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Research on Bottlenecks and Improvement Paths of Digital Transformation in Higher Vocational Colleges from the Perspective of Organizational Inertia: Oriented by the Demand for New Quality Productive Forces

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Abstract

The development of new quality productive forces has raised higher requirements for talent training models, governance systems and service capabilities of higher vocational colleges. Digital transformation has become a vital approach for higher vocational colleges to improve governance efficiency, optimize the allocation of educational resources, and strengthen their capacity to serve regional industries. Nevertheless, during the digital transformation process, higher vocational colleges are generally confronted with such challenges as rigid organizational structures, institutional path dependence, insufficient data governance capacity and lagging digital cultural development, which generate prominent organizational inertia and hinder the effectiveness of digital reform. Based on the theory of organizational inertia and oriented toward the demands of new quality productive forces, this paper analyzes the formation mechanism and action mechanism of organizational inertia in the digital transformation of higher vocational colleges, constructs a four-dimensional driving model of "technology empowerment – organizational restructuring – ecological collaboration – evaluation guarantee", and explores the paths of digital process reengineering and institutional innovation combined with the practical scenario of innovation and entrepreneurship incubation bases. The study concludes that higher vocational colleges should break through organizational inertia by upgrading digital infrastructure, optimizing organizational structures, promoting school-enterprise collaborative innovation and constructing a digital governance evaluation system, so as to advance their digital governance capacity and provide support for cultivating high-quality technical and skilled talents adaptable to the development of new quality productive forces.

Keywords

Organizational Inertia, Digital Higher Vocational Colleges, New Quality Productive Forces, Digital Governance.

1. Introduction

In recent years, new quality productive forces have emerged as the core driving force behind industrial upgrading and high-quality development of regional economies. Industries across all sectors demand not only a steady increase in the number of technical and skilled personnel but also a breakthrough in talent quality. Modern practitioners are required to possess solid professional expertise, alongside sound digital literacy, innovative thinking and cross-disciplinary collaboration capabilities. As a critical link connecting education chains, talent chains and industrial chains, vocational education undertakes vital responsibilities in serving the development of new quality productive forces. It shoulders the mission of supplying society with numerous high-caliber talents suited to the demands of new quality productive forces, and

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its school-running quality and service capacity directly determine the competitiveness of regional industries and sustainable economic growth.

As a key measure to elevate the school-running quality and service capacity of higher vocational colleges, digital transformation represents an inevitable choice to keep pace with the times and meet industrial demands. Through digital transformation, higher vocational colleges can realize optimized allocation of teaching resources, innovative reform of teaching models and remarkable improvement in administrative efficiency, so as to better cultivate technical and skilled talents that meet the standards of new quality productive forces.

Nevertheless, the digital construction of many higher vocational colleges is still plagued by redundant platform development, insufficient business collaboration, fragmented data resources and uneven digital literacy among teachers. The root cause lies not merely in technical limitations, but in long-standing organizational inertia that hinders digital reforms. Such inertial factors slow down the progress of digital transformation in higher vocational colleges, impede practical implementation and weaken reform outcomes, creating a stark gap with the high efficiency, extensive collaboration and vigorous innovation required by new quality productive forces. Accordingly, exploring the bottlenecks and breakthrough paths of digital transformation in higher vocational colleges from the perspective of organizational inertia carries profound practical significance for advancing the high-quality development of vocational education.

As a major obstacle to organizational change, organizational inertia profoundly affects the implementation effect of digital transformation in higher vocational colleges (Hannan&Freeman,1984)[1]. Based on the theory of organizational inertia and the actual digital development of vocational education, this paper categorizes the organizational inertia emerging in the digital transformation of higher vocational colleges into four types: structural inertia, institutional inertia, technical inertia and cultural inertia, and analyzes their formation mechanisms and action paths

2. Manifestations and Mechanism of Organizational Inertia in the Digital Transformation of Higher Vocational Colleges

As a major obstacle to organizational change, organizational inertia profoundly affects the implementation effect of digital transformation in higher vocational colleges (Finkelstein S, Hambrick D C,1990)[2]. Based on the theory of organizational inertia and the actual digital development of vocational education, this paper categorizes the organizational inertia emerging in the digital transformation of higher vocational colleges into four types: structural inertia, institutional inertia, technical inertia and cultural inertia, and analyzes their formation mechanisms and action paths

2.1. Structural Inertia: Hierarchical Organizational Structure Restricts Digital Collaboration

For a long time, higher vocational colleges have widely adopted the bureaucratic management model, forming an organizational structure dominated by administrative management with relatively independent functional departments. While such a structure helps maintain stable organizational operation under the traditional management context, it tends to generate structural inertia amid digital transformation.

