



Article Information

Received: 20 March 2026
Reviewed: 24 March to 15 April 2026
Revised: 18 April to 5 May 2026
Accepted: 29 May 2026
Published: 8 July 2026
DOI: <https://doi.org/10.3126/djci.v4i1.96567>
Available: <https://dmcjournal.edu.np/index.php/DWJCI>

Integration of digital technology in Higher Studies in Nepal: A Literature-based Synthesis

Subash KC 

Dhawalagiri Multiple Campus, Baglung

Email: subash.kc@dmc.tu.edu.np

Abstract

Digital transformation is an important part of higher education in the global context. Although Nepal has adopted e-learning technology, many educational institutions continue to face challenges related to institutional readiness, technological infrastructure, and human capacity. This article employs an integrative literature review to examine factors, including the e-learning movement in Nepalese higher education. Using a research query that addresses institutional, technological, and human willingness, the article synthesizes evidence from the latest literature published between 2019 and 2024. The finding shows that these three dimensions are highly integrated, which determines the success of digital transformation. Poor governance, a lack of an ICT structure, limited digital competencies, and limited institutional support hinder long-term sustainable implementation. This study also concludes that a strong policy framework, funding for digital infrastructure, and the development of capable manpower help drive effective digital transformation in Nepal's higher education system. The result can guide policymakers, university leaders, and researchers in strengthening digital willingness and supporting long-term educational development.

Keywords: Digital transformation, higher education, institutional readiness, ICT infrastructure

Introduction

The growing concern of digital technologies is significantly marking a shift in higher education across the world. The methods of teaching, learning, classroom environments, administrative potentiality, and student support services are not beyond the reach of digital tools such as learning management systems (LMS), augmented reality, and artificial intelligence. This transformation after the COVID-19 pandemic has changed the teaching method and adopted online learning models. For this, there should be preparedness in both human resources and technical aspects. Many institutions were compelled to adopt digital solutions without adequate planning.

It is worth noting that the digital world moves beyond the adoption of technology. It requires a complementary relationship between institutional leaders, policy frameworks, tools, and institutional development, along with human capacity. Effective transformation is based on how well these components interact within a broader system. In Nepal, digital transformation in higher education is inconsistent. There are some structural barriers, including limited ICT infrastructure, fragmented policy implementation, digital skills and insufficient digital skills among educators and students.

The above threats and challenges are evident during the pandemic and continue in different forms at present, raising questions about the online education system. This study addresses these issues by combining the existing body of literature and exploring digital readiness through three dimensions: institutional, technological, and human resources. By integrating these perspectives, the study offers insights into a systematic and context-sensitive framework for enhancing the digital transformation in the Nepalese education system. The study is based on the following researchable areas. The objectives of this study are to identify the internal university factors that influence the digital readiness of colleges in Nepal, to examine how the existing technological infrastructure supports or limits digital transformation, and to explore the human resource skills gaps that hinder the effective implementation and operation of digital systems in higher education institutions. The following research questions are addressed in this study.

Research Questions

1. What factors in the institutional level influence digital transformation readiness in Nepal?
2. How do techno-based structures shape transformation capacity?
3. What human capacity gaps hinder the digital integration?

Literature review

Global Drivers of Digital Transformation

Digital teaching in higher education is best understood as an integrated process for learning effectively. Digital transformation sounds significant to improve how students learn and interact in colleges. The colleges need a vision and mission to have good results with a good plan; they should work with technology, better

teaching methods, and a way to use techniques to help students succeed. Perez-Sanagustin et al. (2022) opine that the teaching and learning centers (TLCs) are to be established in important offices with an aim of helping them. They help show teachers how to use new tools. By doing this, they create a school culture where digital use can be applied by enabling teachers to use new tools. By doing this, they create a digital culture in the schools or colleges where digital teaching is prioritized. AlShamsi et al. (2020) argue that the higher educational institutions in the UAE remain firm with stability during crises due to long-term alignment with national ICT strategies and continuous investment in the digital field. Colleges should connect all their digital tools, like online classes, digital certificates, and student portfolios. The digital changes work, and one must focus on helping people improve their skills and keeping their needs at the center of the plan. Velu (2022) “highlights the significance of design thinking and collaborative readiness indicators in evaluating innovative learning environments. For transformation of last, people need the confidence to use tech, work together, and use flexible ways of teaching” (p. 23). The main goal is to focus on human connection while also using modern technology. Fridayani and Iqbal (2022) found that “digital libraries help people learn better and find information more easily. However, this only happens if there is a clear plan, organized information, training for users, and enough money to keep things running” (45). Today, digital libraries are not just an extra add-on. This shows how universities work, especially for online classes, where the digital systems make this school system better. The PATH-USAID STBCEU project (2024) states that technology-supported programs and systems improve engagement, continuity, and personalization through structured monitoring of the digital surroundings. Colleges can use these ideas to support students who are in a hurry to carry out their studies. The digital gadgets help them to work hard, give students immediate feedback, and track their progress through data in order to help their continuous progress. Around the globe, universities are making e-learning a top priority. This has changed in how students learn, how teachers teach, and how they are managed and supported by technology (Akour & Alenezi, 2022; Alenezi, 2021; Reis & Melao, 2023)

