinated Management System of Legal, Compliance, Internal Control, and Risk in the Context of Digital Intelligent Transformation

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Abstract. The coordinated management of corporate legal, compliance, internal control, and risk is not only an inevitable requirement of the policy environment but also an extension of the theoretical consistency among legal, compliance, internal control, and risk management. At the same time, digital intelligent transformation has provided new technological tools for corporate management and has also provided new directions for the collaboration between corporate legal, compliance, internal control, and risk. The corporate legal, compliance, internal control, and risk coordinated management system established in this paper is different from the existing cases where enterprises explore legal informatization or the collaboration between legal and compliance management. Instead, it relies on technological means and business foundations, focuses on the data value behind judicial case practices, compliance, internal control, and risk management. By aggregating and deeply exploring various important information in existing cases and compliance and internal control management practices, it identifies company management risk vulnerabilities and provides risk response plans through intelligent methods. It standardizes the company's business operations, avoids major risks, and ultimately achieves the goal of improving the company's management level, helping the company to develop better and faster.

Keywords: Digital Intelligence, Legal, Compliance Management, Internal Control, Risk Management.

1 Introduction

Corporate legal, compliance, internal control, and risk collaborative management refers to the establishment of an integrated management system that is deeply integrated and coordinated on the basis of originally independent legal management, compliance management, internal control, and risk management. This is also an important part of the corporate management system. With the development of big data and artificial

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intelligence technology, domestic and international explorations have been conducted on the application of artificial intelligence technology in corporate management. Savelka (2023) explored the capability of the pre-trained generative Transformer model (GPT) to semantically annotate legal texts in order to accomplish practical legal tasks such as contract review, statute investigation, and case law analysis. [1]Dhani et al. (2021) discussed the construction of a legal knowledge graph from court cases, judgments, and laws to achieve various applications such as question answering, document similarity, and search.[2] Xu Zitao (2022) explored a context-aware case matching and recommendation model (CASCMR). [3]However, these explorations of digital intelligent transformation only include technological upgrades and do not encompass changes in organizational culture, work methods, and business strategies. Due to the theoretical connections between corporate legal, compliance, internal control, and risk management, scholars at home and abroad have explored the relationships among the four. The academic community generally agrees that there is an integrated relationship between legal, compliance, internal control, and risk management. Matthew Leitch (2004) believed that there is no difference between risk management systems and internal control systems, as the concepts of the two gradually merge into one another with the continuous extension of their coverage.[4]Zhao Guo and Huang Rongbing (2007) believed that internal control and risk management share a unified goal, internal control is a necessary part of achieving risk management, and the enterprise's understanding and implementation of risk management are the driving force behind internal control. [5]Wang Xuhui (2013), through the study of the construction of an "internal control and risk management integration model" in Japanese enterprises, proposed strategies and suggestions for the integration of internal control and risk management.[6] Li Juan (2014) pointed out that effective internal control is the foundation of enterprise management of operational risk and compliance risk, and internal control, compliance risk management, and operational risk management should be integrated to improve the risk management system.[7] Luo Yuhan (2021) believes that corporate internal control should be integrated with external compliance management requirements to ensure the realization of corporate strategic goals. [8]However, the aforementioned studies lack research on the collaborative relationship between corporate legal, compliance, internal control, and risk management, and cannot coordinate the four to establish an effective management system.

2 The Necessity of Establishing a Corporate Legal, Compliance, Internal Control, and Risk Collaborative Management System under Digital Intelligent Transformation

2.1 Policy Requirements for the Development of Legal, Compliance, Internal Control, and Risk Collaborative Management

The State-owned Assets Supervision and Administration Commission (SASAC) has proposed new requirements for the collaborative management of legal affairs, compliance, internal control, and risk. The SASAC's "Opinions on Further Deepening the

Construction of Rule of Law in Central Enterprises" call for strengthened compliance management in key areas and the exploration of mechanisms for the collaborative operation of legal, compliance, internal control, and risk management to truly improve management efficiency. The "Central Enterprise Compliance Management Measures" explicitly require central enterprises to strengthen the interconnection of compliance management information systems with other information systems such as finance, investment, and procurement, achieving shared data usage and sharing. The "Central Enterprise Legal Dispute Case Management Measures" emphasize that promoting informatization, digitalization, and intelligentization is an important support for improving the quality and efficiency of case management work. Therefore, enterprises are required to establish a collaborative operation system for legal, compliance, internal control, and risk management through digital and intelligent means.

