## The Application of Computer Technology in Corporate Governance in the Era of Big Data

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*Abstract:* - In the context of the "big data" era, how to introduce computer technology into corporate governance has become a hot topic. With the rapid development of information technology, the traditional corporate governance model that relies on manual management and supervision has brought new opportunities and challenges to corporate governance. This article explores the importance of applying computer technology to corporate governance, analyzes the problems existing in current enterprise operations, and analyzes the benefits of applying computer technology to enterprise management through a practical case study. I hope to provide theoretical support and practical guidance for enterprises to better utilize computer technology to improve their business conditions through the research of this project.

*Key-Words:* - Era of big data, computer technology, corporate governance, information construction, ERP system and benefit analysis.

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### **1** Introduction

In the era of big data, big data is the foundation for the survival and development of enterprises. In corporate governance, the use of computer technology can not only improve business efficiency but also help establish scientific and efficient management mechanisms, [1]. Therefore, studying the role of computer technology in corporate governance is particularly important. In the increasingly fierce market competition, enterprises urgently need to utilize various advanced technologies and methods to enhance their core competitiveness and sustainable development capabilities, [2]. The advancement of information technology enables enterprises to obtain more accurate and effective data analysis and decision support, bringing new vitality to their operations and management, [3].

## 2 The Value of Computer Technology for Corporate Governance

#### 2.1 Help to the Integration of Corporate Governance and Modern Technology

(1) Improve the operational efficiency of enterprises

With the development of information and digital technology, the governance structure of enterprises will face new challenges and opportunities. The development of modern science and technology has made corporate governance more perfect, [4]. For example, enterprises can utilize big data technology to collect, process, and analyze large amounts of business data in real time, thereby gaining a more comprehensive understanding of market conditions, customer needs, and competitive trends, and providing more support for company decision-making. Meanwhile, the application of new technologies such as cloud computing and artificial intelligence has optimized the business processes of enterprises, thereby improving their efficiency, [5].

(2) Improve the transparency of company operations The application of computer technology has made all aspects of business operations digitized and transparent. By establishing an information platform, enterprises can timely release information related to corporate governance, such as decisionmaking processes, execution results, supervision, etc. This helps stakeholders such as shareholders and investors understand relevant information and improve the transparency of corporate governance. This not only enhances the company's brand image and reputation but also strengthens investors' trust and support for the company.

(3) Corporate governance promotes innovative development

With the advancement of science and technology, the way enterprises operate is also changing, which has played a huge driving role in the transformation of enterprise management systems. By introducing new technologies and concepts, enterprises can explore suitable operating models based on their own characteristics. Among them, the distributed governance mechanism centered on blockchain and intelligent decision-making based on artificial intelligence are innovative applications of computer-based enterprise governance models. It can not only improve the operational efficiency of enterprises but also bring new competitive advantages and development opportunities to them, [6].

## 2.2 It is Conducive to the Construction of the Management System

(1) Realize the business digital management

introducing computer technology By and information systems, companies can transform traditional paper documents and manual operations into digital management. For example, adopting an ERP (Enterprise Resource Planning) system can integrate various business processes within the company, enabling real-time updates and sharing of data. This not only improves the transparency and controllability of management processes but also reduces the risk of human errors and information lag. Meanwhile, digital management also helps companies achieve refined management and personalized services. enhancing customer satisfaction and loyalty, [7].

#### (2) Promote information sharing and cooperation

With the advancement of science and technology, information isolation between various departments within enterprises is gradually being eliminated, and information exchange and sharing within enterprises has become possible. Then, establish a unified data platform and establish an information-sharing mechanism to enable departments to obtain necessary information in a timely manner, achieving collaborative work and resource sharing. Therefore, it can effectively improve work efficiency, enhance collaboration capabilities, reduce resource waste, and minimize repetitive labor to the greatest extent possible. Meanwhile, enterprises can also discover business opportunities and risks through information sharing, providing strong support for the company's operational decisions.