Technological readiness in international university education

Technological readiness refers to an institution’s readiness to adopt technology. Which is used effectively. It should have a good internet connection with a better e-learning platform, and use better characteristics of cyber problems. Applications like designing software canvas, Moodle play as the core digital platform for teaching, conversation, and grading in a single hub (Benavides et al., 2020). System Connectivity means different computers can communicate with each other. When they are integrated into communication, they share good results with others. This provides better results for the students (Rodriguez-Abitia & Bribiesca-Correa, 2021). Cloud computing makes it simple according to the needs of the students and teachers when they move to remote learning (Abad-Segura et al., 2020). Even though there is the development of innovative technology, many users are still left behind. The expense of the technological equipment has not made changes in digital society. It is a great issue for developing countries like Nepal, where a disturbed network can make schools ill-prepared for the digital era.

Human readiness in international contexts

Human readiness means the digital competencies, behavior, and interest of members, administration, and technical staff to establish digital transformation efficiently. Holding the best technological equipment doesn't mean that students will benefit from it. If the lecturer does not make the digital equipment comfortable and use it in an easy way, the return to the old form, which is teacher-based learning. This makes the class feel very irritating and does not make students creative. (Murillo-Zamorano et al., 2021). Learners may not be ready for e-learning. This can be tough for some reason: feeling bored to see the display at any time, trying to get knowledge from mobile rather than from gadgets, and being unaware of how to make it in the digital format. This makes them fail in the exam (Syed et al., 2021). When the study house starts to use many gadgets, their all-round behaviors- how they integrate together- mean a lot. Study centers that are comfortable and interested always generate new ideas to do their work in a good manner. On the other side, if the teacher does not feel comfortable or doesn't believe in the latest digital devices, the move to gadgets will take a long time (Garcia-Penalvo, 2021). Developing digital competencies between teachers and students is the best way to sustain integrated technology (Rego et al., 2024)

Documented Trend in Nepali Technological Transformation

Study centers in Nepal face a complex time moving to an e-learning platform for three main reasons: the connectivity is very slow, the lack of budget to buy the digital equipment, and last but not least, the government policies are very difficult to follow. Two scholars, Adhikari and Shah (2021), noted and said that Nepal is ready to give the best knowledge to every Nepali citizen, but other educational centers are not ready to make it happen in the best way. Though they have a plan to apply technological education in the Nepali educational system, it is not working. Study centers are doing what they wanted to do, which resulted in students not being able to learn about digital gadgets. On the other hand, the library is also not able to provide better services to the students. And also, there is no pure vision to solve this problem (Koirala & Adhikari, 2020). If there is no clear vision, schools can only react to problems instead of planning for the future. Also, how teachers know how to use them in different sectors. As they have not received proper training, they never feel comfortable giving better services and delivering good services to e-learning (Singh & Luitel, 2021). E-learning inequality makes it complex for learners to prepare for e-learning classes. As most of them do not have their own gadgets, they could not complete their task on smartphones. This makes them a limitation because of the costly network connection in the village area (Shrestha & Basnet, 2020). As the outcome of this, the students may feel compelled to continue their studies and get better marks.

Theoretical Framework

This study is based on three theoretical perspectives to explain digital transformation, focusing on system theory, which posits that institutions operate as interconnected systems where different components influence each other. Second, it deals with Socio-Technical Systems Theory, which is the interaction between

technology and human actors. Third, it deals with the Technology Acceptance Model (TAM), which is studied as how new ideas and technologies spread within institutions. Together, these theories support a multidimensional understanding of digital readiness. Integrating these theories helps create a comprehensive framework to find digital transformation readiness.