2.2 The Theoretical Foundation of Corporate Legal, Compliance, Internal Control, and Risk Management Has Consistency

From a theoretical and practical management perspective, there is a feasibility of collaboration between legal management, compliance management, internal control, and risk management in terms of management objectives and content.

Firstly, there is consistency in the objectives of legal, compliance, internal control, and risk management. Legal compliance management and internal control risk management are all oriented towards the strategic goals of the enterprise, with the purpose of promoting the realization of the enterprise's strategic objectives as the control objective. When conducting risk control, the relationship, impact, costs, and benefits between risk management activities, internal control measures, and the enterprise's strategic objectives need to be considered. Secondly, there is consistency in the processes and methods of legal, compliance, internal control, and risk management. The risk management process basically covers a series of processes such as risk identification, analysis, evaluation, early warning, and corresponding processes, as well as optimizing and improving the company's management systems and business processes based on the results of risk management, thereby enhancing the ability to prevent and control risks and ensuring the company's legal and compliant operations. Therefore, the integration of the four should be oriented towards risk management, based on compliance management as the bottom line, using internal control management as a means, legal management as a starting point, and corporate governance as the foundation, to establish an integrated comprehensive management system that combines the four management functions of law, compliance, risk, and internal control.

2.3 Digital Intelligence Provides Technical Tools for Corporate Legal, Compliance, Internal Control, and Risk Collaborative Management

Promoting high-quality development and empowering corporate management through informatization has become a new trend. Enhancing digital management capabilities has gradually become a new requirement in the compliance management policies of various enterprises. In the digital age, through means such as big data, the online

identification, analysis, evaluation, and prevention and control of law, compliance, internal control, and risk are realized, promoting the interconnection of legal affairs management systems with financial, property rights, investment, and other systems, and promoting the integration of business data and joint response to risk prevention, becoming a focus of corporate compliance management improvement. It is necessary to rely on big data technology to mine data value, with management improvement and business innovation as the purpose, and promote the improvement of corporate governance levels through the application of big data technology, and widely carry out data analysis and application. By building flexible and diverse risk identification application scenarios, risk control management is extended to business boundaries and data sources, promoting the gradual shift of risk control management to pre-event and ongoing management. By establishing an information system, the digital transformation of management work is promoted, achieving online management of risk control work such as risk information collection, risk identification, risk assessment, early warning prompts, problem rectification, and statistical analysis display.

Therefore, strengthening the collaborative management of law, compliance, internal control, and risk has become a new trend in corporate management improvement, and it is necessary to rely on digital intelligent tools to achieve the collaborative development of corporate legal management, compliance management, internal control management, and risk control management through organic coordination.

3 Case Study on Corporate Legal, Compliance, Internal Control, and Risk Collaborative Management

3.1 Existing Corporate Collaborative Management Construction Cases

Some companies have built their own legal, compliance, internal control, and risk control collaborative management information platforms, aiming to empower corporate management with digitalization.

- China Railway Materials Company Limited has included the information construction of legal compliance and risk management in the overall planning of the company's information construction, and has gradually improved the information management platform to provide technical support for the company's management decisions.
- State Development & Investment Corporation has included the legal compliance and risk management information system in the overall planning of the company's information construction, and has basically completed the planning of the company's risk management information system construction plan.[9]
- State Power Investment Corporation Limited focuses on business activities to achieve panoramic support. It carries out full-process risk closed-loop management in five typical application scenarios of business activities: corporate organization, investment projects, transaction activities, engineering construction, and management changes. [10]

- State Oil and Gas Pipeline Network Corporation Limited has included a smart legal affairs system, which integrates legal big data and artificial intelligence technology with legal affairs management to achieve a new generation of comprehensive legal affairs management informatization.
- China National Petroleum Corporation uses knowledge graph technology to analyze and calculate multi-dimensional data of enterprises, law firms, judges, and courts from a large number of case data, and analyzes and predicts the litigation risks of enterprises.[11]

3.2 Experience of Existing Corporate Collaborative Management Construction Cases

From the practice of some enterprises in carrying out the construction of digital collaborative management systems, it can be seen that the introduction of information and digital technology in the field of legal and compliance management is relatively mature at present, and some courts have also achieved whole-process management of cases and auxiliary decision-making for judgments through digital technology. By analyzing the cases involved by enterprises with artificial intelligence, it can help enterprises achieve early warning of legal risks.