On the one hand, the traditional hierarchical management creates lengthy information transmission chains. Digital transformation calls for cross-departmental data sharing and business collaboration (Bakker R M, Knoben J,2014)[3]. Nevertheless, the existing organizational structure is divided along functional lines, with information resources scattered across multiple systems such as teaching affairs, human resources, scientific research and finance. In the

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absence of a unified coordination mechanism, obvious information barriers exist between departments, hindering the efficient flow of data.

On the other hand, digital transformation demands the construction of agile organizational structures, yet the current institutional frameworks of higher vocational colleges are highly rigid. The advancement of digital projects usually requires joint participation of multiple departments. However, fixed division of responsibilities and clear boundaries of power and accountability lead to low efficiency in cross-departmental coordination, and departments tend to operate in isolation without mutual coordination.

In terms of its formation mechanism, structural inertia originates from the path dependence accumulated through long-term organizational operation. Higher vocational colleges have gradually developed stable management systems and power structures over years of school running. Although such structures cut organizational operating costs, they also reduce the organization's sensitivity to changes in the external environment. When digital transformation requires the reconstruction of organizational relationships, the original structure will exhibit a strong tendency of self-preservation.

2.2. Institutional Inertia: Path Dependence Hinders the Innovation of Governance Models

Digital transformation requires the reform of organizational governance models through process reengineering and institutional innovation. However, the institutional systems formed over a long period in higher vocational colleges are often highly stable and continuous. At present, although some higher vocational colleges have built digital platforms, their management systems still follow traditional management logic. In fields such as teaching management, scientific research management and student services, repeated approval procedures and the parallel use of paper and electronic materials remain prevalent. Digital platforms merely serve as tools for information recording, without realizing the reconstruction of business processes in essence.

Institutional inertia is also reflected in the lagging construction of digital governance rules. As data resources become core governance resources for colleges, the importance of data collection, sharing, utilization and security management keeps rising. Nevertheless, many higher vocational colleges have not yet established sound institutional systems for data governance, resulting in inconsistent data standards, ambiguous rights and responsibilities over data, and the absence of data sharing mechanisms.

From the perspective of organizational change, institutional inertia mainly stems from the effect of path dependence. Institutional norms formed through long-term practice possess high legitimacy, and organizational members develop recognition and reliance on existing institutions. When digital reform demands a breakthrough from traditional institutional frameworks, organizations tend to retain original institutional arrangements, which weakens the motivation for institutional innovation. Therefore, institutional inertia not only restricts the scope of digital technology application but also impedes the construction of digital governance systems, emerging as a critical factor constraining the digital transformation of higher vocational colleges.

2.3. Technical Inertia: Information Silos Undermine Data Governance Capacity

With the continuous advancement of information construction, most higher vocational colleges have established information systems covering teaching, scientific research, administration and student services. Nevertheless, due to differences in construction timelines, responsible developers and technical standards, most systems lack effective interconnection, giving rise to prominent technical inertia.

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First, scattered business systems lead to fragmented data resources. Teaching affairs, human resource, finance and student management systems usually operate independently without unified data standards and interface specifications, resulting in the formation of "information silos".Second, the existing technical systems restrict the adoption of new technologies. Emerging technologies such as artificial intelligence, big data analytics and digital twins keep emerging amid digital transformation. However, constrained by legacy technical architectures, many colleges fail to timely realize technical upgrading and system integration, which hinders the progress of digital construction.Third, there is a serious disconnection between technical application and practical business demands. Some colleges prioritize platform construction over application innovation in their digital development. Their digital platforms are poorly aligned with actual business scenarios, creating a mismatch between digital investment and practical benefits.

As organizations keep increasing investment in legacy technical systems, the switching costs continue to rise. Colleges tend to stick to the original technical routes, which impedes digital technological innovation and the improvement of data governance capacity.