Methodology

This study applies an integrative literature review approach (Torraco, 2016) to look for digital transformation preparedness in Nepalese higher education. The past literature was identified through academic databases using key ideas and keywords such as digital transformation, higher education, Nepal, and ICT readiness. The selected materials cover the time span of 2019 and 2024 to ensure relevance and truthfulness. Studies were selected according to predefined inclusion and exclusion criteria using thematic coding. The data were discussed and analyzed using thematic cum structural coding, showing findings into three dimensions: institutional, technological, and human readiness.

Data Sources and Search Strategy

The needed past literature was identified using Google Scholar and peer-reviewed academic spaces like academic journals. The search process includes: Digital transformation, Higher education, Nepal, ICT readiness, and Digital pedagogy.

Inclusion Criteria

Studies were included based on the following criteria: Peer-reviewed journal articles or institutional reports; Direct relevance to digital transformation in higher education; Conceptual or empirical contribution

Table 1

Selection Process

Stage	Numbers of Sources
Identified	60
Screened	35
Excluded	16
Final Included	19

Sources: Institutional readiness, Technological readiness, Human readiness

Data Analysis

The studies included in this review were carefully researched and organized into three ideas. These areas focused on the readiness of institutions covering aspects such as educational structures, frameworks, and mechanisms. The technological readiness, which relates to infrastructure, digital systems, and internet connectivity, is to be managed, and human readiness, which is the competencies of tutors, student digital literacy, and the availability of support staff and study centers, is to be managed.

Findings

Institutional Readiness

Institutional readiness is a dependent category of policy alignment and financial capacity. In Nepal, leadership engagement in digital transformation remains underexplored, and policy practice is often broken. The absence of a unified national strategy leads to inconsistent trends. Financial limitations restrict digital infrastructure and training.

Technological Readiness

Technological readiness is required but is limited or obstructed by infrastructure limitations, weak systems, and connectivity. Although some institutions use learning management systems, these platforms are constantly being modified.

Human Readiness

Human readiness is a challenge, which is a lack of digital competence and technical support. Many faculty members and educators lack training in digital/instructional pedagogy, while students face limitations in using digital systems.

Table 2

Novelty

Aspect	Global Framework		This Study
Focus	General	Digital	Nepal-specific context
	Transformation		
Approach	Separate dimensions		Integrated system
Contribution	Conceptual		Contextual+ synthesis

The framework is put in the form of three interconnected aspects that together give an outline for overall readiness. The first layer is about the institutional governance, including policy direction, dedication, commitment, and the allocation of resources. The second layer is on technological infrastructure, which covers aspects such as internet connectivity. The third layer emphasizes human development capacity, focusing on the importance of training, digital literacy, and the role of support in the implementation aspects. This is called the Tri-dimensional Digital Transformation Readiness Framework.

Discussion

The findings assert that a good willingness for digital changes for positive results in Nepalese higher education is necessary, and this is to be integrated at the policy level as a process shaped by institutional formation, digital tools, and manpower.

Institutional Readiness and Governance Challenges

This analysis exposes that institutional readiness is obstructed due to incompetent governance systems, a lack of implementation, and fragile financial support. Effective organizations based on well-coordinated structures and processes

are necessary. However, in Nepal, the lack of a clear strategy for digital higher education has led to fragmented systems and practices across institutions. This situation rethinks the broader global findings, focusing on strong leadership and consistent policy direction as essential for meaningful and sustainable digital transformation (Perez-Sanagustin et al., 2022). When governance frameworks are not defined clearly and remain unclear, they remain scattered and fail to produce the desired outcomes.

Technological Readiness and Infrastructure Limitations

The study gives importance to several challenges based on technological readiness, particularly in terms of infrastructure, integration, and net connectivity. These stress that technology is to be aligned with institutional processes to work well. In the Nepalese context, digital platforms reduce the overall effectiveness of existing tools, with research suggesting that simply providing technological infrastructure is not enough; it must be supported by willing institutional coordination and technical expertise (Rodriguez-Abitia & Bribiesca-Correa, 2021).