(3) Resource optimization allocation and auxiliary decision-making

The application of computer technology can enable enterprises to better understand their resources and market environment. By analyzing and mining big data, enterprises can more accurately evaluate and predict the resources they possess in order to better allocate them. At the same time, computer technology has become a powerful support for enterprise operation and management. For example, using predictive models and algorithms to analyze a company's market and risks, helps the company develop more robust and feasible strategies, [8].

## 3 Now the Company's Information Construction Work Problems

#### 3.1 Leaders Do Not Pay Enough Attention to the Construction of Computer Information Technology

Many Chinese companies have been producing in traditional modes for a long time, and their leaders have been accustomed to the traditional production methods for many years. However, the development of information technology in recent years has caught them off guard and prevented them from adapting in a timely manner. These leaders often lack sufficient attention construction of computer to the information technology and neglect the inspection and updating of the company's hardware facilities. This attitude has led to the inability of employees to effectively apply their computer skills to practical work, thereby affecting the development of the company. To achieve informatization construction, leaders need to adjust their thinking in a timely manner, realize the importance of informatization to the development of the company, attach importance to the maintenance and updating of hardware facilities, and actively promote technical training for employees to ensure that they can adapt to the needs of informatization development and provide stronger support for the company's development.

# 3.2 Insufficient Understanding of Information Technology

Many Chinese companies have long adopted traditional production models, and over the years, their leaders have also adapted to traditional production methods. However, in recent years, the rapid pace of information technology construction in Chinese enterprises has caught them off guard and made it difficult for them to adapt to this change. Enterprise leaders do not attach enough importance to enterprise informatization work and neglect the maintenance and upgrading of enterprise hardware equipment. This mentality hinders the practical application of computer skills by enterprise employees and seriously hinders the development of the enterprise. To achieve informatization, enterprises must change their thinking and fully recognize the important role of informatization in their development. Enterprises should strengthen the maintenance and upgrading of hardware equipment, enhance employee skills training, and make them compatible with the development of information technology. Only in this way can we better support the development of enterprises and promote their development towards informatization and modernization.

3.3 No Professional and Technical Personnel Many companies only focus on equipment configuration and neglect equipment maintenance and upkeep. Various problems in computer systems are handled by professional technicians who can monitor and optimize their workflow. Without the help of experts, companies cannot respond quickly, which may affect their production and operations. Therefore, recruiting a group of high-quality and skilled technical personnel is the key to ensuring the secure and reliable operation of information systems. They can ensure that the equipment runs well and perform repairs and maintenance as necessary to improve the production efficiency and quality of the enterprise, [9]. The personalized technical support can be provided according to the specific situation of the enterprise, thus laying a solid foundation for the informatization construction of the enterprise.

# **3.4 Lack of Information Exchange within the Company**

The company is composed of multiple departments, each with a certain degree of independence, resulting in a lack of information exchange between departments. This situation may be due to various reasons, such as competition between departments, poor communication channels, or a lack of crossdepartmental cooperation culture. This situation hinders the normal progress of the company's informationization work, as informationization requires cross-departmental collaboration and information sharing. In addition, each department of the company only focuses on the work within its own management scope, neglecting the overall interests, which also affects the company's work efficiency and overall development. Information technology can improve the level of information exchange within a company by establishing a unified information platform and communication channels, and promoting information sharing and collaboration between departments. This can minimize conflicts of interest between departments and improve the overall work efficiency and competitiveness of the company. Therefore. strengthening internal information exchange and collaboration within the company is the key to promoting information technology work, which requires active promotion and support from management personnel at all levels.

## 4 Specific Applications of Computer Technology in Corporate Governance

In the management of an enterprise, the first step is to analyze its own management situation. Secondly, it is necessary to analyze various aspects of the enterprise, such as material procurement, storage, and sales. In response to the problems identified in the analysis, corresponding measures should be actively taken, especially focusing on financial management to reasonably control the company's costs. Conditional enterprises can also enhance their management knowledge through company alliances, accumulate work experience in practice, and adopt corresponding management systems to comprehensively and systematically manage the enterprise. In the past, enterprise management required a large amount of manual review work, but with the advancement of technology, enterprises should now apply computer technology to data recording, statistics, and management work, which will greatly improve the efficiency of enterprise work. To promote the development of enterprise management work, it is necessary to not only do a good job in the construction of each management system but also adopt professional means to ensure that the various systems can be well connected to achieve the goal of improving work efficiency.

