

AI-Enabled Digital Governance in Chinese Universities: Policy Evolution, Implementation Pathways, and Future Directions

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Abstract

Driven by the dual impetus of the Digital China strategy and the transformation of educational digitalization, Artificial Intelligence (AI) has emerged as a core enabling element for upgrading the governance system of Chinese universities. As a key carrier of the modernization of educational governance, the transformation of university digital governance is deeply aligned with national policy orientations and the inherent development needs of universities. This study focuses on the field of digital governance in Chinese universities, systematically sorting out the evolutionary context of digital governance policies from "infrastructure construction" to "intelligent integrated application", and analyzing the current characteristics and practical bottlenecks of smart campus construction in terms of technology implementation, data connectivity, and service adaptation. Focusing on three core governance scenarios—academic affairs management, human resources management, and financial management—this paper explores the specific application paths of AI technology in process optimization, precise decision-making, and efficiency improvement, including practical directions such as intelligent class scheduling, academic performance analysis, talent profile construction, and intelligent budget control. This study contributes to the literature by providing a policy-based analytical framework and scenario-oriented application pathways for AI-enabled governance transformation in higher education.

Keywords

Artificial Intelligence; University Digital Governance; Policy Logic; Smart Campus; Educational Management

1. Introduction

The integration of digital technologies into higher education governance has accelerated significantly in recent years. In China, national strategies have explicitly

emphasized the role of digitalization in modernizing governance systems. Universities, as key institutions for talent cultivation and innovation, face increasing pressure to improve governance efficiency and decision-making quality. However, traditional governance models in universities are often characterized by fragmented data, complex administrative procedures, and delayed responses. These limitations constrain the ability of institutions to meet the demands of high-quality development. Against this backdrop, AI technologies offer new possibilities for transforming governance processes through data integration, intelligent analysis, and predictive capabilities. This study seeks to address the following questions: (1) How have digital governance policies in Chinese universities evolved? (2) What are the main constraints in current smart campus development? (3) How can AI be effectively integrated into core governance scenarios?

This research is informed by perspectives from digital governance and technology-enabled organizational transformation.

2. Research Methods

This study adopts a combination of policy text analysis and literature research. At the policy analysis level, it systematically reviews national-level policies related to educational informatization and digitalization issued between 2000 and 2025, including the Action Plan for Invigorating Education in the 21st Century, the Ten-Year Development Plan for Educational Informatization (2011-2020), the Educational Informatization 2.0 Action Plan, the Action Plan for Educational Digitalization Strategy, and the Opinions on Accelerating the Promotion of Educational Digitalization jointly issued by nine ministries and commissions including the Ministry of Education in 2025. Through stage division and policy content coding, the study extracts the evolutionary logic of digital governance policies in Chinese universities.

At the literature research level, searches were conducted in the China National Knowledge Infrastructure (CNKI) and the Web of Science Core Collection using keywords such as "university digital governance," "smart campus," and "AI in education." Representative studies closely related to university governance scenarios were selected as the academic foundation for analyzing AI application pathways. It should be noted that this study focuses on policy logic review and application path induction, and does not involve large-scale empirical research. Its findings are primarily based on existing policy texts and literature.

3. Policy Evolution of Digital Governance in Chinese Universities

The development of digital governance policies in Chinese universities is a process that resonates with the national digital strategy and gradually deepens from "technology-driven" to "governance empowerment." Based on the differences in policy focus and key milestones, this process can be divided into three stages.

3.1. Infrastructure Construction Stage (2000-2010): Policies Focus on Hardware Layout

During this period, policy focus centered on the popularization and coverage of university informatization infrastructure. The Action Plan for Invigorating Education in the 21st Century issued in 2000 clearly proposed to "accelerate the construction of educational informatization infrastructure," promoting the popularization of basic hardware such as campus networks and multimedia classrooms in universities. The National Informatization Development Strategy (2006-2020) issued in 2006 incorporated educational informatization into the national strategic framework, requiring universities to improve information network infrastructure. Overall, the policy objective at this stage was to address the "from scratch" issue, laying the hardware foundation for subsequent digital applications, but it did not yet involve the application orientation of intelligent technologies such as AI.

