

Research on the Informatization of Fixed Asset Management in Universities

Dejuan Liu

School of Yancheng Teachers University, Yancheng 224007, China

Abstract

Higher education institutions play a crucial role in cultivating high-quality talent for society, and fixed assets are the essential hardware foundation for advancing teaching, research activities, and school and educational management. With the expansion of universities, the scale of their fixed assets has also continuously grown, necessitating a shift in the management model of fixed assets. The era of big data offers new methods and approaches for managing these assets. This paper focuses on the informatization of fixed asset management in universities, set against the backdrop of the big data era. It outlines the necessity and advantages of efficient informatized management and, based on the current challenges in managing fixed assets in Chinese universities under big data, proposes corresponding strategies. The aim is to provide insights and references for improving the efficiency of fixed asset management in higher education institutions.

Keywords

Universities; State-owned Assets; Informatization Management.

1. Introduction

With the rapid development of information technology, big data has been widely applied across various industries. As important research and educational hubs, universities face a particularly critical need for effective fixed asset management. The types of fixed assets in universities are diverse, including teaching equipment, research instruments, office devices, and more. Traditional methods of fixed asset management have problems such as data silos, information asymmetry, and low management efficiency. The advent of the big data era brings transformative opportunities for managing fixed assets in universities. Through the collection, storage, analysis, and forecasting of big data, asset management processes can be optimized, asset utilization efficiency can be improved, and management costs can be reduced.

1.1. Necessity and Importance of Strengthening Informatization in University Fixed Asset Management.

Fixed assets serve as the foundation for the construction and development of universities, as well as for the educational activities of teachers. In today's social context, a university's fixed assets determine its development foundation and potential. Therefore, managing fixed assets effectively has become a critical point for universities to drive their growth. Analyzing the current development situation of universities in China, the necessity of enhancing the informatization of fixed asset management can be understood from two key perspectives.

First, it is the need to improve the university's competitive level. In the current social environment, the rapid development of modern educational technology has increased the competitive pressure on universities. To enhance their development, universities need to leverage various resources, including teaching resources, to strengthen their competitive advantages and ensure long-term, stable growth. Fixed assets are a crucial component of a university's teaching resources and directly influence teaching quality and standards. However, there are still shortcomings in the procurement of fixed assets in universities, leading to various

issues such as inefficiencies in asset allocation, and resulting in wastage of resources. Informatization of asset management integrates all fixed assets into a unified management system, allowing for scientific and standardized management. By implementing informatized fixed asset management, universities can avoid redundant purchases and reduce unnecessary expenditures, thus saving operational costs and fundamentally enhancing their competitive capabilities.

Second, it is the need for campus construction. To meet the demands of contemporary social development, universities must strengthen scientific management, optimize work processes, and improve operational efficiency. This will drive the completion of modernized campuses and ensure the university's modernization and informatization. Emphasizing informatization in fixed asset management means consolidating the auditing, recording, and management of fixed asset information into a single system. This approach improves the work content and efficiency of financial and logistics staff, allowing them more time to engage in other essential tasks. As a result, it enhances overall efficiency and quality across university operations, driving the institution toward a more efficient and competitive direction. This, in turn, strengthens the university's overall competitiveness and lays a solid foundation for its sustained development. In summary, integrating informatization into fixed asset management not only optimizes resource utilization, but also plays a crucial role in improving university operations, ensuring long-term success, and enhancing institutional competitiveness.

1.2. Advantages of Informatization in the Management of University Fixed Assets.

First, it facilitates the allocation of fixed assets. The informatization of fixed asset management requires relevant departments within universities to systematically record the fixed asset information across all university departments. This allows universities to clearly understand the status of their fixed asset construction. Under this management model, universities can improve their control over various fixed assets, reducing unnecessary waste. By centrally managing educational and development resources, universities can avoid redundant purchases for basic construction needs, thus enhancing the value of funds used. For more scarce fixed assets, universities can make centralized purchases and use the informatized management system to optimize their allocation, improving the utilization rate of these assets and minimizing waste.

