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# FACTORS INFLUENCING DIGITAL TRANSFORMATION IN HIGHER EDUCATION INSTITUTIONS IN YUNNAN

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## Abstract

Digital transformation has become a defining strategic priority for higher education institutions (HEIs) worldwide, reshaping teaching, research, administration, and institutional governance. In China, national initiatives such as the Education Informatization 2.0 Action Plan have accelerated this shift, yet the pace and depth of transformation vary sharply across regions. Yunnan Province, located in southwestern China and characterized by mountainous terrain, a large ethnic-minority population, and comparatively lower levels of economic development, offers a distinctive setting in which to examine the factors that enable or constrain digital transformation in higher education. This paper synthesizes the international and Chinese literature on digital transformation in HEIs to identify five interrelated factor domains - institutional/ strategic, technological, human/cultural, task-technology fit, and policy/environmental - and situates them within the specific developmental context of Yunnan. A conceptual framework is proposed to illustrate how these factors interact with contextual moderators, including the urban–rural digital divide and regional resource disparity, to shape institutional, pedagogical, and equity outcomes. The paper concludes with policy and management implications for accelerating an inclusive and sustainable digital transformation in Yunnan's higher education sector, and outlines directions for future empirical research.

**Keywords:** Digital Transformation, Higher Education Institutions, Yunnan, China, Digital Divide, Institutional Change, Education Informatization.

## Introduction

Higher education institutions (HEIs) around the world are under sustained pressure to reinvent how they teach, conduct research, and manage themselves in response to the diffusion of digital technologies. Digital transformation in this context is not simply the adoption of new tools; it is an organization-wide process that touches strategy, operating processes, products and services, people, data, and technology (Tungpantong, Nilsook, & Wannapiroon, 2022). For universities, this means rethinking curricula and delivery modes, building digital infrastructure, developing staff and student digital competence, and aligning institutional governance with a rapidly changing technological environment (Mohamed Hashim, Tlemsani, & Matthews, 2022).

China has pursued digital transformation in education as a matter of national strategy. The Ministry of Education's Education Informatization 2.0 Action Plan, issued in 2018, set out quantitative and qualitative targets for broadband coverage, digital campus construction, and the digital literacy of teachers and students, explicitly linking educational digitalization to the broader goals of education modernization and national competitiveness (Yan & Yang, 2021). Complementary strategies, including the “Double First-Class” initiative, have further encouraged leading universities to treat digital innovation as central to achieving world-class status.

Yet China's higher education landscape is far from uniform. Substantial disparities in higher-education resources and digital infrastructure persist across provinces, and these disparities tend to track broader patterns of regional economic development (Sun & Yoon, 2025). Yunnan Province is illustrative of this challenge. Located in China's southwest border region, Yunnan combines mountainous and dispersed settlement patterns, one of the country's largest ethnic-minority populations, and a level of per-capita income below the national average. These conditions have historically constrained investment in information and communication technology (ICT) infrastructure and have contributed to a persistent urban–rural digital divide in basic education that plausibly extends into the higher education sector (Hussain, Wang, & Rahim, 2013;

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Sun, Zhu, Zhou, Yao, Zhang, Wang, Chen, & He, 2024).

Against this backdrop, this paper asks: what factors most strongly influence the digital transformation of higher education institutions in Yunnan, and how does the region's specific developmental context shape the way these factors operate? The paper pursues this question through a synthesis of the international and Chinese literature on digital transformation in higher education, organized around five interrelated factor domains, and proposes a conceptual framework tailored to the Yunnan context. The paper contributes to the broader literature on "rethinking higher education in the digital era" by showing how generic drivers of institutional transformation are refracted through the specific geographic, economic, and cultural conditions of a peripheral, multi-ethnic region.

## Literature Review and Theoretical Background

### Digital Transformation as an Organizational Phenomenon

Digital transformation is widely understood in the management literature as a process that extends beyond digitization (converting analog information into digital form) and digitalization (using digital technology to change existing processes) to encompass fundamental changes in an organization's structure, culture, and value proposition (Mohamed Hashim, Tlemsani, & Matthews, 2022). In the specific context of HEIs, a frequently cited framework distinguishes six interacting components of digital transformation: strategy, process, product/service, people, data, and technology (Tungpantong, Nilsook, & Wannapiroon, 2022). In an empirical study of Thai higher education personnel, this six-component model fit the data well, and the organization's data-management capability emerged as the single most influential component, underscoring the importance of treating institutional data as a strategic asset rather than merely an operational by-product.