At the same time, achieving collaborative management of corporate law, compliance, internal control, and risk is conducive to reducing the lack of coordination in management among different entities and businesses, optimizing management processes, reducing management links, achieving complementary advantages, providing overall solutions to problems, sharing and saving resources, and improving management efficiency.

3.3 Insufficiencies in Existing Corporate Collaborative Management Construction Cases

There is still a lack of technology in the existing corporate collaborative management system. The information construction of cases in domestic enterprises is more focused on case management and statistical analysis, while the intelligent operation functions based on artificial intelligence are relatively few. The information mined from cases is not rich enough, and the function of identifying legal risks through case analysis is relatively lacking, making it difficult to achieve the goal of rising from cases to management improvement from a technical perspective. To meet this requirement, data collaboration should be used as a means to focus on risk control and promote the organic collaboration of legal, compliance, internal control, and risk management work to form a joint force.

The optimization efforts of the existing corporate collaborative management system are insufficient. Under the digital intelligent transformation, the collaborative management system of enterprises has a direct promoting effect on the development of enterprises. However, from the current practice of enterprise construction, the overall optimization efforts are insufficient. Due to the insufficient optimization efforts of the corporate collaborative management system, the implementation of many legal, com-

pliance, internal control, and risk management works is very weak, leading to loose management and continuous problems, which are prone to generate management risks and have a negative impact on the development of enterprises.

The management methods established by the existing corporate collaborative management system are single. At this stage, most enterprises still adopt traditional management models, and the management methods are too single, which not only makes it difficult to ensure the orderly progress of the corporate collaborative management system but also lacks the ability to prevent and respond to risks. For example, some enterprises still do not use the collaborative management system when carrying out business, which is not in line with the new requirements brought by digital intelligent technology, and also means that the informatization level of the corporate collaborative management system is low.

4 Optimization Path for Corporate Legal, Compliance, Internal Control, and Risk Collaborative Management System

4.1 Overall Approach

In summary, in order to improve corporate management level and management efficiency, it is necessary to establish a corporate legal, compliance, internal control, and risk collaborative management system. Based on the integration of artificial intelligence technology methods such as deep learning, graph neural networks, knowledge graphs, and language models, with the main line of legal, compliance, internal control, and risk collaborative operation, the overall logic follows "event analysis - risk prevention and control - system improvement - compliance operation management." A four-level structure is built, including "preprocessing layer, analysis layer, response layer, and governance layer," which encompasses six modules: first, the enterprise case information processing module; second, the enterprise case intelligent clustering module; third, the enterprise case risk assessment module; fourth, the enterprise case auxiliary decision-making module; fifth, the enterprise system intelligent analysis module; and sixth, the enterprise case and risk situation panoramic analysis module. The specific structure is shown in Figure 1.

The functions that can be achieved by the six modules are as follows: first, to achieve deep information mining of risk events such as judicial cases and administrative law enforcement cases; second, to achieve in-depth analysis and intelligent recommendation of similar cases; third, to sort out and analyze risk lists of judicial cases and administrative law enforcement cases, identify risks, and use frequency algorithms for risk elements facing enterprises to reveal major legal risk points; fourth, to achieve intelligent recommendation of risk prevention and control measures and automatic generation of risk assessment reports; fifth, to link cases and risks through related systems, identify and intelligently compare internal and external systems, and truly implement risk prevention and control in system improvement; sixth, to combine the enterprise relationship graph to identify the business risk situation of various levels and units of the company and the business risk patterns of various divisions and regions,

and truly apply the experimental system to the study of enterprise risks and the improvement of operation management. By aggregating and deeply exploring various important information in existing risk events, discovering legal compliance risk loopholes in the company, and providing risk response plans through intelligent methods, corporate governance risk integration analysis is carried out, and the purpose of enhancing the company's legal, compliance, internal control, and risk prevention capabilities is ultimately achieved.