Second, it enhances the scientific use of fixed assets. In some universities, although many useful fixed assets are purchased, they may be underutilized in daily teaching activities due to limited innovation by teachers or constraints on teaching methods, resulting in wasted resources. In some cases, relevant equipment may already exist to help teachers complete their tasks, but due to factors such as department, year level, or class size, these assets are only used by a small group of teachers. As a result, other teachers may unknowingly purchase similar equipment, leading to duplication and waste. The implementation of an informatized asset management system allows teachers to access a central database of teaching resources, providing them with a clearer understanding of the status and availability of fixed assets. This not only increases the utilization rate of teaching resources and reduces unnecessary purchases but also lays a foundation for teachers to innovate in their teaching methods.

Third, it helps improve the level of university infrastructure. For universities, the informatization of fixed asset management is not only about recording and consolidating the current fixed assets but also serves as a foundation for identifying gaps and addressing shortcomings in university infrastructure. Teachers can use the system during their teaching activities to reflect on the current limitations in university construction and make targeted suggestions for improvements. Based on these insights, universities can acquire the necessary equipment, thereby enhancing the overall level of their infrastructure and campus

development. This comprehensive approach contributes to the continuous improvement of the university's construction quality and supports its long-term development goals.

In conclusion, the informatization of fixed asset management in universities offers significant advantages in terms of resource allocation, asset utilization, and the enhancement of infrastructure, all of which contribute to the efficient and sustainable development of the institution.

2. Current Situation and Major Issues in the Informatization of Fixed Asset Management in Universities.

Although big data technology has shown great potential in the management of fixed assets in universities, there are still several challenges and issues in its practical application.

2.1. The Asset Management System Has Incomplete Functionality.

The management of fixed assets relies heavily on real-time data to support decision-making and operations. However, the accuracy of data collection, entry, and updates is a critical issue that cannot be overlooked. If the data sources are unreliable or updates are not timely, it will directly impact the effectiveness of asset management. In many universities, the fixed asset management systems are still underdeveloped, with limited informatization and coverage. These systems typically only support basic functions such as creating asset ledgers, asset transfers, and asset disposal processes. More advanced features, such as budget approval for fixed assets, procurement requests, historical record queries, and report generation, are often missing. As a result, relevant tasks still rely on manual completion of paper forms, leading to low efficiency in operations.

2.2. The Awareness of Informatization Management Needs to Be Improved.

There are differences in the level of informatization development and management capabilities among different universities. Although many universities introduced asset management systems early on, the effectiveness of these systems remains suboptimal, reflected in several key areas. First, universities do not place enough emphasis on the informatization of fixed asset management. University leaders often do not actively monitor the status of fixed assets or assess whether the system processes are rational, resulting in the underutilization of the informatization system. Second, the level of informatization is lagging behind in some universities. The fixed asset management systems in these institutions are outdated, with significant disadvantages in terms of convenience and user-friendliness. Third, fixed asset management personnel are accustomed to traditional management methods. Many long-serving employees, who often hold multiple roles, are unwilling to learn or adopt informatized management practices. Furthermore, university leaders tend to favor traditional methods, such as paper-based signatures and seals, and are less inclined to actively promote the informatization of asset management.

2.3. There are "Information Silos."

The fixed asset management system in universities is not integrated with other internal systems and lacks system interfaces, resulting in "information silos." Business data within the system cannot be directly transferred to other systems, requiring staff to maintain the same data across different systems separately. This increases the workload for staff and reduces work efficiency. For example, fixed asset procurement is closely related to financial budgeting, but in some universities, the fixed asset management system is not integrated with the financial system. When a new fixed asset is added, the staff must first create and enter the asset information into the asset management system, and then re-enter the relevant financial data into the financial system, further increasing their workload.

From the perspective of asset usage, different departments within a university typically manage their own budgets and fixed assets independently, without coordination. As a result, some departments may have idle equipment, while others need the same equipment and must purchase it anew. Assets that could otherwise be reallocated or borrowed to maximize their use are often underutilized due to the "information silos" between departments, leading to resource waste.

