

Research on the Pathways for Empowering the Transformation of University Financial Management through New Types of Productive Forces

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Abstract: With the advancement of society and technology, new-quality productive forces have emerged as a significant driver of socioeconomic development, injecting fresh momentum into the transformation of traditional industries. This article examines how new-quality productive forces can empower the transformation of university financial management. By analyzing their practical significance in this context and addressing existing challenges in current university financial management practices, it proposes actionable recommendations. The aim is to fully demonstrate the role of new-quality productive forces in transforming traditional industries and to offer insights for enhancing the quality of university financial management.

Keywords: New quality productivity; University financial management; Transformation pathways

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1. Introduction

New-type productive forces are driven by the deepened application of new technologies and characterized by the rapid emergence of new industries, business models, and operational frameworks, thereby giving rise to a new system of social production relations and social institutions. Their emergence is an inevitable outcome of our era and human civilization's progress, as well as an effective means for advancing the transformation and upgrading of traditional industries. The integration of new-type productive forces has spurred reforms in university financial management, fostered innovation in its concepts and operational models, and provided crucial technological support for the healthy and sustainable development of higher education institutions.

2. The significance of new-quality productivity in empowering the transformation of university financial management

2.1. It contributes to enhancing the scientific rigor of financial management in universities

Financial management in higher education institutions is a systematic and complex endeavor. Ensuring its scientific rigor lays a solid foundation for the high-quality development of universities. In the context of the new era, financial management in higher education must accelerate transformation to meet the demands of talent cultivation better. The application of new-generation productivity tools in financial management offers innovative approaches to this transformation. Intelligent financial management systems enable rapid collection, analysis, and mining of vast amounts of financial data, helping administrators accurately track fund flows and resource allocation while reducing decision-making biases rooted in empirical judgments, thereby enhancing overall decision-making quality. Furthermore, these advanced tools effectively support universities in adapting to contemporary educational and research needs, providing stable financial backing for expanding academic programs and advancing core research initiatives.

2.2. It facilitates the standardization of financial management in higher education institutions

Financial management in higher education institutions must continuously evolve towards standardization, which is not only a fundamental requirement for their sustainable development but also an essential prerequisite for cultivating high-quality talent. The integration of new-generation productivity mechanisms significantly advances the standardization of financial management practices. Digital financial management systems built upon these mechanisms embed financial regulations into operational workflows, standardize financial processes, ensure clear traceability of all transactions, minimize subjective errors associated with manual operations, enable real-time monitoring of compliance, promptly identify violations with alerts, fundamentally reduce non-compliant practices, and promote the compliant operation of university financial management systems.

2.3. It helps reduce the risks associated with university financial management

The risk associated with financial management is an objective reality, and university financial management also faces certain risks. In traditional university financial management practices, risk control relies heavily on manual identification and experience-based approaches; however, this approach proves inadequate when dealing with vast amounts of financial data. The application of digital and intelligent technologies, driven by new forms of productivity, can significantly mitigate financial management risks in universities. Through big data analysis and intelligent early-warning systems, comprehensive financial data from all dimensions can be integrated and analyzed in real time, automatically identifying abnormal patterns and risk signals. This shift moves the focus from reactive post-event accountability to proactive pre-event warning and in-process control, enabling financial managers to monitor risk trends and implement timely countermeasures promptly. Consequently, it effectively reduces the likelihood of various financial risks, such as debt risks and fund leakage risks, thereby providing robust safeguards for risk mitigation in university financial management.

3. Issues in university financial management under the background of new quality productivity

3.1. Data processing capabilities are lagging

In the new era, university financial management faces massive data volumes, and traditional financial management models can no longer meet contemporary demands. The lag in data processing capabilities has become increasingly evident, with insufficient capacity to integrate heterogeneous financial data from multiple sources and dimensions, hindering interoperability across different data systems and failing to provide comprehensive, reliable support for financial management in modern universities. Furthermore, many institutions still rely on manual processes for financial operations, resulting in low efficiency and potential data inaccuracies due to human errors. This makes it difficult to rapidly extract valuable decision-making insights from data, thereby limiting precise support for financial planning and resource allocation and impeding the transformation of university financial management practices.