Human Readiness and Capacity Gaps

The important aspects of human willingness, dedication, and readiness consist of faculty digital skills, student literacy, and the availability of technical staff. These issues are mentioned using the Technology Acceptance Model (TAM), which indicates that people use technology. In many cases, the absence of proper technical and digital support leads educators to simply transfer traditional teaching methods into digital platforms, rather than exploring more innovative approaches. At the same time, students often rely heavily on mobile devices and may lack the advanced digital skills needed for effective online learning (Singh & Luitel, 2021).

Interdependence of Readiness Dimensions

One of the most important contributions of this study is its emphasis on how institutional, technological, and human readiness are closely interconnected. Weakness in one area tends to affect the others. For instance, poor governance can limit investment in infrastructure, inadequate infrastructure can discourage faculty innovation, and limited human capacity can result in underuse of digital systems. This interconnected nature aligns with socio-technical integration models, which argue that meaningful and sustainable transformation requires balanced development across all components of the system (Garcia-Penalvo, 2021).

Implications for Policy and Practice

The findings of this study point to the urgent need for a more coordinated and strategic approach to digital transformation in Nepalese higher education. At the policy level, clear and unified digital education strategies should be developed to guide institutions in planning and implementing digital systems effectively. In addition, greater investment is required to improve technological infrastructure and internet connectivity, particularly in institutions where limited resources continue to restrict digital growth. Strengthening leadership and governance mechanisms is also essential for ensuring effective decision-making, coordination, and sustainability of

digital transformation initiatives. At the institutional level, universities should give priority to enhancing faculty training in digital teaching methods so that teachers can use digital tools more effectively in teaching and learning. Similarly, the integration and effective use of learning management systems should be improved to support flexible, accessible, and interactive learning environments. Furthermore, universities need to expand technical support services by appointing skilled personnel who can assist teachers, students, and administrators in the effective implementation and operation of digital systems.

Ethical approval for the research: Not applicable

Consent for publication: Not applicable

Conflict of interest: The author does not have any conflict of interest with any institutions concerning this research

Ethical conduct of research: This paper is written ethically

References

- Abad-Segura, E., González-Zamar, M. D., Infante-Moro, J. C., & Ruipérez García, G. (2020). Sustainable management of digital transformation in higher education: Global research trends. *Sustainability*, 12(5), Article 2107. <https://doi.org/10.3390/su12052107>
- Adhikari, R., & Shah, S. (2021). Preparedness of higher education institutions for achieving Sustainable Development Goal 4: The case of Nepal. *Journal of Education and Research*, 11(1), 1–18.
- Akour, M., & Alenezi, M. (2022). Higher education future in the era of digital transformation. *Education Sciences*, 12(11), Article 784. <https://doi.org/10.3390/educsci12110784>
- Alenezi, M. (2021). Deep dive into digital transformation in higher education institutions. *Education Sciences*, 11(12), Article 770. <https://doi.org/10.3390/educsci11120770>
- AlShamsi, A., Mohaidat, J., Al Hinai, N., & Samy, A. (2020). Instructional and business continuity amid and beyond COVID-19 outbreak: A case study from the Higher Colleges of Technology. *International Journal of Higher Education*, 9(6), 118–131. <https://doi.org/10.5430/ijhe.v9n6p118>
- Benavides, L. M. C., Tamayo Arias, J. A., Arango Serna, M. D., Branch Bedoya, J. W., & Burgos, D. (2020). Digital transformation in higher education institutions: A systematic literature review. *Sensors*, 20(11), Article 3291. <https://doi.org/10.3390/s20113291>
- Berniak-Woźny, J., [complete author names needed]. (2021). The impact of learning mode on student satisfaction with teaching quality: Evaluation of academic staff teaching before and during COVID-19. *Journal of Research in Innovative Teaching & Learning*.