2.4. Cultural Inertia: Traditional Perceptions Undermine Recognition of Digital Reform

Organizational culture refers to shared values and behavioral norms recognized by all organizational members, and it represents the most deep-seated manifestation of organizational inertia. In essence, digital transformation requires organizational members to abandon traditional working methods and mindsets, and foster a digital culture featuring data-driven operation, open collaboration and continuous innovation.

Nevertheless, the long-established experience-based management model and administration-dominated culture in some higher vocational colleges make staff inclined to rely on personal experience for work rather than making data-based decisions. In addition, digital literacy varies widely among teachers. While some teachers actively adopt digital technologies to innovate teaching, others remain hesitant or even resistant to digital tools, resulting in unbalanced progress of digital teaching reform(H.X. Chen, M.F. Omar,2025)[4].

Furthermore, a risk-averse tendency prevails during digital transformation. Since the application of digital technologies may reshape working routines and adjust job responsibilities, some administrators worry that the existing interest distribution pattern will be disrupted, hence lacking enthusiasm to participate in digital reform initiatives. As educational institutions with distinct institutional cultural characteristics, higher vocational colleges possess highly stable organizational culture. Cultivating a new organizational cultural ecosystem demanded by digital transformation is usually a long-term process.

3. Construction of Improvement Paths for Digital Transformation of Higher Vocational Colleges Oriented by New Quality Productive Forces

Based on the organizational inertia theory and digital transformation theory, combined with the school-running characteristics of higher vocational colleges, this paper constructs a digital transformation model consisting of "four-dimensional driving system – three-stage upgrading path – dual-cycle optimization mechanism". Taking technology empowerment, organizational restructuring, ecological collaboration and evaluation guarantee as core driving forces, the model divides development into three stages: infrastructure construction, in-depth integration and ecological leadership. It realizes dynamic optimization through the dual-cycle mechanism of "practical verification – feedback iteration", and ultimately promotes the modernization of digital governance capacity in higher vocational colleges.

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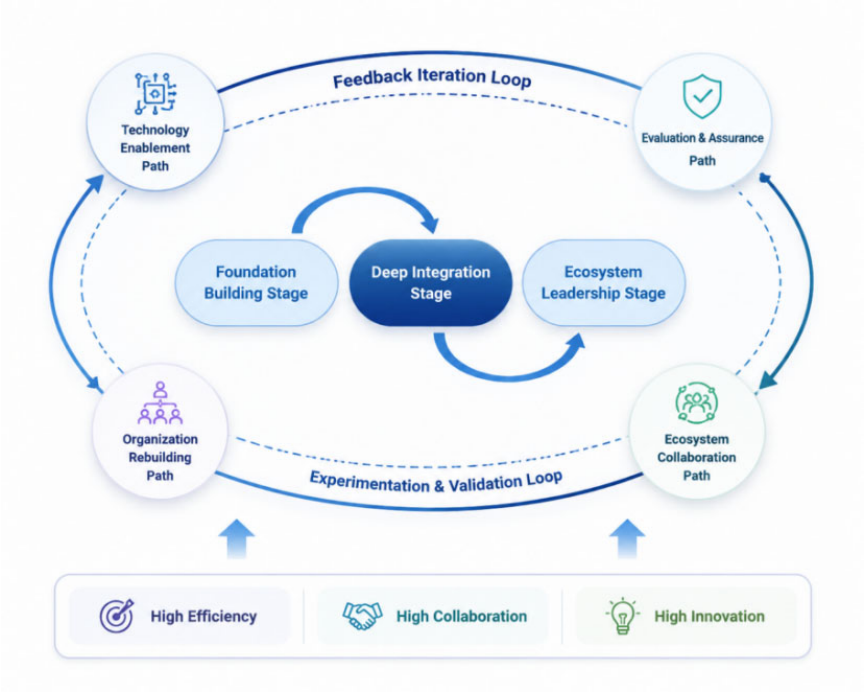

Figure 1. Digital transformation model

3.1. Breaking the Constraints of Organizational Inertia via the "Four-Dimensional Driving System"

The foregoing analysis demonstrates that structural inertia, institutional inertia, technical inertia and cultural inertia together constitute the major obstacles to the digital transformation of higher vocational colleges. Accordingly, the digital transformation of higher vocational colleges should not be merely limited to IT upgrading at the technical level. Instead, it is necessary to establish a systematic promotion mechanism for eliminating organizational inertia from the perspective of organizational change. Drawing on organizational inertia theory and digital transformation theory, this paper proposes a four-dimensional driving model of "technology empowerment – organizational restructuring – ecological collaboration – evaluation guarantee", which forms a complete system of improvement paths for the digital transformation of higher vocational colleges.

