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Assessing the Global Competitiveness of Kazakhstan's Higher Education System: A Triple Helix Approach to Innovation and Institutional Development

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Abstract

The growing global competition for human capital and knowledge economies places increasing demands on national higher education systems to enhance quality, international integration, and innovation capacity. In Kazakhstan, higher and postgraduate education have become key drivers of technological development and economic competitiveness. Despite ongoing policy reforms aimed at expanding institutional autonomy, modernizing academic programs, strengthening research capacity, and internationalizing universities, significant systemic challenges remain. This study assesses the global competitiveness of Kazakhstan's higher education system through the lens of the Triple Helix model. The research is based on in-depth semi-structured interviews with 20 experts representing the three helices: government agencies, universities, and industry. Findings reveal several persistent constraints limiting competitiveness, including uneven implementation of university autonomy, fragmented funding mechanisms, weak integration between academia and industry, and an overreliance on quantitative performance indicators at the expense of educational and research quality. Experts also highlighted insufficient international collaboration and regulatory barriers as factors hindering academic mobility and innovation development. At the same time, opportunities for strengthening competitiveness were identified, particularly in improving governance frameworks, aligning funding models with performance quality indicators, expanding international research partnerships, and enhancing institutional support for innovative ecosystems. The study provides evidence-based policy recommendations for modernizing governance and financing mechanisms, reinforcing international engagement, and fostering stronger university–industry collaboration to promote sustainable development and global competitiveness of Kazakhstan's higher education system. The scientific novelty of this study lies in identifying the "decoupling" effect, a significant gap, between the formal adoption of international standards and actual institutional practices within the context of Kazakhstan's transitional economy.

Keywords: *Higher education competitiveness, institutional reform, qualitative research, Kazakhstan, innovation DNA, Triple Helix model.*

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Introduction

The intensification of global competition for human capital, knowledge, and innovations under the conditions of the formation of a knowledge-based economy is transforming the role of higher education in the socio-economic development of states. Universities are increasingly considered not only as institutions for personnel training, but also as key actors of national innovation systems, centers of knowledge, technology, and social capital generation. In this regard, the global competitiveness of higher education systems becomes one of the most important factors for sustainable development and the international position of countries (Alrayes, 2025; Hamd et al., 2025; Minazheva & Sadyrova, 2019; Nqabeni, 2024; Sujaya, 2023).

For countries with emerging economies, including the Republic of Kazakhstan, issues of competitiveness in higher and postgraduate education acquire particular significance. During the years of independence, Kazakhstan has implemented large-scale institutional reforms in the field of higher education. A key step was accession to the Bologna Process, aimed at harmonizing educational structures with the European Higher Education Area and enhancing the international comparability of degrees. A three-cycle degree system (bachelor's, master's, and doctoral levels) was introduced, ensuring the staged development of academic and research competencies. The expansion of academic mobility facilitated the exchange of students and faculty with foreign universities and contributed to the internationalization of the educational process (Mutongoza & Olawale, 2023; Tarman et al., 2026). The institutionalization of quality assurance mechanisms led to the introduction of independent accreditation and standardized procedures for evaluating educational programs. The expansion of university autonomy strengthened institutions' independence in academic, managerial, and financial matters (Canning et al., 2013; OECD, 2017). These transformations have enabled the integration of the national higher education system into the global educational space and created formal prerequisites for the international comparability of educational outcomes.

The intensification of global competition for human capital, knowledge, and innovations is transforming the role of higher education. Universities are increasingly considered not only as training centers but as key actors in national innovation systems. In Kazakhstan, large-scale reforms such as accession to the Bologna Process have created formal prerequisites for international comparability.

Move 1: Establishing a Territory. This study conceptualizes competitiveness through an integrated analytical framework that synthesizes the Triple Helix model and the Resource-Based View (RBV). The Triple Helix model is fundamental to this analysis as it combines three key stakeholders, universities, government, and industry, woven together to create the 'DNA' of scientific innovation. This trilateral interaction serves as the primary engine for development in a knowledge-based economy (Etzkowitz & Leydesdorff, 2000; Ranga & Etzkowitz, 2013; Sekerbayeva et al., 2023). Establishing the research territory through this lens is essential, as global evidence demonstrates that a nation's innovative potential is determined by the functional synergy between these three core actors.