3.2. Digital Application Promotion Stage (2011-2020): Policies Guide Data Integration and Service Upgrade

As infrastructure gradually improved, policy focus shifted toward the promotion of digital applications and the integration of data resources. The Ten-Year Development Plan for Educational Informatization (2011-2020) issued in 2012 proposed to "promote the in-depth integration of information technology with education and teaching, management and services," encouraging universities to build digital management platforms to realize the onlineization of business processes such as academic affairs, human resources, and finance. The Educational Informatization 2.0 Action Plan issued in 2018 emphasized "taking data as the core element," promoting universities to establish unified data standards and break "information silos." Policies in this stage began to focus on the role of digitalization in improving governance efficiency, laying the groundwork for the implementation of AI technology.

3.3. In-depth Intelligent Transformation Stage (2021-Present): Policies Empower the In-depth Integration of AI and Governance

Since 2021, with the maturity of AI technology and the advancement of the educational digitalization strategy, policies have clearly identified artificial intelligence as the core driving force for the digital transformation of university governance. The Action Plan for Educational Digitalization Strategy issued in 2022 proposed to "promote the in-depth integration of artificial intelligence, big data and other technologies with educational management," supporting universities to build an intelligent governance system. The Opinions on Accelerating the Modernization of Education issued in 2023 further emphasized "using AI technology to optimize university governance processes and improve the scientific nature of

decision-making." The Opinions on Accelerating the Promotion of Educational Digitalization jointly issued by nine ministries and commissions including the Ministry of Education in 2025 clearly requires the realization of data sharing in teaching, scientific research, management, and services in universities, and promotes the digital transformation of university evaluation. Compared with the previous two stages, current policies present a dual orientation of "technology empowerment + governance upgrade," promoting the transformation of university digital governance from "onlineization" to "intelligentization."

4. Current Status of Smart Campus Construction in Chinese Universities

As the core carrier of university digital governance, the smart campus is an important scenario for the implementation of AI technology. At present, the construction of smart campuses in Chinese universities has formed a certain scale, but in the process of development, it presents the characteristics of "coexistence of overall advancement and partial imbalance, and disconnection between technological application and actual needs."

4.1. Construction Achievements: Initial Formation of Infrastructure and Digital Platforms

In terms of hardware construction, most universities have completed full coverage of campus networks and standardized transformation of multimedia classrooms, and some universities have built 5G smart campus private networks, providing network support for the application of AI technology. In terms of software platforms, universities have generally built digital platforms such as academic affairs management systems, human resources management systems, and financial management systems, realizing the online processing of basic businesses such as course selection, score inquiry, personnel file management, and fee payment. In addition, some key universities have taken the lead in carrying out intelligent technology pilots, such as introducing intelligent access control, campus navigation, and online consultation robots, initially demonstrating the service efficiency of smart campuses.

4.2. Practical Bottlenecks: Triple Constraints of Technology, Data, and Services

Despite certain progress in smart campus construction, there are still several practical bottlenecks. At the technological application level, the smart campuses of most universities are still at the "onlineization" level, and AI technology is mostly applied in basic scenarios such as simple consultation and information inquiry, and has not yet penetrated into core governance links such as teaching management, resource allocation, and decision support, presenting a problem of "surface-level

application."At the data governance level, systems of various departments operate independently with inconsistent data standards, forming new "information silos." This fragmented state makes it difficult to support large-scale data training and cross-departmental analysis required by AI technology, constraining the depth of intelligent applications. At the service adaptation level, the design of some smart platforms deviates from the actual needs of teachers and students, with cumbersome operations and redundant functions, leading to low usage rates and failing to give full play to the role of technology in empowering governance. At the development balance level, the construction level of smart campuses in universities in economically developed eastern regions and key universities is significantly leading, while universities in central and western regions and vocational colleges are restricted by factors such as funds, technology, and talents, and their construction process is relatively lagging behind. These regional and inter-institutional differences also result in the failure to fully release the positive effects of artificial intelligence in university governance, and there is even a risk of excessive or "use for the sake of use" technological application.