3.1.1. Technology Empowerment: Consolidating the Basic Support for Digital Transformation

Digital technology serves as a crucial force driving educational reform and a core approach to break technical inertia. Against the backdrop of digital transformation, higher vocational colleges should realize the shift from informatization to digitalization and intelligence through upgrading digital infrastructure and strengthening data governance capacity development.

(1) Construct a Unified Digital Infrastructure

To tackle technical inertia, the primary step is to build a unified digital infrastructure to realize interconnection of all business systems. Following the principle of "one source for one type of data and multiple applications of one data source", colleges shall develop a data middle platform covering teaching management, student administration, research management, human resource management, financial management and other fields. Unified data standards and interfaces will be formulated to enable cross-system data sharing and business collaboration. Integrating fragmented data resources will elevate data governance and provide solid data support for data-driven decision-making.

(2) Promote In-depth Application of Artificial Intelligence Technologies

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The rapid advancement of artificial intelligence has expanded digital applications across educational scenarios. Intelligent teaching platforms can be deployed in teaching sectors to deliver personalized learning services; intelligent service platforms can be established for student administration to realize online processing of student affairs; data analysis platforms can be built for institutional governance to make management decisions more scientific. Empowered by artificial intelligence, colleges can significantly boost digital governance efficiency.

(3) Improve the Data Governance System

Data has become a vital strategic resource in the digital era. Higher vocational colleges ought to develop a full-process data governance system covering data collection, storage, sharing, analysis and security management. On the one hand, standardized data criteria and data quality control mechanisms shall be perfected. On the other hand, data security management and privacy protection need to be reinforced to guarantee safe and reliable data resources. A standardized data governance system can improve the utilization efficiency of data resources and facilitate the innovation of institutional governance models.

3.1.2. Organizational Restructuring: Boosting the Reform of Organizational Structure and Institutional System

Digital transformation is essentially a process of organizational change. To break structural inertia and institutional inertia, higher vocational colleges need to optimize organizational structures and innovate governance mechanisms so as to realize the transformation and upgrading of organizational operation modes.

(1) Establish a Digital Governance Organizational System

The traditional bureaucratic organizational structure can hardly meet the demands of cross-departmental collaboration under digital transformation. Higher vocational colleges should set up a digital construction leading institution headed by principal school leaders to coordinate the implementation of digital development strategies. Meanwhile, a dedicated data governance center or digital construction office shall be established to formulate digital planning, conduct project management and carry out data governance, forming an organizational system featuring unified leadership and coordinated advancement.

(2) Carry Out Business Process Reengineering

Digital transformation is not merely the online migration of traditional businesses; more importantly, it requires the reconstruction of business workflows. Centering on core businesses including teaching, scientific research, student services and administrative management, colleges shall systematically sort out existing workflows, cut redundant approval links, and advance the digital, intelligent and collaborative development of business processes. Process reengineering enables "more data circulation and fewer offline procedures for teachers and students", thus lifting service efficiency and administrative performance.

(3) Build a Data-Driven Decision-Making Mechanism

Against the backdrop of digital transformation, colleges should gradually establish a data-driven decision-making mechanism. By constructing a campus operation data cockpit and decision analysis platform, functions such as teaching quality monitoring, student development analysis and resource allocation optimization can be realized to enhance the scientificity of school governance.

3.1.3. Ecological Collaboration: Constructing a Digital Education Ecosystem Serving the Development of New Quality Productive Forces

The development of new quality productive forces emphasizes the integration of innovation resources and the construction of an innovation ecosystem. The digital transformation of higher vocational colleges is not merely an internal institutional reform; it also requires the

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creation of an open, shared and collaborative innovation-oriented development ecosystem (M. Liu, C.H. Nie,2025)[5].

