On the Research of Internal Control Informatization Construction of University Procurement Department from the Perspective of BD

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Abstract: At present, the rapid development of information technology related to big data (Abbreviation:BD) has brought new features and changes to the internal control management of all units and organizations, which has led to major changes in the elements involved in internal control, and related aspects of internal control system in colleges and universities will also face great changes. The reasons are, on the one hand, various problems in the existing internal control system of colleges and universities, and on the other hand, internal control changes caused by BD technology. Moreover, under the impetus of the era of BD, information technology has been widely integrated into the work of colleges and universities. Therefore, internal control personnel should build an internal control scheme based on information plan, constantly adjust the existing audit mode and control area, and promote the efficient development of colleges and universities in the process of audit informatization. Starting with the definition of BD and the status quo of internal control in colleges and universities, this paper analyzes the influence of BD on internal control in colleges and universities, and expounds its specific applications in supplier management, centralized management of reagents and consumables, procurement and management of large instruments and equipment, scientific research management and salary management, etc. It also puts forward some countermeasures and suggestions to deal with BD risks, such as establishing BD awareness, strengthening the construction of hardware and software systems, and improving the supervision mechanism.

1. Introduction

The modern information society has entered the era of BD, and BD technology has developed rapidly. How to effectively use BD technology to help the development of the industry has become the direction of modern economic development. College procurement informatization is an innovation of College procurement management mode, while the traditional college procurement accounting is only limited to the accounting of the closed procurement department within the procurement department, which is not conducive to the data exchange of various departments and has low work efficiency [1]. At present, the rapid development of BD related information technology has brought new features and changes to the internal control management of all units and organizations, resulting in significant changes in the elements involved in internal control, and the relevant aspects of the internal control system of colleges and universities will also face great changes. On the one hand, there are various problems in the existing internal control system of colleges and universities, on the other hand, there are changes in internal control caused by BD technology. As a field with high requirements for informatization level, the management of University procurement department itself depends more on data resources and information technology. The advent of BD era puts forward higher requirements for the internal control of University procurement department management. Integrating BD with university internal control and creating an informatization internal control mode has become a necessary measure to optimize university internal control in the new era [2-3].

Good internal control mechanism is the basic condition for coordinating economic behavior, controlling economic activities, ensuring the safety and integrity of economic resources and correct and reliable information. To establish an effective internal control mechanism, it is necessary to collect accurate economic behavior data, form the mutual restriction relationship between the control and management division of the procurement department, and realize the standardization of internal

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control functions, Form a complete accounting control and management control system [4]. Moreover, driven by the era of BD, information technology has been widely integrated into the work of colleges and universities, so internal auditors should build information plan audit scheme, constantly adjust the existing audit mode, and promote the efficient development of colleges and universities in the process of audit informatization [5]. Therefore, inter control personnel should constantly master more comprehensive information analysis technology, control the information situation of all links of audit, so as to ensure that the effect of information can be effectively played and the audit work can be carried out efficiently. However, with the deepening of the informatization of the procurement department and the advent of the era of BD, the internal control of the procurement department of colleges and universities has gradually become a critical issue. How to establish an effective internal control system of the procurement department and build a perfect internal control system of the procurement department is one of the important links in the work of the procurement department of colleges and universities [6].

2. Connotation and Characteristics of BD Era

2.1 The concept of BD

BD not only changes people's life and work style, but also leads to the change of internal governance of the unit. At present, there is still no accepted and unified definition of BD, and different institutions have different understandings of it, but they all emphasize the huge and complex data [7]. Compared with traditional data collection, BD has the characteristics of super-capacity, super-speed, super-variety, etc. Traditional data tools and software can no longer meet the requirements of BD processing, and special technologies such as cloud computing are needed to meet the requirements of massive, high-speed, changeable and complex data processing. Infrastructure based on data calculation and interaction, basic data mining integration platform, statistical analysis platform, database operation professional team, etc. [8-9]. First, build a data warehouse, strengthen the integrated storage of unstructured data, and improve the data processing ability; The second is to strengthen the support of various businesses in colleges and universities for basic data and enhance the ability of collecting external data; Third, realize the automatic generation of all kinds of report data in colleges and universities, dig and analyze data deeply, and promote the connection with all kinds of new Internet technologies; Fourth, strengthen the construction of data service team and improve data analysis ability. In this paper, the concept of BD is summarized into three aspects: first, BD has a large data volume, which can meet the requirements of users in all aspects; Second, the processing process of BD is complicated, which requires the use of information technology such as data warehouse. Third, the conclusions drawn from BD analysis are universal and can reflect the actual situation, so as to make the best decision. The key of BD technology lies in the professional processing of BD, obtaining effective information from data processing, realizing the value-added of data through processing, forming a BD industry and becoming an important data information source for all walks of life to make strategic decisions [10].