## 5 Computer, Information Technology in Corporate Governance Application Case

### 5.1 Company Overview

The company is a jointly restructured company with diverse manufacturing forms, including mechanical

processing, electronic assembly, and other processing forms. It requires an integrated workshop management system to track workshop progress in a timely manner. In fierce competition, G company must arm itself with information technology to meet complex business management characteristics and shake off the entanglement of competitors. In April 2015, G Company officially launched its ERP system. The UFIDA project implementation team successively dispatched three groups of professional personnel, including consulting and planning, software development, and system integration, to G company to start the project implementation work.

#### 5.2 Information Technology Solutions

In order to clearly illustrate the efficiency of G Company's business operations, a conceptual framework has been constructed, which is centered around the ERP system and closely connects the departments (including sales business and procurement), sales departments, and procurement departments. In this framework, the ERP system serves as a powerful technical support, ensuring the smooth operation of a series of business processes from receiving orders, shipping, and reconciliation procurement planning, and follow-up to procurement. Through this framework, readers can intuitively understand how ERP systems provide solid support for G Company's business operations. The implementation plan is shown in Figure 1.



Fig. 1: ERP manufacturing solution online module

In addition to supporting business operations, computer technology, especially ERP systems, has brought significant benefits to G Company in governance areas such as compliance, corporate social responsibility, and risk management. In terms of compliance, ERP systems can automate regulatory checks to ensure the legality of business operations. At the level of social responsibility, the system helps G company track and manage the environmental and social impacts in its supply chain, promoting sustainable development. In addition, the data analysis capability of the ERP system enables G company to accurately identify and manage potential risks, and develop effective risk management strategies, [10]. These contributions collectively constitute an important component of G Company's comprehensive governance system.

#### 5.3 Benefit Analysis

As shown in Table 1 (Appendix), by applying the UFIDA ERP system for business process reengineering and redesigning the processes of shipment and intermediate warehouse management. company's intermediate warehouse G has strengthened management, making the supply chain flow involving business, warehouse, intermediate warehouse, finance, and customers smoother, with clearer job responsibilities between various functions, and clearer inventory and financial accounting. In terms of production and sales coordination, through the application of production and sales management and demand planning, the ERP system can automatically merge and offset forecasts and orders. This way, salespeople and production management departments can more accurately grasp the correlation between customer demand planning and real orders, and streamline the production workflow between and sales coordination. The customer's temporary order insertion should use ATP data as an indicator of whether to accept the order. By utilizing ERP functions, a significant amount of calculation and verification work has been saved, improving work efficiency. This not only comprehensively controls the supply of materials in the factory, but also greatly reduces the occurrence of abnormal situations such as downtime and material holding. In terms of planning function, on the one hand, planners use automatic planning function to develop feasible supply plans, and on the other hand, through planning simulation function, they can understand possible problems in advance and adjust and handle them in a timely manner.

Monthly indirect loss reduction value = monthly indirect loss before application - monthly indirect loss after application = 70,000 yuan - 0 yuan = 70,000 yuan Inventory accuracy improvement ratio

- = (post application inventory accuracy pre
- application inventory accuracy) / pre
- application inventory accuracy 100%

= (98% - 90%) / 90% 100% 8.89%

- The proportion of order processing time reduction
- = (pre application order processing time
- post
- application order processing time) / pre
- application order processing time 100%
- = (24 hours 12 hours) / 24 hours 100%
- = 50%

Increase proportion of customer satisfaction

- = (post application customer satisfaction
- pre application customer satisfaction) / pre
- application customer satisfaction 100%
- = (95% 80%) / 80% 100% = 18.75%

As shown in Table 2 (Appendix), by applying the ERP system, G company's inventory turnover period has been shortened by 10 days, and monthly indirect losses have been reduced by 70000 yuan. In addition, key indicators such as inventory accuracy, order processing time, and customer satisfaction have also been significantly improved. These improvements not only enhance the operational efficiency of the company but also bring significant economic and social benefits to the company.