5. Application Paths of AI in Core University Governance Scenarios

With its powerful data processing, intelligent analysis, and decision support capabilities, AI technology shows broad application prospects in three core governance scenarios of universities—academic affairs management, human resources management, and financial management—becoming a key tool for optimizing governance processes and improving governance efficiency.

5.1. Intelligent Academic Management: From "Process Optimization" to "Precise Talent Cultivation"

Academic affairs management is a core link of university governance, involving multiple processes such as curriculum setting, class scheduling and selection, academic performance analysis, and graduation review. The introduction of AI technology is driving these processes to evolve from traditional manual operations toward intelligent and precise directions.

In class scheduling and selection, AI algorithms can integrate multi-dimensional data such as teacher resources, classroom resources, curriculum needs, and student preferences to automatically generate optimal class scheduling plans. At the same time, the system can recommend suitable courses according to students' professional training programs, interests, and academic performance, effectively solving problems such as frequent scheduling conflicts and blind course selection in traditional models.

In academic performance analysis and personalized guidance, AI technology can collect students' classroom interaction data, homework completion status, exam

results and other information to build personalized academic profiles, accurately identify students' learning difficulties and weak links. This provides targeted teaching suggestions for teachers and pushes customized learning resources for students, promoting the implementation of the "teaching students in accordance with their aptitude" concept in large-scale teaching scenarios.

In graduation review and quality monitoring, AI can automatically compare students' course enrollment status and credit completion status with the requirements of training programs, efficiently complete the preliminary review of graduation qualifications. At the same time, through intelligent analysis of teaching data, it can monitor curriculum quality and teaching effects, providing data support for academic affairs management decisions.

5.2. Intelligent Transformation of Human Resources Management: Talent Profiling and Performance Empowerment

University human resources management involves multiple complex businesses such as talent introduction, teacher training, performance appraisal, and file management. The integration of AI technology helps improve management efficiency and service quality, promoting the transformation of human resources management from transactional operations to strategic empowerment.

In talent introduction, AI-based talent profile models can be built to automatically screen resumes and match talents with positions according to the university's discipline development needs and job requirements. Through natural language processing technology, candidates' scientific research achievements and academic influence can be analyzed, improving the accuracy and efficiency of talent introduction.

In teacher training and development planning, AI technology integrates teachers' teaching performance, scientific research achievements, training experience and other data, analyzes their professional advantages and development shortcomings, formulates personalized training plans for teachers, and provides data support for the university's faculty team construction planning.

In performance appraisal and file management, AI can automatically integrate teachers' assessment data in teaching, scientific research, social services and other aspects, conduct intelligent scoring according to preset indicators, ensuring the objectivity and fairness of assessment results. The digital management and intelligent retrieval of personnel files also significantly improve file utilization efficiency.

5.3. Intelligent Control of Financial Management: From Accounting Automation to Risk Warning

University financial management is related to fund security and optimal resource allocation. The application of AI technology is promoting the transformation of

financial management from traditional accounting-oriented models to intelligent control-oriented models.

In budget preparation and control, AI algorithms can analyze factors such as the university's historical financial data, discipline development needs, and project priorities to automatically generate scientific and reasonable budget plans. In the process of budget execution, real-time monitoring of fund usage through AI technology enables timely warning of overspending risks, ensuring the standardization of budget execution.

In reimbursement and accounting processing, AI image recognition technology can automatically identify information on reimbursement bills, complete bill verification and accounting entry, simplify the reimbursement process, reduce human errors, and improve reimbursement efficiency. At the same time, AI technology can realize intelligent classification and analysis of accounting data to provide support for financial decision-making.

In financial risk early warning and prevention, AI can be used to build financial risk early warning models, real-time monitor risk points in links such as university capital flow, debt status, and fee management, promptly issue early warning signals, help universities prevent financial risks, and ensure fund security. Practice has shown that AI technology helps address problems such as insufficient integration of business and finance, low reimbursement efficiency, and weak risk prevention and control in university financial management, enhancing the accuracy and decision support capabilities of financial management through business process standardization and automation.