2.4. The Quality of Management Personnel Needs to Be Improved, and There is a Lack of a Supervision System.

The era of big data has raised higher demands for the technical capabilities of university fixed asset management personnel. The deficiencies in system management at universities are reflected in the following aspects.

① Multiple Roles for One Person: Some departments and secondary colleges in universities do not assign dedicated personnel to manage fixed asset-related tasks, resulting in situations where one person holds multiple roles and lacks sufficient focus on asset management.

② Lack of Enthusiasm for Learning: During annual system operation training sessions, the level of interaction between trainees and trainers is often low, leading to poor learning outcomes. In some cases, other individuals even attend the training on behalf of the intended participants.

③ Unclear Job Roles and Unreasonable Division of Labor: Many management personnel are either part-time or temporarily reassigned, leading to unclear job responsibilities. As a result, staff often pass on responsibilities to each other, and some employees insist on using traditional manual accounting methods, citing their inability to use the system.

These issues arise due to the lack of a unified system supervision mechanism or clear management policies in universities.

3. Strategies for Fixed Asset Management in Universities in the Era of Big Data

3.1. Improve the Fixed Asset Information Platform and Promote the Upgrade of the Management System.

Universities should establish a unified asset management platform that consolidates information from various stages such as procurement, usage, maintenance, and disposal. This will ensure transparency and smooth flow of information. All departments should be able to view the asset status in real-time through the platform, ensuring accurate decision-making. The platform should also support full lifecycle management of assets, including procurement, usage, maintenance, and disposal.

Due to technological upgrades, information expansion, and other influencing factors, asset management systems may gradually reveal shortcomings. Software should be continuously improved and regularly upgraded. Management systems that rely on software should also strive for perfection and actively pursue upgrades. Fixed assets should be subject to quantitative management, linked to performance evaluations, and leverage the positive influence of performance management to enhance operational effectiveness and drive improvements in management.

System upgrades should also encompass information update management. When there are changes to fixed asset data, updates should be made promptly. The daily operations of asset formation, scheduling, maintenance, and disposal according to regulations are crucial tasks that require strengthened process management to ensure the effective use and continued benefits of the assets. Moreover, attention should be given to the reliability and accuracy of asset information, enabling real-time and dynamic management to support scientific decision-

making. The management system should also be flexible in applying functional modules and be personalized to meet specific needs.

3.2. Transform Traditional Management Concepts and Adopt Dynamic Fixed Asset Management.

University management should actively shift from traditional management concepts and regard fixed asset management as a crucial part of overall university operations. Specifically, the focus should be on how to achieve effective information-based management of fixed assets, which should be prioritized. Establishing a scientific management and operational framework is essential to create favorable conditions for the development of an asset information management platform tailored to the actual needs of universities, while also providing necessary funding and infrastructure support.

Traditional fixed asset management has typically concentrated on procurement and inventory stages, often neglecting the subsequent management stages such as usage, maintenance, and disposal. However, the era of big data offers opportunities to implement full lifecycle management, enhancing asset utilization efficiency and extending asset lifespans.

During the procurement phase, big data analytics can be used to assess market prices, brands, performance, and maintenance records of various equipment, allowing universities to select the most cost-effective options. Additionally, analyzing past procurement data can help optimize procurement processes and decisions, preventing duplicate purchases and resource wastage.

In the usage phase, Internet of Things devices can enable real-time monitoring of assets, automatically recording usage patterns, operational status, and environmental conditions. This allows for early detection of anomalies, reducing the likelihood of equipment failures. Big data analysis can also provide insights to optimize asset configuration and adjustments.

For maintenance management, big data analytics can be used to create health records for assets, predicting failure rates and maintenance cycles. By planning maintenance in advance, universities can avoid long downtimes or delays, reducing unnecessary maintenance costs.

In the disposal phase, big data enables tracking the full lifecycle of assets. By analyzing usage status, maintenance history, and depreciation, universities can assess whether assets meet the criteria for disposal. This helps ensure that resources are maximized and properly managed when assets are decommissioned.

In summary, big data enables a dynamic, full-lifecycle approach to fixed asset management, providing universities with the tools to optimize asset performance, reduce costs, and enhance decision-making across all stages.