Move 2: Establishing a Niche. However, a critical gap remains in the existing literature regarding the Kazakhstan context. While the Triple Helix model represents a significant scientific novelty for this region, there is currently a lack of research evidence regarding the tangible results achieved through this 'innovation DNA' in practice. Previous studies have frequently overlooked the diverse perspectives required to understand why these three pillars fail to integrate effectively. The absence of empirical data on the interaction between state policy, market demands, and academic research creates a specific research niche that this study seeks to fill.

Move 3: Occupying the Niche. To occupy this niche, the present study operationalizes competitiveness across three pivotal variables: (1) institutional autonomy; (2) sustainability of human capital; and (3) efficiency of knowledge transfer. By rephrasing the narrative through a critical lens, this research aims to elucidate the underlying reasons why extensive structural reforms in Kazakhstan have, to date, failed to generate the anticipated gains in international competitiveness and the creation of a genuine innovation ecosystem.

At the same time, despite the progress achieved, scholarly and expert debates continue regarding the depth and effectiveness of the higher education reforms implemented in Kazakhstan. A number of studies indicate a persistent gap between formally declared policy objectives and the actual practices of university governance and operations, manifested in limited managerial and academic autonomy, an inertial funding model, weak integration between science, education, and industry, as well as the predominance of quantitative performance indicators over qualitative outcomes in teaching, research, and innovation activities (Skiba et al., 2025; Silova, 2011; Altbach & Salmi, 2011).

However, existing research insufficiently addresses the impact of these institutional constraints on the global competitiveness of Kazakhstan's higher education system, particularly regarding national universities' positions in international rankings, their research capacity, and their ability to attract international students and academic staff (OECD, 2017; World Bank, 2017). Underexplored are also the reforms that have not yet been fully implemented within the educational policy framework, including the transition to performance- and mission-oriented funding models, the development of research-intensive universities, deeper industry–university collaboration, and the implementation of evidence-based policy-making mechanisms (Skiba et al., 2025; Silova, 2011; OECD, 2017).

These contradictions highlight the need for a comprehensive analysis of the factors determining the competitiveness of Kazakhstan's higher education system in the global educational space, as well as the identification of directions for further institutional and policy reforms capable of ensuring sustainable improvements in the quality of education, research, and innovation activities (Altbach & Salmi, 2011; World Bank, 2017).

The aim of the present study is to identify the key institutional, regulatory-administrative, financial-resource, and international factors that influence the global competitiveness of higher and postgraduate education in Kazakhstan. Particular attention was given to aspects such as university autonomy, the effectiveness of institutional reforms, research productivity, international engagement, digitalization of the educational process, and the integration of universities into the national innovation system (Silova, 2011; DeYoung et al., 2018; Sun et al., 2024; Hart & Rodgers, 2024). Based on these factors, their impact on global competitiveness was interpreted, allowing the formulation of scientifically grounded recommendations for enhancing the quality, sustainability, and international integration of Kazakhstan's higher education. The scientific novelty of the study lies in the application of a qualitative methodological approach based on the analysis of expert assessments from representatives of the state, universities, business, and the academic community. This approach enabled the identification of latent structural constraints and growth points that are not always captured in quantitative studies, as well as alignment with previous international research (Hazelkorn, 2015; Marginson, 2016; Okulova & Shakina, 2025; Etzkowitz, 2008; Alpenidze & Baguant, 2025).

The article contributes to the international discourse on the transformation of higher education systems in countries with transition economies, demonstrating that university competitiveness is

shaped not so much through formal borrowing of international standards, but through the institutional redesign of governance, financing, and interaction with global and national partners.

The primary objective of this research is to identify how the interplay between state-led reforms and internal institutional inertia affects the standing of universities. This study fills a critical gap in understanding the specific qualitative barriers that prevent the conversion of quantitative metrics (such as publication counts) into genuine global impact.