6. Implementation Trends and Suggestions of AI-Enabled University Digital Governance

6.1. Implementation Trends

In the future, AI-enabled digital governance in Chinese universities will present three major development trends: first, more precise policy guidance. The national level will introduce more targeted policies to clarify the application standards and safety norms of AI in university governance, guiding universities to steadily promote digital transformation; second, deeper technological application. AI technology will extend from basic service scenarios to core governance links, achieving in-depth integration with businesses such as academic affairs, human resources, and finance, and promoting the transformation of governance models from "passive response" to "active prediction"; third, more integrated governance systems. Universities will break departmental data barriers, build a unified data governance platform, realize the sharing of data resources required by AI technology, and form a closed-loop governance system of "data-driven — intelligent decision-making — efficient execution."

6.2. Practical Suggestions

To promote the effective implementation of AI-enabled university digital governance transformation, the following suggestions are put forward:

Strengthen policy implementation and resource guarantee: Universities should formulate specific implementation plans for AI-enabled digital governance in combination with national policy orientations and their own development realities, increase capital investment for intelligent technology research and development, platform construction, and talent training; at the same time, strengthen cooperation with technology enterprises and scientific research institutions to leverage external resources to improve the level of technological application.

Promote data integration and standard unification: Establish unified university data standards, break departmental "information silos," build an integrated data governance platform, and realize the interconnection of data such as academic affairs, human resources, and finance; strengthen data security management, establish and improve a data security guarantee system, and ensure the compliance and security of data use.

Focus on demand orientation and technology adaptation: Adhere to the "teacher-student-centered" approach, introduce AI technologies and application scenarios suitable for governance needs, and avoid technology "for the sake of use"; simplify the operation process of smart platforms, improve user experience, and increase the usage rate and satisfaction of teachers and students.

Strengthen talent team building: Cultivate compound talents with both educational management knowledge and AI technical literacy, improve the intelligent technology application capabilities of university management teams through training and introduction; at the same time, encourage teachers to participate in digital governance practices, forming a good atmosphere of full participation.

7. Research Limitations

This study has the following limitations: First, in terms of empirical data, it does not conduct quantitative measurement of the actual effectiveness of smart campus construction in universities, nor does it carry out large-scale questionnaire surveys or in-depth interviews. The analysis of practical bottlenecks is mainly based on literature review and policy text interpretation, lacking primary data support. Second, in terms of case coverage, although regional and inter-institutional differences are mentioned, it does not conduct systematic comparative analysis among universities in eastern, central, and western regions, or between undergraduate institutions and vocational colleges. The differentiated paths of different types of universities in AI-enabled governance require further exploration. Third, in terms of technological application, this study focuses on three core governance scenarios—academic affairs, human resources, and finance—while AI applications in areas such as scientific research management, student affairs, and

logistics support are less addressed. Future research can deepen in the above directions, combining empirical data and multi-case comparisons to further reveal the mechanisms and conditions of AI-enabled university digital governance.

8. Conclusion

The rapid development of artificial intelligence technology has provided a strong driving force for the digital governance transformation of Chinese universities, and the continuous promotion of national policies and the gradual improvement of smart campus construction have created favorable conditions for the implementation of AI technology. By sorting out the evolutionary context of digital governance policies in Chinese universities, analyzing the current status of smart campus construction, and exploring the specific application paths of AI in academic affairs, human resources, and financial management, this paper finds that AI technology can effectively optimize governance processes, improve the scientific nature of decision-making, and enhance governance efficiency.

However, the current AI-enabled university digital governance still faces practical challenges such as superficial technological application, fragmented data, and talent shortages. In the future, under the guidance of policies, universities need to strengthen resource guarantee, promote data integration, focus on demand orientation, and strengthen talent training to promote the in-depth integration of AI technology and university governance. It is believed that with the continuous maturity of technology and the deepening of practice, AI will become the core engine for Chinese universities to achieve the modernization of governance capabilities, providing strong support for the high-quality development of higher education.

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