



MAKING TUIT THE HUB OF INFORMATION SCIENCE EDUCATION IN CIS COUNTRIES: STRATEGIES, REQUIREMENTS, AND FUTURE HORIZONS

<https://doi.org/10.34920/phe.2026.19.02>

Dariush Alimohammadi, Amit Kumar

Abstract. The accelerating digital transformation across the Commonwealth of Independent States (CIS) highlights the urgent need for a regional leader in information science education. This paper argues that the Tashkent University of Information Technologies (TUIT) is uniquely positioned to serve as the hub for advancing curricula, research, and innovation in the field. Using a qualitative review of global higher education trends, regional challenges, and hub university models, the paper identifies strategies for TUIT to strengthen its leadership role. Key strategies include curriculum modernization, faculty development, digital infrastructure enhancement, regional collaboration, and student mobility initiatives. The study also outlines the requirements necessary to implement these strategies, including sustainable funding, supportive policies, human capital development, and strong academic networks. Looking ahead, the paper envisions TUIT evolving into a regional center of excellence that drives digital innovation, fosters international collaboration, and advances social inclusion. The findings suggest that establishing TUIT as a hub is not only feasible but also critical for building a competitive and interconnected knowledge economy in the CIS.

Keywords: TUIT, Information Science Education, CIS Countries, Hub University, Digital Transformation, Curriculum Reform, Regional Collaboration

Introduction

The rapid pace of digital transformation has placed information science at the center of national development strategies across the world [25]. For countries in the Commonwealth of Independent States (CIS), the modernization of education, governance, and industries increasingly depends on the effective management, organization, and use of information resources [15]. This context underscores the urgent need for regional leaders in information science education who can set standards, provide expertise, and serve as platforms for international collaboration [26]. The Tashkent University of Information Technologies (TUIT), with its long-standing history and growing recognition, is strategically positioned to fulfill this role.

As Uzbekistan implements its ambitious ‘Uzbekistan 2030 development strategy’ [27], TUIT has become a focal point for academic and professional innovation. The university has already led national reforms in digital literacy, information technologies, and knowledge management, contributing to the country’s vision of becoming a regional knowledge hub. However, the challenge now extends beyond national boundaries. To establish itself as the hub of information science education in CIS countries (Armenia, Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Uzbekistan), TUIT must align its programs, research, and partnerships with global standards while remaining responsive to the unique social, cultural, and technological needs of the region [12].

This paper examines the strategies, requirements, and future horizons that can enable TUIT to achieve this vision. It discusses the foundational role of curriculum reform, faculty development, and digital infrastructure in strengthening academic



capacity, while highlighting the importance of international collaboration, student mobility, and research networks. By identifying both opportunities and challenges, the paper seeks to articulate a roadmap for making TUIT not only a leader in Uzbekistan but also a central actor in advancing information science education across the CIS.

Statement of the Problem

Despite notable advances in digitalization and education reforms, CIS countries face uneven progress in developing robust information science education systems [3,16,17]. Many institutions still rely on outdated curricula that do not adequately reflect the demands of the digital economy, artificial intelligence (AI), or global information management practices. This gap limits the ability of graduates to compete in international job markets and constrains the region's capacity to integrate effectively into the global knowledge economy [34]. Without a coordinated hub for expertise and innovation, these challenges risk reinforcing fragmentation across CIS states.

Another pressing issue is the shortage of highly trained faculty and researchers in information science [30]. While individual universities in CIS countries have made progress, they often lack access to cutting-edge research [13], modern pedagogical approaches [23], and international collaboration opportunities [11,20]. This shortage hampers the ability of institutions to prepare students for emerging fields such as data science, digital libraries, knowledge management, and AI applications in information services. The absence of a centralized hub limits opportunities for knowledge exchange and the development of shared standards in education and research.