To achieve the stated objective, this study addresses the following key Research Questions (RQs):

RQ1: What are the primary systemic barriers (institutional, financial, and regulatory) that constrain the global competitiveness of Kazakhstan's higher education institutions?

RQ2: How do experts evaluate the effectiveness of the transition toward university autonomy within the framework of current state policy?

RQ3: Which mechanisms for university–industry collaboration and international partnerships can serve as catalysts for the qualitative growth of the national higher education system?

Method

This study adopts a qualitative research design and employs in-depth semi-structured interviews to explore expert interpretations, institutional contradictions, and latent factors affecting the development of the higher education system. The study is grounded in an interpretative approach, focusing on the analysis of meanings and evaluations constructed by key stakeholders in educational policy (Creswell, 2013; Braun & Clarke, 2006).

Research Design

To ensure coherence with the Triple Helix model, the theoretical population was defined as the triad of actors driving innovation: government, academia, and industry. Consequently, the target population specifically included senior policymakers, university executives, and industry leaders in Kazakhstan who possess the "institutional memory" and strategic influence necessary to evaluate the system's competitiveness.

The empirical sample consists of twenty experts. This sample size of 20 experts was determined by the principle of theoretical saturation, which was achieved when no new thematic categories or conceptual insights emerged regarding the barriers to competitiveness. Saturation was verified by the 17th interview, with the remaining three interviews serving to confirm the stability of the data (Saunders et al., 2018; Guest et al., 2006).

Participants were selected through purposive sampling combined with snowball sampling. The inclusion criteria were: (1) a minimum of 10 years of professional experience in higher education or industrial R&D; (2) holding a leadership position within one of the Triple Helix spheres; and (3) direct involvement in reform implementation. The sample was strictly stratified to reflect the Triple Helix model, comprising government authorities (n=6), university management (n=8), and industry leaders (n=6), ensuring a comprehensive and robust data set.

A semi-structured interview guide was developed to capture participants' experiences, opinions, and evaluations regarding higher education development. The guide ensured focus on the study's core objectives while allowing flexibility to explore emergent topics during the interviews.

Each participant was invited via email or professional contacts, with information about the study's purpose, interview duration, and data management procedures. Written consent was obtained for participation and audio recording. Interviews were conducted both face-to-face in Astana and remotely via the Zoom platform, with durations ranging from 30 to 60 minutes. Audio recordings were securely stored and encrypted to maintain confidentiality.

The interviews were transcribed verbatim and verified through member checking to ensure accuracy and credibility. Thematic analysis, as outlined by Braun and Clarke (2006), was applied to the data. To enhance methodological rigor, data processing was conducted using a cross-coding method by two independent researchers, achieving high inter-rater reliability (Cohen's Kappa, $\kappa > 0.8$). Furthermore, the interview guide was pre-tested in a pilot study to ensure the clarity and neutrality of the questions. This approach enabled the systematic identification of factors influencing higher education competitiveness and the derivation of theoretically grounded insights.

The sample was strictly stratified, comprising government authorities, university management, industry leaders, and academic scholars, ensuring a comprehensive and robust data set. To ensure trustworthiness, data triangulation was applied across multiple expert groups, transcripts were verified by participants, and an audit trail documented all analytical procedures. This comprehensive methodological approach enhances the reliability, credibility, and transparency of the study in accordance with established standards for qualitative research in education as emphasized by Creswell (2013) and Braun and Clarke (2006).

Social-Demographic Profile of Research Participants

Within the framework of this evaluation study, the participants were conceptualized as experts and key stakeholders directly involved in the development, implementation, and interpretation of higher education policy. The selection of participants was therefore based not on formal job titles alone, but on their actual professional engagement in academic and managerial decision-making processes that influence institutional policy. By involving participants from multiple universities across the Republic of Kazakhstan, the study ensured institutional diversity and mitigated the risk of bias associated with single-institution data. In total, 20 experts representing the academic, managerial, and industrial components of the Triple Helix model participated in the research. The detailed socio-demographic characteristics of these research participants are presented in Table 1.