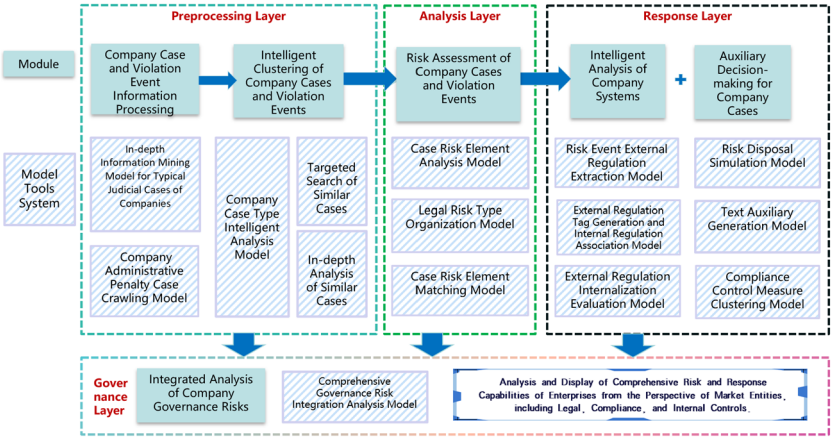

Fig. 1. Corporate Legal, Compliance, Internal Control, and Risk Collaborative Management System Architecture Diagram

4.2 Specific Functional Analysis

Case Risk Assessment Module. The case risk assessment module in the corporate collaborative management system categorizes risks into various types such as compliance, internal control, legal, safety production, finance, market, and integrity. Based on the analysis of case information and the classification of case types, a risk management checklist is established for the exploration of corporate case risks. Integrating various methods such as knowledge extraction, machine reading learning, and transfer learning, and combining theories such as the legal syllogism analysis method and legal relationship analysis method in judicial case analysis, a comprehensive understanding of the reasoning behind similar case judgments is achieved. This understanding is applied to in-depth excavation and evaluation of new cases.

Adhering to the basic concept of "integrating business with law," the analysis is ultimately implemented in the form of legal risk alerts and prevention recommendations for the company, proposing methods for legal risk discovery and response, as well as suggestions for system improvement. This approach standardizes the company's business operations, avoids significant legal risks, and promotes better and faster development of the company. A strategy ontology map for corporate case handling is constructed, and disposal strategy mining technology based on case elements is used to

address the current issue of underutilization of existing corporate cases. Based on case types, characteristics, and disputes, judicial case legal risks and their causes are accurately identified through large language models, that is, the management gaps and issues reflected by the cases, thus truly achieving "promoting management optimization through cases that have occurred."

Case Risk Assisted Decision-Making Module. Through functional modules such as risk response plan output, court debate simulation, judicial judgment analysis, compensation prediction, and legal document generation, comprehensive and full-process assisted decision-making for the risk disposal of litigation cases is formed. The company can make accurate assessments and disposal measures for potential risks and their subsequent responses at the early stage when a litigation event just emerges or is expected to enter the judicial process, avoiding further development and expansion of risks.

At the same time, by understanding the litigation risks and judicial basis of judicial cases from multiple dimensions, corporate managers can establish a more advanced understanding of corporate governance events and form a clear understanding of the elements and risk factors behind the events. Only by fully understanding the essence and connotation of case risks can the company formulate feasible risk management strategies and measures to prevent and control the occurrence of risks in advance. Intelligent decision support is achieved for law, compliance, internal control, and risk, effectively discovering and filling gaps in corporate management. A strategy map for corporate business handling is constructed, and a decision item list connecting law, compliance, internal control, and risk is established to ensure that any business action meets the company's management requirements. Decision-making scientificity and corporate management efficiency are achieved with the help of digital intelligent technology.