2.2 Development trend of BD

With the development of BD industry, data analysis, data source and data security are also developing together. At present, China's data application has gradually expanded in many industries such as finance, telecommunications, government affairs, medical treatment, new energy and so on. Obviously different from the internal control of enterprises, the internal control of colleges and universities adheres to the goal of serving the talent training of colleges and universities, and manages and controls various economic activities around the relevant educational and teaching behaviors such as school teaching, scientific research and administrative management. Using database, cloud computing and other computer information technologies, build a more intelligent and efficient internal control information processing system, and realize the informatization of data in the basic accounting process, financial optimization process and management decision-making process. The rise of BD technology can realize synchronous information sharing and real-time intelligent

collection, and make it a reality to form a standardized and shared information management system between different departments. BD further expands the scope of internal control. For all departments of the school, an internal control mechanism can be formed. The connotation of financial internal control extends from traditional "human control" and "system control" to "network control" and "information control". Based on the era background of BD, it is an inevitable trend for colleges and universities to gradually integrate it into internal control. With the healthy development of the BD era, diversified information technology has been widely integrated into all walks of life. In the process of actually carrying out internal control and audit in Colleges and universities, we should pay more attention to information construction, appropriately use advanced technology to enhance the speed of audit data processing, and appropriately use network computer technology to ensure the accuracy of audit and improve audit efficiency. The acquisition, understanding and management of data should be able to meet the requirements of various types of data mining integration and effective application. First, determine the data integration object, clearly define the internal control risk points of relevant businesses, and determine the data mining objectives; Second, integrate internal data and enrich the information content of internal traditional databases, such as financial data, human resources data, asset data, teaching and scientific research data, learning and engineering system data, etc; Third, integrate external data and expand external dynamic, real-time and useful BD, such as Internet public data, education system data, government system data, domestic and foreign university platform data, education service platform data, etc.

3. Build a BD application system. New internal control mode of service informatization

3.1 Building data warehouse in colleges and universities to meet the demand of information internal control for data

As the core of BD application infrastructure, data warehouse plays an important role in meeting the needs of university internal control and university management decisions. Data warehouse should have the characteristics of integrity, timeliness, integration, stability, dynamics and sharing. Through the establishment of data warehouse, colleges and universities can accurately grasp data, process control, provide support for data mining and management decision-making, and then become the data source and implementation subject of information-based internal control. BD provides a reliable data source for the informatization of internal control in colleges and universities. By sharing BD through information technology, internal control sinks, thus permeating into various management and operational activities in colleges and universities. Through the functions of database operation, data mining, statistical analysis and automatic generation of various reports, useful data can be provided for the decision-making of the leadership. The structural diagram of the platform is shown in Figure 1.
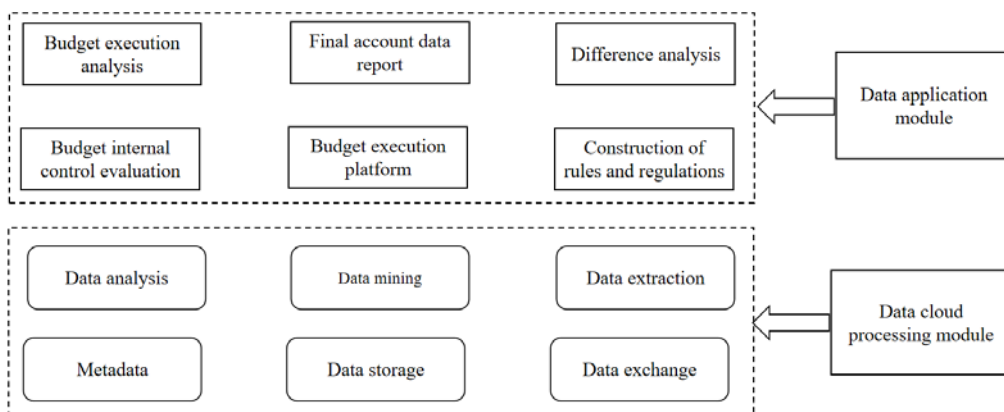