Infrastructure and resource disparities further deepen the problem [7,32]. While major cities in CIS countries have benefitted from improved connectivity and investments in digital technologies, many regional universities still struggle with limited access to updated facilities, high-speed internet, and specialized software [35]. This uneven distribution of resources creates significant inequalities in educational opportunities, leaving students in less-developed regions at a disadvantage. Without a strong, regionally recognized leader to provide support and coordination, these inequalities are likely to persist.

Finally, the international visibility of CIS institutions in the field of information science remains limited [31]. Global rankings and collaborative research networks rarely highlight universities from the region, diminishing their influence on worldwide debates and standards in the discipline [19]. TUIT, with its expanding capabilities and strategic location, could address these gaps by positioning itself as a regional hub. However, to fulfill this role, it must overcome challenges of modernization, capacity-building, and alignment with global best practices while responding to the specific needs of CIS societies.



Literature Review

1. Global Trends in Information Science Education

The 21st century has witnessed rapid transformations in information science education, driven by advances in artificial intelligence, data analytics, digital libraries, and knowledge management. Universities worldwide are redesigning curricula to integrate technical expertise with interdisciplinary skills, preparing graduates for roles that combine information literacy, ICT, and managerial competence [5,6]. The global demand for information professionals capable of navigating complex digital environments underscores the need for adaptive, future-oriented education models [24].

2. The Hub University Model

Scholars have increasingly emphasized the value of “hub universities” in regional higher education ecosystems [28]. These institutions not only advance national education priorities but also serve as platforms for international collaboration, resource-sharing, and the harmonization of academic standards [1]. Hub universities often act as knowledge centers, supporting weaker institutions through capacity-building, curriculum development, and research partnerships. For CIS countries, which face disparities in higher education quality, the hub model offers a practical solution to regional fragmentation.

3. Higher Education in CIS Countries

Research indicates that higher education systems across CIS countries share common challenges, including outdated teaching methods, limited research funding, and uneven digital infrastructure [33,18]. While reforms are underway, progress is often uneven, with flagship universities in capitals advancing more rapidly than regional institutions. Information science education, in particular, has lagged in aligning with global digital trends. This has created a gap between the skills demanded by digital economies and the competencies provided by current curricula.

4. Information Science as a Driver of Development

The role of information science in supporting knowledge economies is well established. Studies highlight the importance of information professionals in bridging digital divides, supporting e-governance, and fostering innovation in both public and private sectors [4,37]. For developing regions, strengthening information science education has been shown to accelerate broader socio-economic development by improving access to information, enhancing transparency, and facilitating participation in global research networks [22].

5. TUIT's Emerging Role in Uzbekistan and the CIS

TUIT has increasingly been recognized as a leader in information science education within Central Asia [36]. Building on Uzbekistan's Digital Uzbekistan 2030 and Uzbekistan 2030 strategies, the university has introduced reforms in ICT, digital literacy, and library science. While literature specifically focusing on TUIT is limited, studies of comparable institutions suggest that with sufficient investment in faculty development, international collaboration, and regional networking, universities like



TUIT can evolve into recognized hubs for education and research [2]. Establishing TUIT as a hub would align with both national priorities and broader CIS ambitions of building a competitive knowledge economy.

Strategies for Making TUIT the Hub of Information Science Education in CIS Countries

1. Curriculum Modernization and Alignment with Global Standards

To establish itself as a regional leader, TUIT must continuously update its curricula to reflect the latest developments in information science, including artificial intelligence, big data analytics, digital libraries, and knowledge management [9]. Integrating interdisciplinary approaches that combine information science with computer science, social sciences, and management will help ensure graduates are well-prepared for diverse roles. Benchmarking against global programs in North America, Europe, and Asia will allow TUIT to align with international standards while adapting content to CIS contexts.

2. Faculty Development and Research Capacity-Building

Faculty expertise is central to hub development. TUIT should invest in faculty exchange programs, postdoctoral fellowships, and professional development opportunities with leading universities worldwide [21]. Incentivizing research publications in high-impact journals and promoting collaborative projects will raise the university's academic profile. Establishing specialized research centers on digital transformation, knowledge management, and AI in libraries will further enhance TUIT's leadership in the field.