3.3. Break Down Information Silos and Achieve Asset Information Sharing.

In today's rapidly growing sharing economy, some of the expensive assets within a university's fixed asset portfolio can be shared and utilized across different departments. This requires the application of big data for effective management. Universities should enhance their big data analytics capabilities and utilize data mining techniques to identify potential issues in asset management, making data-driven decisions based on these insights. By analyzing asset usage efficiency, universities can optimize asset allocation, reduce waste, and improve resource utilization.

Efficient information flow between departments is essential to facilitate timely and effective communication, ensuring the sharing of high-quality information and promoting comprehensive collaboration. Strong oversight should be reinforced, with each department demonstrating high-quality and efficient performance of its functions. This will help establish a healthy management system that fosters multi-party coordination and cooperation.

In this process, the finance department should strengthen regular asset accounting and conduct thorough financial audits. The discipline inspection department, responsible for investigating violations, should enhance accountability for issues such as asset loss and other negative events. The auditing department, tasked with evaluating the status of assets, should conduct scientific and comprehensive audits, promoting detailed auditing processes that allow for the timely identification of issues. They should hold parties accountable according to the law and share audit reports with both the finance and discipline inspection departments. The asset management department should fulfill its role in overseeing fixed assets, improving overall supervisory management.

3.4. Strengthen the Development of the Information Management Team and Enhance the Management and Accountability Awareness of the Staff.

The application of information technology relies heavily on a high-quality management team. Therefore, universities should strengthen the technical training of fixed asset management personnel, enhancing their understanding and application of new technologies such as big data and cloud computing. To achieve this, universities must continuously introduce new ideas and high-quality talent into the management team, maintaining its advancement and flexibility. This will help optimize management through collective intelligence and the wisdom of talent.

For the current team, it is crucial to implement comprehensive training with a focus on information technology, breaking away from the rigid thinking patterns in fixed asset management. This will increase the emphasis on information-based management, correct misconceptions, and place information management in a more scientific and objective context for optimal application.

Management personnel should clearly understand that the foundation of implementing information management lies in both talent and technology. From a competency perspective, personnel should possess knowledge in fields such as operations research, management, and accounting, while also meeting objective requirements in information and network technology. Asset management staff should address skill gaps specific to fixed asset management, become familiar with and proficient in asset management software, and strengthen awareness of information security.

Furthermore, universities should improve and upgrade intelligent management software to enhance the level of informatization and the accuracy of data analysis, ensuring efficient use of software and related technologies. Management personnel should also strengthen their sense of responsibility, develop an objective understanding of the severity and risks of information management in the new era, adopt proactive management practices, execute tasks with precision, and continuously improve the management process.

4. Conclusion

The era of big data presents both new opportunities and challenges for fixed asset management in universities. By leveraging technologies such as big data, the Internet of Things, and artificial intelligence, universities can achieve refined and intelligent management of fixed assets, improving resource utilization efficiency and reducing management costs. However, the implementation of these technologies also faces challenges related to data quality, management capabilities, and funding. In the future, universities should strengthen the development of information technology infrastructure, enhance the technical capabilities of management personnel, and promote the comprehensive optimization of fixed asset management.

References

- [1] Jun Long: Advantages of Fixed Asset Management in Public Institutions in the Context of Digital Transformation, Journal of Modern Enterprise, 2024 No.4,p.19-21.
- [2] Lei Jiang: Deficiencies and Countermeasures in the Management of State-owned Assets of Administrative Institutions in the Context of Digitalisation, Journal of Finance and economics, 2023 No.25, p.51-53.
- [3] Weixi Zhai: Analysis of the Problems and Countermeasures of the Informatization Construction of Asset Management in Colleges and Universities, Science and technology information, 2021 No. 26, p.82-85.
- [4] Qiao Liang, Simin Rong and Weiyu Zong: Exploration and Practice of Information Management of Fixed Assets in Private Universities, Economic Research Guide, 2020 No. 24, p.74-75.
- [5] Jinlan Bing: Research on Fixed Asset Management in Colleges and Universities in the Era of Big Data, Finance and economics, 2019 No.21.