A closely related stream of work has developed instruments for assessing the "digital maturity" of educational institutions across dimensions such as ICT infrastructure, ICT culture, the integration of ICT into teaching and learning, planning/management/leadership, and the development of digital competences (Begicevic Redjep, Balaban, & Zugec, 2021). This maturity-based framing is useful because it treats digital transformation as a matter of degree rather than a binary state, which is particularly relevant when comparing institutions across a diverse region such as Yunnan, where some universities may be considerably more digitally mature than others.

### Institutional, Human, and Technological Factors

A recurring finding across the literature is that leadership and strategic vision are necessary, but not sufficient, conditions for successful digital transformation. University leadership must connect digital initiatives to the institution's overall vision, secure sustained funding, and manage the organizational change process (Mohamed Hashim, Tlemsani, & Matthews, 2022; Tungpantong, Nilsook, & Wannapiroon, 2022). At the same time, technology adoption does not automatically translate into improved performance. Faculty digital self-efficacy - confidence in one's own ability to use digital tools effectively - has been shown to mediate the relationship between institutional digital transformation and faculty performance, meaning that infrastructure investment must be accompanied by training and support that builds staff confidence, not simply access to hardware and software (Sun & Yoon, 2025).

Task–technology fit theory offers a complementary lens. Originally developed to explain when information technology improves individual performance, the theory holds that technology use enhances performance only when the characteristics of the technology align with the requirements of the task at hand (Goodhue & Thompson, 1995). Applied to universities, this implies that the benefits of digital transformation are not uniform across disciplines or job roles: faculty in the arts and humanities, for example, have been found to encounter greater barriers to integrating digital technologies than their counterparts in technical fields (Mercader & Gairín, 2020). Recent empirical work on Chinese university faculty confirms that when task–technology fit is high, digital transformation more strongly and consistently improves performance, whereas the effect is weak or non-significant when fit is low (Sun & Yoon, 2025). This suggests that a uniform, one-size-fits-all approach to digital transformation is unlikely to be effective across the heterogeneous mix of disciplines and institution types found in Yunnan's higher education sector.

### National Policy as an External Driver

Beyond institution-level factors, national and provincial policy exerts a powerful top-down influence on the pace and direction of digital transformation in Chinese higher education. The Education Informatization 2.0 Action Plan articulates a framework of "One Goal, Three Tasks, and Eight Actions," emphasizing innovation-driven rather than purely technology-driven development, the expansion of digital educational resources, and the cultivation of information literacy among teachers and students (Yan & Yang, 2021). Because such policies set concrete targets - for example, broadband coverage and student-to-computer ratios

- they create cascading pressure on universities to develop detailed information-technology master plans and to allocate budget accordingly. For a province such as Yunnan, national policy therefore functions simultaneously as a source of legitimacy and resources for digital transformation and as an external benchmark against which regional progress is measured.

### Regional Disparity and the Digital Divide

A distinct but closely related body of research addresses the urban–rural and regional digital divide in Chinese education. Studies of basic education have documented persistent gaps between rural and urban schools in ICT access, digital literacy, and the quality of technology-enabled instruction, despite substantial national investment in rural ICT infrastructure since the early 2000s (Hussain, Wang, & Rahim, 2013). Research conducted in a rural Yunnan school using live-streaming "remote classroom" technology found that while such interventions can extend access to high-quality instructional content, their effectiveness depends heavily on the mediating efforts of local teachers, who must adapt fast-paced, urban-oriented content to match the preparation level of rural students, and that gaps in student motivation and family educational support can blunt the equalizing potential of the technology if these human factors are neglected (Sun, Zhu, Zhou, Yao, Zhang, Wang, Chen, & He, 2024). Comparable patterns of urban–rural digital-literacy disparity have also been documented at the primary level in other Chinese provinces (Li, Huang, Lei, Wen, & Lu, 2022). Although this literature focuses primarily on basic education, its findings are directly relevant to Yunnan's HEIs: many university students in Yunnan are themselves products of a K-12 system marked by uneven digital-literacy development, and many campuses, particularly outside the provincial capital of Kunming, face comparable ICT-infrastructure constraints to those documented in rural basic-education settings.