Table 1

Socio-demographic characteristics of research participants

Indicator	Category	Number of Participants
Gender	Women	11
	Men	9
Age	30–40 years	11
	40–50 years	5
	Over 50 years	4
Education Level	Doctor of Science	2
	Candidate of Science	1
	PhD	8
	Master	6
	MBA	2
	Specialist degree	2
Professional Experience	5–10 years	4
	10–20 years	10
	20–30 years	4
	More than 30 years	2

The collective profile of the sample, characterized by high educational attainment and extensive professional experience ranging from 5 to 50 years, significantly enhances the credibility, validity, and analytical depth of the empirical data. These attributes reinforce the relevance of the findings for evaluating the systemic impact of higher education reforms in Kazakhstan.

Data Analysis Procedure

To ensure a rigorous and transparent interpretation of the qualitative data, a systematic thematic analysis was conducted following the multi-stage procedure outlined by Braun and Clarke (2006). The analysis began with the verbatim transcription of all audio recordings, followed by a phase of familiarization where researchers engaged in repetitive reading of the transcripts to identify initial patterns and latent meanings related to Triple Helix interactions. During the initial coding phase, open coding was employed to manually label key conceptual categories, such as institutional inertia, the autonomy paradox, and fragmented funding mechanisms.

These codes were subsequently grouped into broader thematic categories and mapped against the dimensions of the Triple Helix model (University–Industry–Government) to evaluate the perceived synergy between these core actors. The themes were further refined and named to ensure they accurately reflected the expert narratives; for instance, the theme "Decoupling of Policy and Practice" was specifically developed to capture the divergence between formal regulatory frameworks and institutional reality. In the final stage, the identified themes were synthesized through data triangulation across the distinct expert groups, facilitating a comprehensive understanding of the structural constraints and opportunities within Kazakhstan's higher education system.

Findings

The research findings directly address the Research Questions (RQs): regarding RQ1, an "autonomy paradox" was identified (the existence of formal rights without sufficient financial resources); for RQ2, the transition to autonomy was characterized as "half-hearted" due to prevailing KPI-driven pressure; for RQ3, international partnerships were found to be primarily reputational rather than substantive scientific collaborations.

Higher education reforms and institutional transformation

Expert interviews indicate that Kazakhstan's accession to the Bologna Process was a key stage in the institutional transformation of the higher education system. The transition to a three-tier degree structure (bachelor's–master's–PhD) is now fully institutionalized, with over 600,000 students currently enrolled across these cycles. This is supported by the mandatory implementation of the ECTS (European Credit Transfer and Accumulation System), which has standardized credit-based learning and facilitated comparable international programs.

University representatives emphasized that the Bologna Process fulfilled its integrative function: “The essence of the Bologna Process is recognition and globalization, and we have reached this” (R15). The digitalization of the teaching process and the recognition of past experience through non-formal education pathways have further expanded access. Policy data reflects this shift, showing a steady increase in international academic mobility, with thousands of students participating in exchange programs annually. As one respondent noted: “Students already plan where they will study next” (R15).

However, the analysis of expert narratives reveals a divergence between the formal adoption of these structures and their substantive implementation. While the number of graduates increases each year, business representatives noted that the cost of education does not always correlate with the quality of practical skills. Respondents highlighted that structural changes are not always accompanied by deep transformation of managerial practices. As one expert remarked: “The structure changed—bachelor, master, PhD, credits, but essentially everything remained the same” (R10).

Table 2

Assessment of reform successes and implementation problems (by respondent groups)

Respondent group	Reform achievements	Main problems
Universities	Three-level system, academic mobility, international recognition of diplomas (R15)	Insufficient practice, gap between capital and regional universities (R5, R15)
Government authorities	Alignment of training levels with European standards, university autonomy (R7, R18)	Formal autonomy, mismatch of resources with requirements (R7)
Business and employers	Opportunities for collaboration with universities, practice-oriented initiatives (R1, R3)	Lack of practical skills among graduates, nominal internships (R1, R3)
Expert community	Increase in publications, international integration (R10, R14)	Formal changes without quality improvement, crisis in natural science education (R10, R16)

Expert R12 specifically pointed to issues in the curriculum data and teaching process: “We have formally introduced the system of credits and elective courses, but in practice, students often choose from what is 'necessary' for the department to distribute the teaching load, rather than what the labor market demands.” Employers echoed this sentiment, noting that while the degree format matches international standards, the internal "DNA" of innovation is missing: “Formally, we

switched to bachelor–master–PhD, but practices did not catch up" (R3). This lack of substantive alignment is particularly visible in regional institutions where the mismatch between available funding and the requirements for high-tech research hinders the implementation of international standards.