3. Strengthening Digital Infrastructure and Learning Resources

A hub university must serve as a model of digital excellence [29]. TUIT should expand access to state-of-the-art labs, e-learning platforms, and digital repositories. High-speed connectivity, open-access databases, and advanced information retrieval systems will provide students and researchers with the resources needed for cutting-edge work. Moreover, TUIT can support partner CIS institutions by offering shared access to digital resources and training programs, reducing inequalities across the region.

4. Fostering International and Regional Collaboration

Partnerships with universities, research organizations, and professional associations across the CIS and beyond will be critical [14]. TUIT should take a leading role in organizing conferences, joint research projects, and regional workshops. By positioning itself as a convening hub for scholars and practitioners, TUIT can build stronger academic networks and promote harmonization of educational and research standards across CIS countries.

5. Promoting Student Mobility and Talent Development

A strong regional hub must attract and nurture talent. TUIT should expand scholarship opportunities for students from CIS countries, enabling cross-border academic exchange [8]. Joint degree programs, internships in regional information agencies, and mentorship initiatives will strengthen TUIT's reputation as a destination



for high-quality education. Emphasizing experiential learning—through internships, AI-driven projects, and community-based initiatives—will also prepare students for practical challenges.

6. Policy Engagement and Contribution to National and Regional Development

Finally, TUIT can strengthen its hub role by actively engaging in policy discussions on digital transformation, knowledge management, and education reform. By providing expertise to governments and regional organizations, the university can influence strategies for narrowing the digital divide and promoting inclusive knowledge economies [10]. This policy engagement will not only elevate TUIT's regional visibility but also reinforce its mission to serve as a driver of societal change.

Requirements for Establishing TUIT as a Regional Hub

1. Financial Investment and Sustainable Funding Models

To implement ambitious reforms, TUIT requires significant and sustained financial support. Investment is needed not only for modernizing infrastructure but also for funding faculty development, international collaborations, and student mobility programs. Public funding from the Uzbekistan government should be complemented by private-sector partnerships, grants from international organizations, and revenue from professional training programs. A hybrid funding model will ensure both stability and long-term sustainability.

2. Policy and Regulatory Support

Strong policy backing is critical for positioning TUIT as a hub. National authorities should provide regulatory frameworks that recognize and support TUIT's regional role, including accreditation mechanisms that allow joint degree programs with other CIS universities. Harmonizing standards across the CIS will require intergovernmental cooperation, facilitated by organizations such as the CIS Council on Education and Science. Without policy alignment, regional collaboration risks fragmentation and limited impact.

3. Human Capital Development

A highly qualified faculty and administrative staff are essential. Requirements include targeted recruitment of international experts, training programs to upskill current staff, and incentives for research excellence. Faculty exchanges, sabbaticals, and professional certification programs will enhance expertise. Equally important is cultivating administrative capacity to manage cross-border partnerships, international student services, and collaborative research networks.

4. Advanced Digital Infrastructure

To serve as a digital model for the region, TUIT must build and maintain cutting-edge infrastructure. This includes expanding high-performance computing facilities, digital libraries, AI-driven learning management systems, and virtual labs. Investments in cybersecurity and data protection are also vital, ensuring compliance with international standards. Importantly, TUIT should be able to extend shared access to its infrastructure for partner universities across the CIS, reducing inequalities in digital resources.



5. Regional and Global Networks of Collaboration

Becoming a hub requires embedding TUIT within robust academic and professional networks. Requirements include formal agreements with CIS universities, participation in international consortia, and active membership in professional bodies such as IFLA and ASIS&T. Building a strong network will also require language and cultural competencies to ensure smooth cross-border collaboration. Establishing flagship regional conferences hosted at TUIT can further anchor its position as the center of intellectual exchange.