## The Yunnan Context: Regional Characteristics Shaping Digital Transformation

Three features of Yunnan's regional context are particularly consequential for how the factors identified above operate in practice.

First, geography and infrastructure cost. Yunnan's mountainous topography and dispersed population raise the marginal cost of extending high-speed connectivity to more remote campuses and their surrounding communities, relative to the flat, densely populated provinces of China's eastern seaboard. This makes ICT infrastructure a comparatively more binding constraint on digital transformation in Yunnan than in wealthier coastal provinces.

Second, ethnic and cultural diversity. Yunnan is home to the largest number of officially recognized ethnic minority groups of any Chinese province. Digital-transformation initiatives that assume a culturally and linguistically homogeneous student body - for example, standardized online content designed primarily for students from well-resourced urban schools - may be less effective for students from ethnic-minority and rural backgrounds unless deliberately adapted, echoing findings from the ICT-mediated remote-education literature on the need to tailor content to local student foundations (Sun, Zhu, Zhou, Yao, Zhang, Wang, Chen, & He, 2024).

Third, uneven institutional resourcing. As in China generally, higher-education resources and digital-infrastructure investment in Yunnan are not evenly distributed: flagship universities in Kunming are generally better positioned to pursue ambitious digital strategies than smaller regional or vocational institutions elsewhere in the province, mirroring the national pattern in which HEI resources and digital-infrastructure construction move together but leave persistent regional gaps. This intra-provincial disparity means that "digital transformation in Yunnan" is better understood as a spectrum of institutional trajectories than as a single, uniform process.

## Conceptual Framework

Building on the literature reviewed above, this paper synthesizes the factors influencing digital transformation in Yunnan's HEIs into five broad categories, summarized in Table 1: institutional/strategic factors, technological factors, human/cultural factors, task–technology fit, and policy/environmental factors, together with a sixth cross-cutting dimension capturing the equity and infrastructure gap that is especially salient in Yunnan's context.

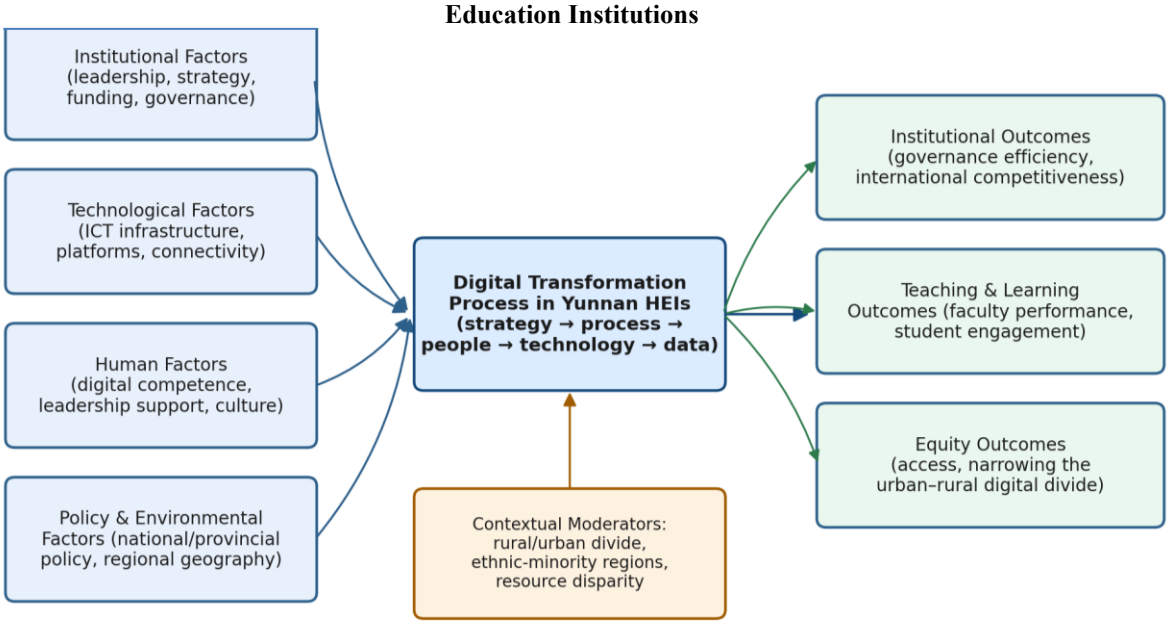
**Table 1: Factors Influencing Digital Transformation in Higher Education Institutions, with Application to the Yunnan Context**