(1) Deepen Digital Collaborative Talent Cultivation Between Schools and Enterprises

Talent cultivation in the digital economy era must closely align with industrial demands. Relying on digital platforms, higher vocational colleges should strengthen cooperation with industrial enterprises to jointly build digital industrial colleges, digital training bases and online practical teaching platforms. By sharing industrial data resources and real production scenarios, colleges can realize precise matching between talent training and industrial demands, and improve the cultivation quality of technical and skilled personnel.

(2) Promote the Construction of Digital Platforms for Industry-Education Integration

Build a digital collaborative platform covering colleges, enterprises, governments and industry associations to realize the sharing of resources for talent training, technological research and development, and social services. The platform facilitates the in-depth integration of the education chain, talent chain, industrial chain and innovation chain, and strengthens vocational education's capacity to serve regional economic growth.

(3) Establish a Digital Ecosystem for Innovation and Entrepreneurship

Innovation and entrepreneurship education serves as a vital channel for cultivating talents who can drive new quality productive forces. Higher vocational colleges should fully leverage digital technologies to build an innovation and entrepreneurship service platform that enables full-process digital management of project administration, resource matching, achievement transformation and entrepreneurial support services. The construction of a digital innovation and entrepreneurship ecosystem helps improve the quality of innovation and entrepreneurship education and boost the efficiency of research achievement transformation.

3.1.4. Evaluation Guarantee: Establishing a Long-Term Mechanism for Digital Transformation

Digital transformation is a long-term systematic project, which requires a scientific evaluation system and continuous improvement mechanism to sustain the advancement of digital construction.

(1) Establish an Evaluation Index System for Digital Transformation

An evaluation index system shall be constructed covering dimensions including digital infrastructure, data governance, organizational collaboration, talent training and social services, so as to comprehensively assess the overall digital development level of colleges. The evaluation system shall highlight the practical effects of digital technology application and the improvement of governance capacity, instead of merely taking hardware investment and the number of platforms as evaluation criteria.

(2) Build a Mechanism for Digital Capacity Improvement

Teachers and administrative staff are core participants in digital transformation. Colleges shall develop a regular training system for digital capacity to continuously upgrade teachers' digital teaching competence and administrators' digital governance capabilities. Through digital literacy promotion programs, all organizational members can develop digital thinking and working modes.

(3) Optimize Incentive and Support Mechanisms

The performance of digital construction shall be incorporated into departmental performance appraisal and individual assessment systems, and an incentive mechanism for digital innovation achievements shall be formulated. Meanwhile, colleges shall increase financial investment and policy support for digital construction, so as to provide institutional and resource guarantees for digital transformation.

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3.1.5. Construction of the “Four-Dimensional Driving Model” for Digital Transformation in Higher Vocational Colleges

Based on the above analysis, this paper constructs a “four-dimensional driving model” for the digital transformation of higher vocational colleges. Among the four dimensions, technology empowerment serves as the fundamental support for digital transformation and provides technical conditions for organizational reform. Organizational restructuring acts as the core link of digital transformation, realizing governance innovation by breaking through structural inertia and institutional inertia. Ecological collaboration functions as an important guarantee for digital transformation, improving the capacity of resource integration by building an open and innovative ecosystem. Evaluation guarantee constitutes a long-term mechanism for the sustainable advancement of digital transformation. The four dimensions are interconnected and mutually reinforcing, which jointly form the dynamic system for the digital transformation of higher vocational colleges.

3.2. Constructing a "Three-Stage Upgrading Path" to Realize the Upgrading of Digital Development

Digital transformation is not a simple process of technical upgrading, but a dynamic process featuring continuous evolution of organizational capacity and constant reconstruction of governance models. From the perspective of organizational change, the digital transformation of higher vocational colleges undergoes a developmental progression from technical construction to governance innovation and further to ecological empowerment. Essentially, it is a process in which organizations break away from inertial constraints and achieve leaps in governance capacity.

Combined with the evolution law of organizational inertia and the practical digital construction of higher vocational colleges, this paper divides the digital transformation into three developmental stages: the infrastructure construction stage, the in-depth integration stage and the ecological leadership stage. The infrastructure construction stage mainly addresses technical inertia; the in-depth integration stage focuses on breaking through structural inertia and institutional inertia; the ecological leadership stage aims to eliminate cultural inertia and the restrictions of organizational boundaries.