- Fridayani, H. D., & Iqbal, M. (2022). Digital collection transformation at the Library of National Cheng Kung University Taiwan: An evaluation. *Indonesian Journal of Librarianship*, 3(1), 1–12.
- García-Peñalvo, F. J. (2021). Avoiding the dark side of digital transformation in teaching: An institutional reference framework for eLearning in higher education. *Sustainability*, 13(4), Article 2023.
<https://doi.org/10.3390/su13042023>
- Gkrimpizi, T., & Peristeras, V. (2022). Barriers to digital transformation in higher education institutions. In *Proceedings of the 15th International Conference on Theory and Practice of Electronic Governance*.
<https://doi.org/10.1145/3560107.3560135>
- Gkrimpizi, T., Peristeras, V., & Magnisalis, I. (2023). Classification of barriers to digital transformation in higher education institutions: Systematic literature review. *Education Sciences*, 13(7), Article 746.
<https://doi.org/10.3390/educsci13070746>
- Jerez, Ó., [complete author names needed]. (2022). A competency framework for teaching and learning innovation centers for the 21st century: Anticipating the post-COVID-19 age. *Electronics*, 11(3), Article 413.
<https://doi.org/10.3390/electronics11030413>
- Koirala, S. (2019). An empirical study on the determinants of ICT integration in Nepalese higher education: Teachers' perspectives on infrastructure, support, and readiness. *Journal of Educational Technology Research*, 8(1), 1–18.
- Koirala, S., & Adhikari, P. (2020). Digitalization in Nepal: A review of policy, development, and institutional practices. *Nepal Journal of Public Affairs*, 12(3), 44–59.
- Malla, K. P., & Shrestha, R. (2021). Exploring readiness for digital transformation in a higher education institution towards Industrial Revolution 4.0. *International Journal of Management and Applied Research*, 8(3), 213–229.
- Murillo-Zamorano, L. R., López Sánchez, J. Á., Godoy-Caballero, A. L., & Bueno Muñoz, C. (2021). Gamification and active learning in higher education. *International Journal of Educational Technology in Higher Education*, 18, Article 15. <https://doi.org/10.1186/s41239-021-00249-y>
- PATH-USAID. (2024). *Strengthening Teaching, Behavior Change and Education through Universities (STBCEU) project report*. PATH.
- Pérez-Sanagustín, M., [complete author names needed]. (2022). A competency framework for teaching and learning innovation centers supporting sustainable digital transformation. *Electronics*, 11(3), Article 413.
<https://doi.org/10.3390/electronics11030413>
- Rathina Velu, S. (2022). The Delphi technique in digital transformation toward innovative learning readiness. *Journal of Southwest Jiaotong University*, 57(5), 621–634.
- Reis, J., & Melão, N. (2023). Digital transformation: A meta-review and guidelines for future research. *Heliyon*, 9(1), Article e12834.
<https://doi.org/10.1016/j.heliyon.2023.e12834>

- Rêgo, B. S., Lourenço, D., Moreira, F., & Pereira, C. S. (2024). Digital transformation, skills and education: A systematic literature review. *Industry and Higher Education*, 38(4), 336–349. <https://doi.org/10.1177/09504222231208969>
- Rodríguez-Abitia, G., & Bribiesca-Correa, G. (2021). Assessing digital transformation in universities. *Future Internet*, 13(2), Article 52. <https://doi.org/10.3390/fi13020052>
- Rof Bertrams, A., Bikfalvi, A., & Marquès i Gou, P. (2020). Digital transformation for business model innovation in higher education. *Sustainability*, 12(12), Article 4980. <https://doi.org/10.3390/su12124980>
- Shrestha, S., & Basnet, D. (2020). Digital transformation trends in Nepal's education sector: Challenges and opportunities. *Research Journal of University Reform*, 31(9), 85–102.
- Singh, A., & Luitel, B. (2021). Digital transformation readiness of university teachers: A Nepalese case analysis. *Asia-Pacific Journal of Educational Research*, 13(2), 1143–1160.
- Soomro, M. (2022). Sustainable e-learning transformation in developing countries: Insights from the IR 4.0 transition. *Sustainability*, 17, Article 619.
- Syed, A. M., Ahmad, S., Alaraifi, A., & Rafi, W. (2021). Identification of operational risks impeding the implementation of eLearning. *Education and Information Technologies*, 26, 655–671. <https://doi.org/10.1007/s10639-020-10281-6>
- Torraco, R. J. (2016). Writing integrative literature reviews: Using the past and present to explore the future. *Human Resource Development Review*, 15(4), 404–428.
- UNESCO, & Ministry of Education, Science and Technology. (2020). *Higher education digital readiness assessment report: Nepal*. UNESCO Kathmandu.

About the Author

Subash K.C. (ORCID iD: <https://orcid.org/0009-0003-2297-6661>) serves as a Computer Science teacher under Tribhuvan University and is presently affiliated with Dhawalagiri Multiple Campus, Baglung. Mr. K.C. has been working as a teacher for the past 10 years and has considerable experience in information technology. He has also been involved in research activities for the past three years.