| Factor Category | Representative Sub-Factors | Key Sources |
|---|---|---|
| Institutional / Strategic | Leadership vision and support; institutional digital strategy; governance and change management; funding and resource allocation | Begicevic Redjep et al. (2021); Mohamed Hashim et al. (2022); Tungpantong et al. (2022) |

| | | |
|---|---|---|
| Technological | ICT infrastructure and broadband access; learning-management and campus platforms; data systems and analytics capacity | Begicevic Redjep et al. (2021); Tungpantong et al. (2022); Hussain et al. (2013) |
| Human / Cultural | Faculty and staff digital competence and self-efficacy; digital culture and willingness to change; training and professional development | Sun & Yoon (2025); Mercader & Gairín (2020) |
| Task–Technology Fit | Alignment between digital tools and teaching, research and administrative tasks; disciplinary differences in technology use | Goodhue & Thompson (1995); Sun & Yoon (2025); Mercader & Gairín (2020) |
| Policy / Environmental | National and provincial digitalization policy; regional economic development level; ethnic-minority and rural-area status | Yan & Yang (2021); Sun et al. (2024) |
| Equity / Infrastructure Gap | Urban–rural disparities in connectivity and devices; disparities between well-resourced and under-resourced campuses | Hussain et al. (2013); Li et al. (2022); Sun et al. (2024) |

Figure 1 translates these factor domains into a conceptual framework. Institutional, technological, human, and policy/environmental factors are modeled as inputs into an overarching digital transformation process within Yunnan HEIs - a process that, following the six-component model, spans strategy, process, people, technology, and data (Tungpantong, Nilsook, & Wannapiroon, 2022). This process is not assumed to operate identically across all institutions and student groups: contextual moderators specific to Yunnan - the urban–rural divide, the presence of large ethnic-minority student populations, and disparities in institutional resourcing - are hypothesized to condition how strongly, and how evenly, digital transformation translates into positive outcomes. The framework distinguishes three categories of outcomes: institutional outcomes (such as governance efficiency and international competitiveness), teaching-and-learning outcomes (such as faculty performance and student engagement, consistent with the mediating role of digital self-efficacy and the moderating role of task–technology fit identified by Sun and Yoon, 2025), and equity outcomes (such as access to digital resources and the narrowing, or widening, of the urban–rural digital divide).

**Figure 1: Conceptual Framework of Factors Influencing Digital Transformation in Yunnan Higher Education Institutions**




## Discussion: Implications for Policy and Institutional Practice

### Differentiated, Rather than Uniform, Strategies

Because task–technology fit and institutional resourcing vary so markedly across Yunnan's higher education sector, provincial and institutional policy should avoid a single, standardized roadmap for digital transformation. Flagship research universities in Kunming may be well positioned to pursue advanced initiatives such as AI-enabled "smart education" and large-scale learning analytics, consistent with the ambitions embedded in national policy (Yan & Yang, 2021), whereas

smaller regional and vocational institutions may derive greater benefit from more modest, infrastructure-first interventions focused on reliable connectivity and basic digital-competence training (Begicevic Redjep, Balaban, & Zugec, 2021).

### Investing in People Alongside Infrastructure

The literature on digital self-efficacy and task–technology fit indicates that hardware and platform investment alone will not translate into improved teaching or research performance (Sun & Yoon, 2025). Institutions in Yunnan should pair infrastructure spending with sustained faculty-development programs, mentorship structures, and discipline-specific technology support, recognizing that humanities and social-science faculty may need different forms of support than colleagues in technical fields (Mercader & Gairín, 2020).

### Designing for Ethnic-Minority and Rural-Origin Students

Findings from ICT-mediated remote-education research suggest that digital content and platforms designed without reference to the preparation level, language background, and family educational context of ethnic-minority and rural-origin students risk widening, rather than narrowing, educational gaps (Sun, Zhu, Zhou, Yao, Zhang, Wang, Chen, & He, 2024). Yunnan HEIs should consider differentiated onboarding and remedial digital-literacy support for incoming students from under-resourced secondary schools, alongside efforts to localize digital content to the province's linguistic and cultural diversity.

### Treating Data Governance as a Strategic Priority

Consistent with evidence that data management is the most heavily weighted component of digital transformation in higher education settings (Tungpantong, Nilsook, & Wannapiroon, 2022), Yunnan institutions should prioritize the development of integrated, well-governed data systems for teaching, research, and administration, rather than treating data infrastructure as a residual concern after platform and hardware investments have been made.