3.2. There is a shortage of innovative talent

Under the framework of new productive forces, the transformation of university financial management relies heavily on innovative talent; however, the current shortage of such professionals remains a significant bottleneck in this process. On one hand, university financial managers still primarily focus on basic tasks like traditional accounting and expense reporting, demonstrating insufficient proficiency in applying technologies associated with new productive forces such as artificial intelligence and big data analytics. There is a notable gap in versatile professionals who possess both financial expertise and digital skills. Meanwhile, many universities offer inadequate training programs for financial staff related to new productive forces, with content largely limited to basic system operations. These programs fail to align with the practical demands of financial transformation, hindering financial personnel from updating their knowledge to meet evolving job requirements and thereby impeding the effective implementation of new productive forces within university financial management.

3.3. The information environment requires further improvement

The transformation of university financial management driven by new-generation productivity requires a robust information infrastructure. However, many institutions still operate at a traditional level in digital transformation, with inadequate adoption of smart technologies and underdeveloped intelligent financial management frameworks, significantly hindering progress. On one hand, outdated financial management systems lack timely upgrades, suffer from insufficient security and stability, and fail to meet the demands of processing massive financial data characteristic of modern productivity models—thereby providing insufficient technical support for digital transformation. On the other hand, existing systems primarily focus on basic accounting functions, lacking advanced capabilities such as big data analytics, predictive modeling, and risk monitoring essential for modern financial operations. This deficiency makes it challenging to optimize resource allocation for decision-making post-transformation, ultimately impeding deep integration between new-generation productivity and university financial management practices.

4. Pathways for enhancing university financial management transformation through new types of productive forces

4.1. Implement advanced digital and intelligent technologies to enhance financial data processing capabilities

In the era of digital intelligence, data processing capabilities have become a key driver for enhancing work efficiency, particularly in financial management where such capabilities directly impact operational quality. Universities undergoing financial management transformation should fully leverage emerging productive forces by adopting advanced digital and intelligent technologies to strengthen financial data processing capacities. Firstly, addressing the current issue of fragmented data processing across university financial systems, big data and artificial intelligence technologies should be employed to break down data silos between different business systems, establish a unified financial data sharing platform, and achieve seamless integration and standardization of financial data with various campus datasets. Additionally, cloud computing technologies should be utilized to upgrade data storage architectures, expand storage capacity, optimize computational efficiency, and meet specific data storage and processing requirements. The application of digital-intelligent technologies has significantly improved financial management efficiency, achieving a 99% accuracy rate in financial accounting and over 90% precision in financial risk forecasting. Secondly, universities should continuously enhance data mining and analytical capabilities, utilizing technical tools to rapidly extract valuable insights that support precise decision-making in financial resource allocation. A prime example is the Yonyou Changjie Tong Intelligent Financial Management System, which offers tailored smart data mining and analysis functions tailored to university-specific needs. The Yonyou Changjie Tong Hao Accounting Intelligent Financial Management System is preconfigured with multi-dimensional data extraction rules tailored for university financial scenarios. Utilizing OCR and NLP technologies, it automatically extracts key information from unstructured financial data and generates standardized data labels. After organizing and aggregating standardized financial data, the system produces multi-dimensional financial analysis reports based on decision-making requirements, providing intuitive visualization of revenue-expenditure structures and fund utilization progress across various institutional units and projects. This enables managers to swiftly assess financial operations and accurately evaluate resource allocation efficiency, effectively addressing the inefficiency and partiality inherent in traditional manual data analysis. The system significantly enhances the scientific rigor and precision of university financial management decisions, offering robust technical support for the transformation of university financial governance^[1].