Figure 1 Structure of internal control management platform

When collecting the basic data formed by the operation cost of colleges and universities, it is divided into different financial data acquisition modules such as salary, experimental equipment, experimental reagent consumables, scientific research funds and asset depreciation according to the

different rights and obligations of each department. Through the BD analysis and mining of the cloud platform, the current situation of the internal control of the unit can be reflected in real time, evaluated and analyzed, and the budget analysis report can be formed The difference analysis report [3] timely finds the problems at different levels, makes targeted analysis for the problems found, puts forward methods and ways to improve the efficiency of internal control, and timely updates and promulgates sound rules and regulations, so as to establish an internal control system of colleges and Universities Based on control effect. Establish the architecture, determine strict design principles based on the system expansion and performance optimization requirements of data warehouse, reasonably divide relevant levels, and scientifically define the functions of relevant module interfaces. Control activities are controlled according to the nodes of the business process. The control objects include the whole process of university business management. The application of information technology and BD subverts the way of business control activities and enriches the content of control activities. Design the data model, rely on the data analysis results and data standards, build the data logical model and physical model, establish the mapping relationship, and plan the corresponding data model from the aspects of institutions, personnel, teaching, finance, assets, code and so on.

3.2 Based on the data application system, build an information internal control evaluation and supervision system

Through BD, the data systems in every corner of colleges and universities are integrated into a platform to realize the informatization of internal control framework system in colleges and universities. At the same time, through BD governance, various subjective operational risks are reduced and objective, true and complete data information is provided. Finally, the informatization of internal control in colleges and universities is realized through information technology and its efficiency is greatly improved. The application of BD makes it possible to intelligentize and improve the flexibility of control activities. Intelligent use of massive data can reduce the human error rate of control activities, flexible use of all-round data, timely analysis and timely correction can enhance management effectiveness. To put it simply, it is to reshape an information-based internal control framework of colleges and universities through the data system governance theory. The framework system needs a strong executive body similar to the "data committee" and its function setting should be equivalent to that of the "internal control committee" in the traditional internal control framework, so as to ensure the smooth implementation of internal control-related activities. Simply put, the internal control framework system of university purchasing department based on BD is shown in Figure 2.
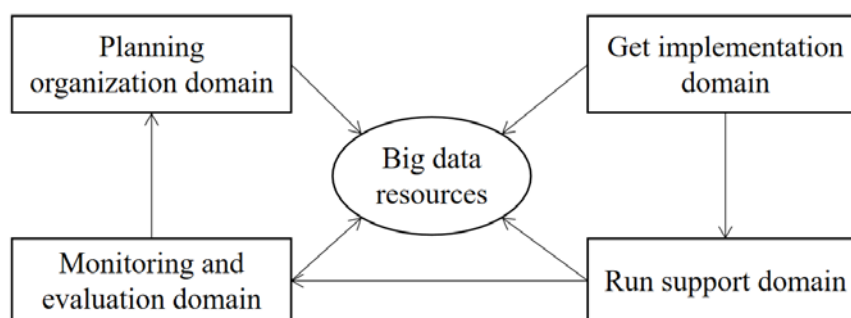

Figure 2 Internal control framework system of University procurement department based on BD

The information-based internal control evaluation and supervision system includes internal control risk discovery and feedback system and internal control result assessment and evaluation system. Its purpose is to test the effectiveness and soundness of the information-based internal control system. For the information-based internal control framework of colleges and universities, the core content is all kinds of data information. Its authenticity, reliability and effectiveness are the basic guarantee for the smooth implementation of internal control. Specifically, the four domains closely related to internal control under BD governance are: planning organization domain, acquisition and implementation domain, operation support domain and monitoring and evaluation domain.

4. Conclusions

All in all, under the background of stable development in the information age, if the informatization construction of university audit work is to be carried out smoothly and properly integrated into internal control, it can not only ensure the accuracy of various data and information, but also ensure the fairness and standardization of audit work, solve the problems faced by traditional audit work and maximize the effect of informatization construction. BD technology enriches the connotation of internal control in colleges and universities, and also provides a new means to solve the existing problems of internal control in colleges and universities. Internal control is a huge systematic project. Through the application of BD, through the analysis and practice of the effect research of internal control, we can enjoy an all-round information-based internal control and supervision system, improve the pertinence and effectiveness of internal control by using BD information analysis, and realize the automation level of internal control and supervision data. Colleges and universities should seize the opportunity, strengthen the application of BD technology, improve the system construction, improve the quality of internal control in colleges and universities, and then improve the management efficiency and comprehensive management level of colleges and universities. Based on the era background of BD, colleges and universities must conform to the development trend of BD, fully tap and utilize the value of BD, and provide support for management, so as to promote the digitalization, scientification and rationality of internal control in colleges and universities.

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