## Limitations and Directions for Future Research

This paper is a conceptual synthesis rather than an empirical study, and its proposed framework has not yet been tested against primary survey or interview data collected from Yunnan's HEIs. Future research should validate the factor structure and the hypothesized moderating role of the urban–rural divide and ethnic-minority student status through quantitative surveys of faculty and administrators across a representative sample of Yunnan institutions, using confirmatory factor analysis approaches similar to those applied in other national contexts (Tungpantong, Nilsook, & Wannapiroon, 2022). Complementary qualitative case studies, following the methodology used in prior ICT-mediated rural-education research (Sun, Zhu, Zhou, Yao, Zhang, Wang, Chen, & He, 2024), could further illuminate how students and faculty in ethnic-minority and remote areas of Yunnan actually experience digital transformation in practice, and whether interventions succeed in narrowing, rather than reproducing, existing educational inequalities.

## Conclusion

Digital transformation in higher education is best understood not as a single technological event but as a multidimensional organizational process spanning strategy, technology, people, process, and data. In Yunnan, this process unfolds within a distinctive regional context marked by challenging geography, substantial ethnic diversity, and uneven institutional resourcing. The conceptual framework proposed in this paper integrates institutional, technological, human, task–technology fit, and policy/environmental factors with these contextual moderators to explain why digital transformation may proceed unevenly across the province's higher education sector. Rethinking higher education for the digital era in Yunnan therefore requires not only continued investment in digital infrastructure, but also differentiated institutional strategies, sustained investment in human digital competence, and deliberate attention to equity for ethnic-minority and rural-origin students. Future empirical research grounded in this framework can help guide policymakers and institutional leaders toward a more inclusive and sustainable digital transformation.

## Conflict of Interest

There is no conflict of interest between the authors in this manuscript.

## References


1. Begicevic Redjep, N., Balaban, I., & Zugec, B. (2021). Assessing digital maturity of schools: Framework and instrument. Technology, Pedagogy and Education, 30(5), 643-658. https://doi.org/10.1080/1475939X.2021.1944291
2. Goodhue, D. L., & Thompson, R. L. (1995). Task-technology fit and individual performance. MIS Quarterly, 19(2), 213-236.
3. Hussain, S., Wang, Z., & Rahim, S. (2013). E-learning services for rural communities. arXiv preprint arXiv:1308.4820.
4. Li, J., Huang, X., Lei, X., Wen, J., & Lu, M. (2022). ICT literacy, resilience and online learning self-efficacy between Chinese rural and urban primary school students. Frontiers

in Psychology.
5. Mercader, C., & Gairín, J. (2020). University teachers' perception of barriers to the use of digital technologies: The importance of the academic discipline. International Journal of Educational Technology in Higher Education, 17, Article 4. https://doi.org/10.1186/s41239-020-0182-x
6. Mohamed Hashim, M. A., Tlemsani, I., & Matthews, R. (2022). Higher education strategy in digital transformation. Education and Information Technologies, 27, 3171-3195. https://doi.org/10.1007/s10639-021-10739-1
7. Rogers, E. M. (2003). Diffusion of innovations (5th ed.). Free Press.
8. Sun, T., & Yoon, M. (2025). The impact of digital transformation on faculty performance in higher education: The mediating role of digital self-efficacy and the moderating role of task-technology fit. Frontiers in Psychology, 16, Article 1693375. https://doi.org/10.3389/fpsyg.2025.1693375
9. Sun, Y., Zhu, X., Zhou, X., Yao, B., Zhang, K., Wang, D., Chen, J., & He, L. (2024). Who changed the destiny of rural students, and how? Unpacking ICT-mediated remote education in rural China. arXiv preprint arXiv:2401.13799.
10. Tungpantong, C., Nilsook, P., & Wannapiroon, P. (2022). Factors influencing digital transformation adoption among higher education institutions during digital disruption. Higher Education Studies, 12(2), 9-19. https://doi.org/10.5539/hes.v12n2p9
11. Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. MIS Quarterly, 27(3), 425-478.
12. Yan, S., & Yang, Y. (2021). Education informatization 2.0 in China: Motivation, framework, and vision. ECNU Review of Education, 4(2), 410-428. https://doi.org/10.1177/2096531120944929