#### 5.4 Economic Analysis

As shown in Appendix in Table 3 and Table 4, in the testing instrument industry, the "inventory depreciation rate" is about one ten-thousandth, which means that for accessory inventory worth 1000 yuan, the daily loss is 0.1 yuan, and if there are 10 days of turnover delay per month, the loss rate is 0.1%. Based on G Company's revenue exceeding 30 million yuan in 2015, its indirect loss in revenue is approximately 70000 yuan. Through the application of the ERP system, the inventory turnover period of the company has been reduced from the industry average of 30 days to 20 days, leading the average inventory turnover period of the same industry by 10 days. This is enough to enable G company to outperform its competitors on the same starting line and save about 70000 yuan in indirect losses per month.

#### 6 Conclusion

With the advent of the era of big data, the ways and means of corporate governance are undergoing unprecedented changes. Big data and related technologies will be more widely integrated into and profoundly affect all aspects of corporate governance. By significantly improving the intensity of information, enterprises can more fully tap and utilize the powerful advantages of computer technology, which is not only reflected in the substantial improvement of management efficiency but also profoundly affects the optimal allocation of resources and the effective reduction of operating Specifically, a highly informationized costs. management system can help enterprises to realize the intelligent decision-making process, process management automation, and instant information exchange, thus fundamentally enhancing enterprise competitiveness, occupying core а more advantageous position in the fierce market competition, winning more market share and the trust of consumers. At the same time, in order to ensure the smooth promotion and efficient implementation of enterprise informatization work, enterprises also need to attach great importance to the training and learning of computer technology. This includes but is not limited to regularly organizing employees to attend professional information technology training courses, inviting experts in the industry to give lectures and exchanges, and encouraging employees to use their spare time to master the latest computer technology trends and application skills. Through these measures, the information literacy and computer technology application ability of employees can be significantly improved, and a solid talent guarantee can be provided for the information construction of enterprises. With the continuous and rapid development of information technology, the management level of enterprises is also steadily improving, which is not only reflected in the fluency and efficiency of daily operations but also reflected in the enterprise's keen insight and rapid response ability to market changes. It will further transform it into the economic benefits and social benefits of the enterprise, promote the sustainable development of the enterprise, and contribute greater strength to the prosperity and progress of the society.

#### Declaration of Generative AI and AI-assisted Technologies in the Writing Process

The authors wrote, reviewed and edited the content as needed and they have not utilised articial itelligence tools. The authors take full responsibility for the content of the publication.

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#### **Conflict of Interest**

The authors have no conflicts of interest to declare

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### APPENDIX

Table 1. G Benefit-sharing of G Company				
Performance Indicator	Before Application	Post-Application Situation	Improve the Value	
Inventory Turnover Period (Days)	30	20	-10	
Indirect Loss (Ten Thousand Yuan)	7	0	-7	
Inventory Accuracy Increase Ratio	90%	98%	+8%	
Order Processing Time Reduction Proportion	24 Hours	12 Hours	-50%	
The Proportion of Customer Satisfaction to Increase	80%	95%	+15%	

### Table 2. Comparison of benefit indicators before and after ERP system application of G company

Benefit Indicators	Pre-Application Situation (Sample Mean)	Post Application Situation (Sample Mean)	Sample Size	Improve The Value
Inventory Turnover Period (Days)	30	20	12	-10
Monthly Indirect Losses (In 10000 Yuan)	7	0.5	12	-6.5
Improvement Rate of Inventory Accuracy	90%	98%	12	+8%
Order Processing Time (Hours)	24	12	12	-12
Customer Satisfaction (%)	80	95	500	+15

#### Table 3. Comparison of economic benefits before and after application of ERP system

Before the Application	P.A	Improve the Value
30	20	-10
7	0	-7
84	0	-84
	Before the Application 30 7 84	Before the ApplicationP.A302070840

#### Table 4. Company Comparison of economic benefits before and after the application of ERP system

Project	Before Application	After Application	Improve the Value
Inventory Turnover Period (Days)	30	20	-10
Monthly Indirect Losses (In 10000 Yuan)	7	0	-7
Annual Indirect Loss (RMB 10000)	84	0	-84