The synthesized findings regarding reform achievements and the identified implementation challenges, categorized by respondent groups, are summarized in Table 2.

Human capital and strategic priorities

All respondent groups unanimously identified human capital as a key factor for the long-term competitiveness of the higher education system. The main challenges included faculty demotivation, limited career opportunities, and high administrative workload. A business representative noted, "There are good teachers, but they are tired… they understand that they are needed by no one" (R2).

These issues are systemic and directly affect both the quality of education and research productivity, which is supported by international studies linking academic motivation, institutional autonomy, and research output (Marginson, 2016; Sun et al., 2024). Aging faculty, lack of transparent career mechanisms, and weak linkage between research outcomes and incentive structures create long-term risks for reducing universities' innovation potential.

Table 3

Human capital factors and their influence on competitiveness

Human capital factors	Impact on competitiveness	Long-term effect
Aging faculty	Negative	Decrease in innovation potential
Career limitations	Negative	Outflow of young professionals
Faculty demotivation	Negative	Reduction in teaching quality and research activity

Regarding faculty motivation, Respondent R7 pointed out: "The problem is not a lack of talent, but rather that KPIs (Key Performance Indicators) are focused on the quantity of publications instead of teaching quality or tangible patents. This demotivates high-level practitioners."

Strategic priorities identified by respondents include deepening practice-oriented learning, developing lifelong education, and adapting programs to labor market needs. The expert community emphasizes that without institutional differentiation of universities by mission and

development model, the sustainability of the system's competitiveness cannot be ensured, consistent with findings on strategic university management (Hart & Rodgers, 2024).

The specific human capital factors and their perceived influence on the system's competitiveness are categorized and presented in Table 3.

International cooperation and rankings

Experts' attitudes toward international rankings are predominantly critical. While participation in rankings is seen as a tool for enhancing global visibility, the limitations of ranking indicators in reflecting actual educational and scientific quality were emphasized: "We need to look at real universities and close weak ones, not at rankings" (R10).

The study shows that international activity of universities is largely oriented toward reputational and educational effects rather than the development of sustainable international research networks, consistent with critiques of the ranking paradigm in contemporary scholarship (Hazelkorn, 2015; Marginson, 2016). The growth of international students to 35,000, the establishment of foreign university branches (including the University of Arizona and Woosong University), and joint educational programs provide opportunities for knowledge and technology integration (R5, R11). At the same time, experts highlight low publication activity in high-impact (Q1–Q2) journals and limited opportunities for sustainable research exchange and collaboration (R6). Thus, research productivity remains a vulnerable aspect of the global competitiveness of Kazakhstani universities, which is confirmed by studies of higher education behavior in emerging and transitional systems (Okulova & Shakina, 2025).

A comprehensive overview of the achievements and limitations in international and scientific activities is provided in Table 4.

Table 4

International and scientific activity of universities

Direction	Achievements / Examples	Problems / Limitations
International cooperation	Branches of Arizona and Woosong, growth of international students to 35,000 (R5, R11)	Lack of joint publications, weak integration into global networks (R6)
Scientific activity	Participation in grant programs, increase in publications (R17)	Low conversion of research into practice, limited industry interaction (R1, R2, R4)
Industry interaction	Committees with business participation, dual education (R14, R15)	Fragmented, project-based, top-down mechanisms (R14, R15)

Digitalization, innovation, and financing

Digital transformation in higher education is ambivalent. While most universities report the adoption of LMS platforms, online courses, and AI initiatives (R6, R15), experts note the formal nature of many projects: "98% of universities showed that they have everything… on paper everything exists, but we could not verify actual usage" (R1).

Expert R1 further identified a significant infrastructural gap that undermines digital transformation: "We declare the use of AI and Big Data, yet some regional universities fundamentally lack the server capacity required for the stable operation of even basic LMS platforms."