The three stages follow a progressive logic from "technology-driven" to "governance-driven" and then to "ecology-driven", which together form the upgrading path for the digital transformation of higher vocational colleges.

3.2.1. Infrastructure Construction Stage: Reconstruction of Digital Foundation and Leap Forward of Technical Capacity

The infrastructure construction stage marks the starting point of digital transformation, whose core goals are to improve digital infrastructure, realize online business processes and converge data resources, laying a solid foundation for subsequent digital governance innovation.

For a long time, systems covering teaching affairs, human resources, scientific research, finance and student management in higher vocational colleges have mostly been built independently by separate departments, resulting in numerous information silos and data barriers. Without unified standards and top-level design, digital resources cannot be shared and utilized efficiently, which restricts the overall governance efficiency of colleges. Such technical path dependence is a typical manifestation of technical inertia.

Therefore, during the infrastructure construction stage, higher vocational colleges shall prioritize the development of digital infrastructure and data governance systems(Y. Chang,2023)[6]. On the one hand, accelerate the upgrading and renovation of campus networks, perfect cloud platforms, data centers, intelligent terminals and other infrastructure to build a unified digital base. On the other hand, promote the integration of business systems and the

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unification of data standards to realize centralized management and unified scheduling of data resources. Meanwhile, a full-process data governance mechanism covering data collection, storage, sharing, analysis and security management should be established to gradually realize asset-based data management. By constructing unified data middle platforms and business middle platforms, colleges can shift their institutional governance from a "system construction-oriented" mode to a "data governance-oriented" mode.

3.2.2. In-depth Integration Stage: Restructuring Governance Models and Upgrading Organizational Capacity

After the digital infrastructure is well-established, digital transformation enters the in-depth integration stage. The core task of this stage is no longer technical construction itself, but to realize the in-depth integration of digital technologies and the school governance system, so as to optimize organizational structures, reconstruct management workflows and innovate decision-making mechanisms(T. Webber, Y. Zheng,2023)[7].

From the perspective of organizational inertia theory, the biggest challenge in digital transformation usually lies not in technical issues, but in the barriers to reform brought by organizational structures and institutional systems. Hence, this stage focuses on innovating organizational governance models. First, carry out business process reengineering centering on core campus businesses. By sorting out workflows of teaching management, student services, research administration and administrative approval, redundant links can be eliminated to standardize and intellectualize business processes. Second, establish a cross-departmental collaborative governance mechanism. Digital platforms are leveraged to facilitate data sharing and business linkage, breaking traditional departmental barriers and forming a new collaborative governance model. Third, advance the digital transformation of decision-making mechanisms. Build data cockpits and decision-support platforms to realize real-time monitoring and dynamic analysis of teaching quality, student development, research performance and resource allocation, thus improving the scientific nature of decision-making. In addition, the construction of digital governance institutions shall be carried out simultaneously. Institutional norms covering data management, resource sharing and digital security need to be perfected to provide institutional guarantees for digital governance.

3.2.3. Ecological Leadership Stage: Expanding Value Creation and Upgrading the Innovation Ecosystem

The ecological leadership stage represents the advanced phase of digital transformation, and also a critical stage for higher vocational colleges to serve the development of new quality productive forces. Having completed the infrastructure construction and in-depth integration stages, colleges possess robust digital governance capabilities. Nevertheless, the ultimate goal of digital transformation is not merely to boost internal administrative efficiency; more importantly, digital technologies reshape the educational ecosystem and realize innovative value creation models.

In terms of organizational inertia, cultural inertia is the deepest and hardest type to break through. After digital technologies are widely applied in campus governance, the long-term effectiveness of digital transformation hinges on whether an organizational culture featuring openness, sharing, collaborative innovation and continuous reform can be cultivated. Accordingly, higher vocational colleges shall shift their focus from internal governance optimization to external ecosystem construction in this stage.

First, deepen digital industry-education integration. Rely on digital platforms to strengthen data sharing and resource coordination with industrial enterprises, jointly build digital industrial colleges, digital training bases and school-enterprise collaborative innovation platforms, and realize precise alignment between talent training and industrial demands.