4.2. Strengthen the cultivation of high-quality talents and consolidate the foundation for financial management professionals

Talent serves as the core element in empowering the transformation of university financial management through new-generation productivity. Universities must continuously focus on cultivating existing talent and recruiting innovative professionals to establish a solid human capital foundation, ensuring the orderly advancement of financial management reforms. On one hand, institutions should thoroughly understand the essence of new-generation productivity and develop systematic training programs tailored for financial staff. These programs should emphasize the application of digital-intelligent financial management tools and modern approaches under this framework, helping current employees update their knowledge base, adapt to digitalized operational rhythms, master advanced financial skills, and transition from traditional accounting practices to value-oriented financial management. Training can be delivered through both

theoretical and practical dimensions: theoretical sessions may include organized lectures and knowledge-sharing events featuring successful case studies of financial management applications; practical training could involve internships at organizations with mature digital-intelligent financial systems, enabling staff to operate advanced tools through hands-on experience proficiently. This approach enhances both professional understanding and technical competencies, providing robust talent support for financial management transformation. On the other hand, universities should prioritize attracting new-generation financial professionals—by 2025, a certain domestic university aimed to have over 50% of its workforce composed of such talents, achieving significant talent renewal and upgrading. New-generation financial management professionals are interdisciplinary specialists equipped with digital-intelligent financial management thinking, expertise in financial data analysis, and proficiency in applying AI-powered financial tools – all essential for meeting the transformation demands of university financial management under modern productivity frameworks. To accelerate this transition, universities should diversify recruitment channels by leveraging new media platforms to establish digital recruitment networks, publish job postings specifically targeting these professionals, and establish inter-university talent collaboration mechanisms to attract graduates with cross-disciplinary skills. Additionally, institutions must optimize evaluation and incentive systems by incorporating digital-intelligent financial competencies into recruitment criteria, offering competitive compensation packages and research support policies for qualified candidates. These measures will effectively attract high-caliber interdisciplinary talents, rapidly expand the university's talent pool in financial management, and lay a solid foundation for institutional financial management transformation ^[2].

4.3. Accelerate the improvement of the information environment to lay the foundation for financial management transformation

A robust information environment serves as the foundation for empowering university financial management transformation through new-generation productivity. To further advance this transformation, it is essential to continuously enhance the development of such an environment, providing solid support for financial management reforms. On one hand, efforts should focus on acquiring and upgrading software and hardware infrastructure, increasing investment in high-performance servers and intelligent storage devices required for financial systems, replacing outdated or inefficient hardware, and adopting financial IT software solutions tailored to modern productivity demands. This will break down data barriers between different financial modules and ensure the hardware/software environment supports various digital and intelligent financial operations. Taking a domestic university as an example, over 80% of obsolete equipment was phased out during the IT upgrade process, while 95% of industry-leading software solutions were implemented, providing strong technical support for financial management transformation driven by new-generation productivity. On the other hand, new functionalities for university financial management platforms should be developed under this framework, incorporating features for big data analysis, intelligent forecasting, and risk alerts. These capabilities enable precise assessment of revenue-expenditure structures and budget execution through big data analytics, early identification of financial trends via smart predictions, and timely detection of anomalies in fund allocation and budget implementation through risk monitoring systems. Such measures help financial staff respond swiftly to potential risks, strengthen the platform's support for financial operations, and fully leverage the foundational role of IT infrastructure in empowering financial management transformation under new-generation productivity paradigms. Furthermore, during the transformation of

university financial management driven by new productive forces, particular attention must be paid to system security and protection. Encryption technologies and hierarchical permission settings should be employed to ensure the security of financial data throughout storage, transmission, and usage, thereby creating a stable, secure, and efficient information environment that supports this transformation and safeguards the high-quality development of university financial management ^[3].

5. Conclusion

As crucial bases for national talent cultivation, universities must continuously evolve to maintain their advanced nature throughout their development and construction processes. Their financial management also requires ongoing adaptation to contemporary trends, leveraging technological advantages to drive innovation. The integration of new productive forces has spurred innovation in university financial management, providing robust technical support for enhancing its efficiency. In future development, it is essential to further capitalize on the strengths of new productive forces to advance innovations in university financial management models, thereby laying a solid foundation for their sustainable and healthy growth.

Disclosure statement

The author declares no conflict of interest.

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