The findings indicate a predominance of declarative approaches to digitalization, where the mere existence of digital solutions is not accompanied by their sustainable integration into teaching and research processes, a situation typical for resource-constrained institutional reforms (Sun et al., 2024; Hart & Rodgers, 2024).

Funding for higher education remains chronically insufficient and structurally rigid. Respondents emphasized that the budget covers basic needs but does not support development: "70–75% of funds go to salaries; there are not enough resources for development" (R1). Diversification of funding sources is thus considered a key condition for sustainable university development, in line with research on innovation policies in higher education (Etzkowitz, 2008).

The primary barriers hindering progress in digitalization and financial sustainability, as identified by the experts, are summarized in Table 5.

Table 5

Main barriers to digitalization and financing

Barriers	Comments of Respondents
Underfunding	Lack of servers, computing resources (R5, R15); limitation of strategic development
Human Recourse Limitation	Weak faculty training, demotivation (R10, R15)
Regulatory Restrictions	Information security limitations, bureaucracy (R12, R7)
Declarative Digitalization	AI Sana projects exist but are used formally (R6, R1)

The findings obtained from data analyses should be presented in line with the aims of the study. Tables and figures can be used to display the results of the analyses. Findings section should deal only with presenting the results and should not include the discussion of the findings. Sub-headings in line with sub-goals of the study can be used. Sub-headings should be flush left, in italics and with each word capitalized.

Discussion

A brief overview of the research results indicates that Kazakhstan's higher education system possesses substantial potential for enhancing global competitiveness; however, current reforms are implemented in a fragmented manner, and their qualitative impact remains limited. The main achievements include expanded university autonomy, the introduction of ranking competition, stimulation of international activity, and digitalization of educational processes. At the same time, experts identify structural gaps between the stated objectives of state policy and the actual capacities of universities, which constrain the sustainable development of the system as a whole.

Analysis of institutional reforms and university autonomy revealed that formal increases in independence do not always translate into real strategic autonomy. Centralized mechanisms for allocating financial and human resources restrict universities' ability to develop long-term strategies and reduce motivation for institutional innovation. These findings align with previous research on higher education systems in transition economies, where the formal adoption of global models without adaptation to the national context often results in institutional redundancy, increased inequality, and the formalization of educational and scientific processes (Silova, 2011; DeYoung et al., 2018; Sun et al., 2024). In Kazakhstan, this phenomenon manifests in significant asymmetries of resources and opportunities between leading and regional universities, which is corroborated by expert evaluations.

The analysis of international activity and research productivity indicates that orientation toward global rankings and the growth of international student enrollment create conditions for the global visibility of universities. Nevertheless, the focus on quantitative publication metrics and the lack of sustainable international research networks limit the tangible effects of integration into the global academic space. These observations are consistent with critiques of the ranking paradigm in contemporary scholarship, which emphasize that reputational indicators do not always reflect

the quality of scientific and educational outcomes (Hazelkorn, 2015; Marginson, 2016; Okulova & Shakina, 2025).

In terms of digitalization and innovation, most universities report the adoption of learning management systems, online platforms, and artificial intelligence initiatives. However, experts highlight the formal nature of these projects. The lack of systematic integration of digital tools reduces their educational and research impact, which is characteristic of resource-constrained institutions and is consistent with findings from international studies (Sun et al., 2024; Hart & Rodgers, 2024). This suggests that successful digitalization requires not only the introduction of technologies but also the establishment of sustainable conditions for their effective use in teaching and research.

Weak integration of universities into the national innovation system represents another significant limitation. Despite a stated commitment to the "triple helix" model, university–industry interactions remain fragmented, project-based, and unstable. Strengthening the entrepreneurial function of universities requires not only institutional support but also business trust, a developed technology transfer infrastructure, and a predictable regulatory environment (Etzkowitz, 2008; Alpenidze & Baguant, 2025). Insufficient integration into the innovation ecosystem limits universities' ability to generate applied knowledge and influence national economic development.