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Second, build a digital innovation and entrepreneurship ecosystem. Digital technologies are adopted to integrate innovation and entrepreneurship resources, and establish a full-process digital management system covering project incubation, achievement transformation and entrepreneurial services, so as to improve the quality of innovation and entrepreneurship education.

Third, promote the open sharing of educational resources. Construct open educational resource platforms to realize cross-regional sharing of curriculum, training and innovation resources, expanding the service scope of vocational education.

Finally, strengthen social service functions. Relying on campus digital platforms and disciplinary strengths, colleges provide technical support and talent services for the digital transformation of regional industries, forming a virtuous cycle where education empowers industrial development. At this stage, the priority of digital transformation in higher vocational colleges shifts from "improving governance efficiency" to "creating social value", achieving in-depth collaboration among colleges, enterprises, industries and society.

3.3. Constructing the “Practice Verification–Feedback Iteration” Dual-Cycle Optimization Mechanism

Digital transformation is characterized by long-term progression and inherent complexity, which necessitates the establishment of a dynamic optimization mechanism. Therefore, this paper introduces a dual-cycle mechanism of “practice verification–feedback iteration” to continuously optimize the digital transformation path of higher vocational colleges(P.G. Lee,2024)[8]. First, digital process reengineering experiments are carried out in practical scenarios such as innovation and entrepreneurship incubation bases to verify the effects of organizational structure optimization, institutional innovation and digital technology application. Second, a digital capability evaluation system is constructed to continuously monitor indicators including management efficiency, collaborative governance level and innovative outputs. Third, digital construction schemes are adjusted timely according to practical results to optimize organizational structures, institutional systems and technical application paths. Through the cyclic process of “practice verification, feedback iteration and continuous improvement”, the digital transformation model can be constantly refined and upgraded.

4. Conclusions and Prospects

4.1. Research Conclusions

Against the backdrop of accelerated development of new quality productive forces, digital transformation has become a vital path for higher vocational colleges to modernize their governance systems and governance capacity. Nevertheless, digital transformation is not merely a technical upgrading process, but a systematic project involving profound changes in organizational structures, management institutions, governance models and organizational culture. Based on the organizational inertia theory (Hannan&Freeman,1984)[1], this paper systematically investigates the practical dilemmas, formation mechanisms and optimization paths of digital transformation in higher vocational colleges . Meanwhile, case verification is conducted based on the digital reform practice of the Innovation and Entrepreneurship Incubation Base of Chongqing Vocational College of Architectural Science and Technology, and the main conclusions are drawn as follows.

First, organizational inertia is a profound core factor restricting the digital transformation of higher vocational colleges. The study reveals that higher vocational colleges have formed relatively stable organizational structures, institutional systems and behavioral patterns during long-term development. When digital transformation demands in-depth organizational

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reform, the established operational logic of organizations tends to generate resistance. Specifically, structural inertia manifests as insufficient cross-departmental collaboration resulting from hierarchical management models; institutional inertia is reflected in traditional management workflows and path dependence that restrict institutional innovation; technical inertia is embodied in fragmented information systems and information silos; cultural inertia appears as insufficient digital awareness among organizational members and slow adaptation to reform. The four types of inertia interact and reinforce one another, jointly hindering the progress of digital transformation.

Second, the digital transformation of higher vocational colleges is essentially a reconstruction process of organizational capacity. Digital transformation is far more than the simple application of information technology; it is a systematic reform that leverages digital technologies to optimize organizational structures, restructure institutional workflows and innovate governance models. Only when digital construction moves forward hand in hand with organizational reform can colleges substantially improve their digital governance capacity. Reliance on technical investment alone cannot fundamentally resolve the deep-seated problems in digital transformation.

Third, the framework of "four-dimensional driving system – three-stage upgrading path – dual-cycle optimization mechanism" can effectively boost the digital transformation of higher vocational colleges. This research constructs a four-dimensional driving system centered on technology empowerment, organizational restructuring, ecological collaboration and evaluation guarantee, and proposes a three-stage upgrading path including the infrastructure construction stage, in-depth integration stage and ecological leadership stage. Furthermore, the dual-cycle mechanism of "practice verification – feedback iteration" enables continuous optimization of digital transformation.