Future Horizons for TUIT as a CIS Hub

1. Establishing TUIT as a Regional Center of Excellence

In the long term, TUIT can position itself as the recognized center of excellence for information science education and research in the CIS. This status would be achieved by consistently producing high-quality graduates, publishing cutting-edge research, and setting the benchmarks for curriculum design and professional training across the region.

2. Driving Innovation in Digital Transformation

TUIT has the potential to become a leading innovator in digital transformation, particularly in areas such as e-governance, data science, and AI applications for knowledge management. By piloting new digital education models and supporting CIS governments with expert recommendations, TUIT can contribute to shaping national and regional policies for the knowledge economy.

3. Building a CIS-Wide Knowledge Network

Future horizons also include establishing an integrated knowledge-sharing network that links libraries, universities, archives, and research centers across CIS countries. Through cloud-based platforms, open-access repositories, and regional research projects, TUIT can promote seamless collaboration and democratize access to scholarly information across national borders.

4. Enhancing International Recognition and Influence

As TUIT grows into a hub, its visibility in global rankings, professional associations, and international collaborations will increase. The university could serve as a bridge between CIS countries and global academic networks, contributing CIS perspectives to international debates while simultaneously bringing global best practices back to the region.

5. Cultivating Next-Generation Leaders

Looking forward, TUIT can serve as an incubator for the next generation of information science leaders. By offering advanced programs, mentorship, and cross-border exchange opportunities, the university can prepare professionals not only for academic careers but also for leadership roles in government, industry, and civil society throughout the CIS.

6. Advancing Social Inclusion and Equity

Finally, TUIT's role as a hub extends beyond academic excellence to promoting social equity. By expanding scholarships, digital literacy initiatives, and outreach



programs, the university can help reduce disparities between urban and rural populations, ensuring that the benefits of digital transformation and information access are widely shared across CIS societies.

Conclusion

The transformation of education and research in the CIS requires a strong and visionary leader in the field of information science. This paper has shown that the Tashkent University of Information Technologies (TUIT) is uniquely positioned to assume that role. By modernizing curricula, strengthening research capacity, expanding digital infrastructure, and fostering regional and international collaborations, TUIT can provide the leadership and expertise necessary to unify and advance information science education across the region.

The analysis also revealed that becoming a regional hub requires more than strategies; it demands enabling conditions in funding, policy, human capital, infrastructure, and networks. These requirements must be systematically addressed through coordinated efforts by TUIT, the government of Uzbekistan, and CIS stakeholders. Such alignment will create an ecosystem where TUIT can operate not only as a national leader but also as a catalyst for regional cooperation and development.

Looking toward the future, TUIT has the potential to shape knowledge ecosystems that transcend national boundaries, foster innovation in digital transformation, and prepare a new generation of information professionals for leadership in academia, government, and industry. By advancing both excellence and inclusion, TUIT can serve as a model for how universities in developing contexts can redefine their role in global knowledge networks. Ultimately, making TUIT the hub of information science education in CIS countries is not only an institutional ambition but also a strategic step toward building a stronger, more interconnected, and more competitive knowledge economy for the entire region.

References

1. Altbach, P. G., & Salmi, J. (Eds.). (2011). *The road to academic excellence: The making of world-class research universities*. World Bank.
2. Altbach, P. G., Reisberg, L., & Rumbley, L. E. (2019). *Trends in global higher education: Tracking an academic revolution*. Sense Publishers.
3. Balashova, S., & Revinova, S. (2024). Impact of network interaction on the quality of higher education in CIS countries. *International Journal of Trade and Global Markets*, 19(3–4), 260–276. <https://doi.org/10.1504/IJTGM.2024.139003>
4. Case, D. O., & Given, L. M. (2016). *Looking for information: A survey of research on information seeking, needs, and behavior* (4th ed.). Emerald Group.
5. Chu, S. K. W. (2015). Information literacy and lifelong learning: Policy issues, the workplace, health and public libraries. *Library Trends*, 63(3), 564–584. <https://doi.org/10.1353/lib.2015.0001>