Corporate Legal, Compliance, Internal Control, and Risk Panoramic Analysis Module. The module analyzes and displays comprehensive risks in legal, compliance, and internal control for corporate risk governance, using market entities as dimensions. It employs knowledge graphs and perspective charts for multi-dimensional case analysis results presentation, analyzing the risk response capabilities of various units, and revealing the comprehensive risk situation of each level of units. Equity penetration tools are used to draw enterprise structures, and personalized analysis is conducted on the judicial cases, administrative penalty cases, risk situations, and system situations of each level and unit, achieving an aggregate analysis of law, compliance, internal control, and risk for each unit. Knowledge graph technology is used to draw portraits of significant risk matters in enterprises, and through a full life cycle penetration and 360-degree analysis dimension perspective, the aggregate analysis of law, compliance, internal control, and risk for each unit is visually processed to achieve comprehensive information presentation. Specific business analysis application scenarios are established, and a visual online evaluation and supervision platform is constructed to judge and analyze data from various business systems in multiple dimensions, achieving

dynamic tracking of problems and multi-dimensional display of evaluation and supervision results. The panoramic analysis module helps the company achieve functions such as online risk monitoring, information sharing, centralized management, and dynamic early warning, achieving robust and high-quality development of the company.

5 Conclusion

Optimization of the Corporate Legal, Compliance, Internal Control, and Risk Collaborative Management System under the Background of Digital Intelligent Transformation should establish a collaborative management system for legal, compliance, internal control, and risk. It should construct a four-level framework, including the "Preprocessing Layer, Analysis Layer, Response Layer, and Governance Layer," and encompass six modules: "Enterprise Case Information Processing Module," "Enterprise Case Intelligent Clustering Module," "Enterprise Case Risk Assessment Module," "Enterprise Case Assisted Decision-Making Module," "Enterprise System Intelligent Analysis Module," and "Enterprise Case and Risk Situation Panoramic Analysis Module."

Technically speaking, through the in-depth application of big data and artificial intelligence technologies, it enables data mining of massive corporate case information, accurately conducts risk assessment, achieves internal control, and enhances the level of corporate compliance management and risk control capabilities through risk assessment and early warning systems. In terms of application, it provides intelligent calculation tools for corporate governance, legal compliance, internal control, and risk control management, thereby improving the efficiency of corporate management. At the same time, it offers more intelligent practical management enhancement tools for legal, compliance, and risk management work, improving the data governance capabilities of legal affairs, risk control, and internal control, and enhancing the company's governance ability and the work efficiency of risk control and compliance.

References

1. Savelka, J. (2023). Unlocking Practical Applications in Legal Domain: Evaluation of GPT for Zero-Shot Semantic Annotation of Legal Texts. arXiv preprint arXiv:2305.04417.
2. "Dhani J S, Bhatt R, Ganesan B, et al. Similar cases recommendation using legal knowledge graphs[J]. arXiv preprint arXiv:2107.04771, 2021.
3. Xu Zitao, Huang BingSen, Pan WeiKe, et al. A Novel Context-Aware Similar Case Matching and Recommendation Method[J]. Journal of Taiyuan University of Technology, 2022, 53(01):80-88.
4. COCO.Enterprise Risk Management-Integrated Framework[R].2004.
5. Zhao Guo, Huang Rongbing. Relationship between Internal Control and Risk Management—From the Notion Evolvement Viewpoint[J]. Journal of Harbin Institute of Technology (Social Sciences Edition), 2007, 9(5):129-132.
6. Wang Xuhui, Shi Xian. The Integration of Internal Control and Risk Management: Japanese Policy Research and Enlightenment[J]. Finance and Accounting Learning, 2013(09):65-68.

7. Li Juan. A Study on the Relationship between Internal Control and Operational Risk and Compliance Risk Management of Commercial Banks in China [J]. Financial Management, 2014(04): 54-60.
8. Luo Yuhan. A Study on the Integration Path of Corporate Internal Control and Compliance Management Based on the Improvement of Management Efficiency [J]. Enterprise Reform and Management, 2021(17): 12-13.
9. Regulation Bureau, 2023. SDIC: Active Response and Comprehensive Implementation of the "Central Enterprise Compliance Management Measures". http://www.sasac.gov.cn/n4470048/n16518962/n20648677/n20648722/c27200765/content.html.
10. Qi Wenhua, Jiang Jinliang. Exploration and Practice of the Integrated Management Model of Law, Compliance, Internal Control, and Risk in Central Enterprises [J]. Enterprise Management, 2021, (S1): 186-187.
11. Dai Houliang, 2020. CNPC: Driving the High-Quality Development of the Oil and Gas Industry through Digital Transformation. http://www.sasac.gov.cn/n4470048/n13461446/n15927611/n15927638/n16135038/c16135615/content.html.

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