Fourth, the digital reform practice of the innovation and entrepreneurship incubation base verifies the applicability of the proposed model. The case study demonstrates that the construction of digital platforms, reengineering of business processes, optimization of organizational collaboration and development of an innovation ecosystem can effectively improve management efficiency, strengthen resource integration capacity and facilitate the transformation of innovation and entrepreneurship achievements.

4.2. Theoretical Contributions

The theoretical contributions of this paper are mainly reflected in the following three aspects.First, it expands the applied research of organizational inertia theory in the field of vocational education. Existing studies on organizational inertia mainly focus on corporate management and public organization governance, while research targeting the context of digital transformation in higher vocational colleges remains relatively scarce. This paper introduces organizational inertia theory into research on the digital transformation of vocational education, and establishes an analytical framework covering four dimensions: structural inertia, institutional inertia, technical inertia and cultural inertia, which enriches the theoretical perspectives of research on digital governance in vocational education.

Second, it constructs a path model for the digital transformation of higher vocational colleges. Drawing on organizational inertia theory and digital transformation theory, this paper puts forward the model of "four-dimensional driving system – three-stage upgrading path – dual-cycle optimization mechanism". It provides a new theoretical framework for interpreting the developmental logic of digital transformation in higher vocational colleges, and also offers references for subsequent relevant research.

Third, it deepens research on the digital development of vocational education from the perspective of new quality productive forces. This paper integrates the development requirements of new quality productive forces with the digital transformation of higher

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vocational colleges, and reveals the vital role of digital transformation in innovating talent cultivation models, modernizing governance systems and serving the development of regional industries. It provides theoretical support for vocational education to underpin the development of new quality productive forces.

4.3. Practical Implications

The research findings offer valuable practical implications for higher vocational colleges to advance digital transformation. First, colleges should integrate top-level design with grassroots innovation. Digital transformation covers multiple layers of the institutional governance system, which calls for strengthened top-level planning and holistic design. Meanwhile, the enthusiasm of grassroots departments and teachers to participate in reform should be fully mobilized, forming a collaborative development pattern combining top-down deployment and bottom-up innovation(K. Mergel,2019)[9].

Second, technological construction and organizational reform shall be advanced simultaneously. The construction of digital platforms merely lays the foundation for digital transformation. The core lies in leveraging digital technologies to optimize organizational structures, reengineer workflows and innovate governance, so as to realize in-depth integration of technology empowerment and institutional innovation.

Third, colleges should uphold the philosophy of openness, sharing and collaborative development. Digital transformation is not merely an internal governance reform of schools; it requires closer coordination and cooperation with governments, industries and enterprises to build an open and shared digital education ecosystem and strengthen vocational education's capacity to serve regional economic and social progress.

Finally, a continuous improvement mechanism needs to be established. Digital transformation is a long-term dynamic process. Colleges shall rely on data monitoring and evaluation feedback to continuously optimize construction paths and achieve steady improvement of digital governance capacity.

4.4. Research Limitations and Future Prospects

Although this paper conducts a relatively systematic study on the digital transformation of higher vocational colleges, certain limitations still exist. On the one hand, this research mainly adopts a case study method with the Innovation and Entrepreneurship Incubation Base of Chongqing Vocational College of Architectural Science and Technology as the research object. The limited number of case samples means the generalizability of the research conclusions needs further verification. On the other hand, digital transformation is still in progress, and the effects of some reform measures require long-term observation, so their long-term impacts have not been fully validated.

Future research can be deepened in the following directions. First, expand the scope of research samples and carry out multi-case comparative studies to enhance the generalizability and explanatory power of research conclusions. Second, introduce quantitative research methods such as questionnaires and structural equation modeling to empirically test the mechanism of action between organizational inertia and digital transformation. Third, focus on new characteristics and new modes of digital governance in vocational colleges against the backdrop of emerging technologies including artificial intelligence and big data, so as to further perfect the theoretical system of digital transformation.

In general, with the continuous advancement of the Digital Education Strategy Initiative, the digital transformation of higher vocational colleges will enter a more in-depth developmental phase. In the future, we should coordinate the innovative application of digital technologies and organizational reform, continuously break the constraints of organizational inertia, advance the modernization of vocational education governance systems and governance capacity, and

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provide stronger talent and intellectual support for the development of new quality productive forces.

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