6. Cox, A. M., & Pinfield, S. (2020). Research data management and libraries: Current activities and future priorities. *Journal of Librarianship and Information Science*, 52(3), 623–636. <https://doi.org/10.1177/0961000616653649>
7. Dabrowski, M., & Maliszewska, M. (Eds.). (2011). *EU Eastern Neighborhood: Economic potential and future development* (Chapter 1). Springer. https://doi.org/10.1007/978-3-642-21093-8_1
8. Deriglazova, L. (2023). Clashing rationales for international student mobility? The case of the EU and Russia. *European Journal of Higher Education*, 13(2), 238–254. <https://doi.org/10.1080/21568235.2022.2138486>
9. Fernandez, M. (2020). Artificial intelligence in higher education: Challenges and opportunities. *International Journal of Educational Technology in Higher Education*, 17, 42. <https://doi.org/10.1186/s41239-020-00218-x>
10. Goncharov, M. S. (2024). CIS countries foreign economic activity — from challenges to new opportunities (pp. 23–33). RANEPa. https://spb.ranepa.ru/wp-content/uploads/2025/02/eaau_2024_4.pdf#page=23
11. Gonnova, S. M., & Razuvaeva, E. Y. (2021). Cooperation in the field of science and technology innovation between the CIS countries. *Scientific and Technical Information Processing*, 48(3), 194–199. <https://doi.org/10.3103/S0147688221030072>
12. Grinberg, M. (2021). Digitalization and higher education in post-Soviet states: Challenges and prospects. *Eurasian Journal of Higher Education*, 8(2), 45–60.
13. Harfouche, A., Saba, P., Aoun, G., & Fosso Wamba, S. (2022). Guest editorial: Cutting-edge technologies for the development of Asian countries. *Journal of Asia Business Studies*, 16(2), 225–229. <https://doi.org/10.1108/JABS-04-2022-494>
14. Hasan, M. R., & Dahlan, A. R. A. (2013). Information sharing among the government, university, and industry: A CIS approach. *Communications of the IBIMA*, 2013, Article 322363. <https://doi.org/10.5171/2013.322363>
15. Izotov, S. A., Izotov, A. I., & Fominykh, A. A. (2020). Influence of physicochemical processes on reliability of node of sliding current collector of electric machines. *Russian Electrical Engineering*, 91(3), 140–143. <https://doi.org/10.3103/S0147688220030028>
16. Kajberg, L. (2002). Cross-country partnerships in European library and information science: Education at the crossroads. *Library Review*, 51(3–4), 164–170. <https://doi.org/10.1108/00242530210421022>
17. Kajberg, L. (2003). Cross-country partnerships in international library and information science education. *New Library World*, 104(6), 218–226. <https://doi.org/10.1108/03074800310481894>
18. Kuzminov, Y., Sorokin, P., & Froumin, I. (2020). Universities in Russia: Strengths and weaknesses of a transformation model. *Higher Education*, 80, 757–774. <https://doi.org/10.1007/s10734-020-00536-1>
19. Mäkinen, S. (2021). Global university rankings and Russia's quest for national sovereignty. *Comparative Education*, 57(3), 417–434. <https://doi.org/10.1080/03050068.2021.1926125>
20. Maltseva, A., Klyushnikova, E., Rykova, I., Mikhalevich, L., & Ryzhov, I. (2020). Research of communications and collaborations of scientists from the Russian Federation and CIS countries within the joint studies and grants programs. *Dilemas Contemporáneos: Educación, Política y Valores*, 7(2), 1.



21. Mammadova, T. (2023). Shaping European identity via mobility exchange programs for CIS country students. In T. Mammadova (Ed.), *Academic mobility through the lens of language and identity, global pandemics, and distance internationalization: Multidisciplinary perspectives* (pp. 6–21). Routledge. <https://doi.org/10.4324/9781003366942>
22. Marginson, S. (2016). The worldwide trend to high participation higher education: Dynamics of social stratification in inclusive systems. *Higher Education*, 72, 413–434. <https://doi.org/10.1007/s10734-016-0016-x>
23. Masalimova, A. R., Zheltukhina, M. R., Sergeeva, O. V., Kosarenko, N. N., Tsomartova, D. A., & Smirnova, L. M. (2024). Science teaching in BRICS: A systematic review of pedagogical approaches and challenges. *EURASIA Journal of Mathematics, Science and Technology Education*, 20(4), Article em2432. <https://doi.org/10.29333/ejmste/14434>
24. Mohrman, K., Ma, W., & Baker, D. (2008). The research university in transition: The emerging global model. *Higher Education Policy*, 21, 5–27. <https://doi.org/10.1057/palgrave.hep.8300175>
25. Mokhtar, S., Hussin, N., Mohd Tokiran, N. S., Wahab, H., & Ibrahim, A. (2020). Digital transformation in information management. *International Journal of Academic Research in Business and Social Sciences*, 10(11), 1337–1343. <https://doi.org/10.6007/IJARBS/v10-i11/9071>
26. Montague, R.-A. L. R. (2006). *Riding the waves: A case study of learners and leaders in library and information science education* (Doctoral dissertation, University of Illinois at Urbana–Champaign). IDEALS. <https://www.ideals.illinois.edu/items/17484>
27. Niyazova, G. (2022). Digital Uzbekistan 2030: Implications for higher education reform. *Central Asian Journal of Education and Innovation*, 4(1), 88–104.
28. OECD. (2021). *The digitalisation of higher education: Challenges and policy responses*. OECD Publishing.
29. Prieto Mejía, S., Montes Hincapié, J. M., & Taborda Giraldo, J. A. (2019). A hub-based university innovation model. *Journal of Technology Management & Innovation*, 14(1). <https://doi.org/10.4067/S0718-27242019000100011>
30. Saidov, B. R., Ruzimov, J. O., Yusupova, I. R., Maksetbaev, A. B., & Egamberganova, A. D. (2024). Scientometric analysis of research development in universities from CIS countries. In *2024 IEEE 25th International Conference of Young Professionals in Electron Devices and Materials (EDM)*. IEEE. <https://doi.org/10.1109/EDM61683.2024.10615170>
31. Simonyan, A. (2024). International lawyers in post-Soviet Eurasia: Decoding the divisibility free. *European Journal of International Law*, 35(1), 63–92. <https://doi.org/10.1093/ejil/cha014>
32. Smirnova, O. (2020). Digital inequalities in CIS countries: Updated approach to the analysis of situation. In M. Ragnedda & A. Gladkova (Eds.), *Digital inequalities in the global south* (pp. 159–176). Springer Nature. https://doi.org/10.1007/978-3-030-32706-4_8
33. Smolentseva, A. (2017). Universal higher education and post-Soviet society: From social mobilization to social distinction? *Higher Education*, 73, 275–295. <https://doi.org/10.1007/s10734-016-0009-9>
34. UNESCO. (2022). *Transforming education for the knowledge society: Global trends and regional priorities*. UNESCO Publishing.



Funded by
the European Union

National Erasmus+ Office - Uzbekistan

35. Usova, T. (2009). Open access and the digital divide: An overview in CIS libraries. *Felicitas*, 55(6), 246–? [PDF]. Canadian Library Association. <https://ualberta.scholaris.ca/server/api/core/bitstreams/17cef735-371b-4bb4-b9b1-2bce8e5a5166/content>
36. World Bank. (2020). *Global report on higher education in Central Asia*. World Bank.
37. Yu, H. (2021). Information science in the age of big data: Opportunities and challenges. *Journal of the Association for Information Science and Technology*, 72(5), 595–608. <https://doi.org/10.1002/asi.24422>