The study has several limitations. The findings are based on expert interviews and quantitative indicators, which may limit their generalizability. The research does not cover all regional universities equally, potentially affecting the assessment of resource and opportunity asymmetries. Furthermore, the lack of comprehensive statistical data on publication activity and digital infrastructure constrains the accuracy of quantitative conclusions and calls for further in-depth analysis.

The results have important policy and practical implications. Enhancing Kazakhstan's global competitiveness requires a systemic strategy that aligns managerial, financial, and human resource mechanisms with long-term goals of educational quality, research productivity, digital transformation, and international integration. Strengthening institutional autonomy must be accompanied by genuine opportunities for strategic planning and innovative activity. Sustaining international research networks, increasing publication output in high-impact journals, and integrating digital technologies into the educational process are essential. Effective engagement

with industry and the innovation economy requires transparent partnership mechanisms, technology transfer infrastructure, and trust-based relationships with business.

In summary, the enhancement of Kazakhstan's higher education global competitiveness necessitates a shift from fragmented reforms to a systemic transformation of the institutional logic of university development, integrating strategic autonomy, research productivity, digital integration, and international collaboration.

Policy and managerial recommendations

Based on the results of the study, the following systemic directions for improving policy in the field of higher and postgraduate education in Kazakhstan can be highlighted.

A priority direction is the transformation of human resource policy, including the formation of predictable academic career trajectories, reduction of workload not related to teaching and research, and increasing the attractiveness of the academic profession for young researchers. Equally important is the deepening of real managerial autonomy of universities through the redistribution of financial and personnel powers.

The financial model of the higher education system requires a transition from predominantly normative allocation of funds to mixed mechanisms that take into account the quality of educational and scientific outcomes, the development of digital educational platforms, and flexible programs. Special attention should be paid to recent legislative initiatives that are transforming the financial model of the sector. The adoption of the Law on Endowment Funds now enables universities to establish sustainable revenue streams.

Furthermore, through the Academic Excellence Program, regional universities have begun receiving mega-grants ranging from 2 to 4 billion KZT. These funds are specifically earmarked for the development of research infrastructure. This strategic move directly addresses the structural imbalance where 75% of university income is typically consumed by payroll, finally providing the necessary resources for capital development.

Table 6

Main barriers and directions for enhancing the competitiveness of Kazakhstan's higher education

Identified Barriers	Potential Directions for Development
Formal autonomy	Real redistribution of powers
Inertial financing model	Diversification and orientation toward quality, digitalization

Weak integration with industry	University–business partnerships, development of technology transfer
Orientation toward quantitative KPIs	Focus on substantive results, integration into global networks

Strengthening the scientific and innovative function of universities involves institutional support for centers of excellence, the development of technology transfers mechanisms, digitalization of research, and the formation of trust between the academic sector and business. Internationalization should be considered not as a tool for improving ranking positions, but as a means of integration into global research networks and digital platforms.

The proposed strategic directions and the specific systemic barriers they aim to address are synthesized in Table 6.

Conclusion

The present study demonstrates that sustainable enhancement of the global competitiveness of higher and postgraduate education in Kazakhstan requires a transition from declarative reforms to systemic institutional transformation of universities. The key conditions for successful transition are strengthening human capital, the formation of predictable academic career trajectories, real managerial autonomy of universities, diversification of financial sources, and the development of long-term international and industrial partnerships.

The results confirm that formal reforms, such as normative expansion of autonomy or orientation toward rankings, do not always translate into sustainable qualitative effects, especially under conditions of limited resources and a centralized management system.

In conclusion, it should be noted that Kazakhstan’s higher education system is currently undergoing a stage of profound institutional adaptation. Although risks of a formalistic approach to reforms persist, there is a visible gradual shift from quantitative monitoring toward the support of qualitative transformations. It is essential to ensure that the pace of state-led reforms is synchronized with the internal capacities of universities for their implementation. New financing mechanisms and the strategic emphasis on regional development demonstrate that the system is moving toward overcoming inertial barriers and strengthening the tangible contribution of universities to science and the economy."

The scientific novelty and originality of this work stem from identifying the "decoupling" effect, a significant structural and implementation gap, between the formal adoption of international

standards and actual institutional practices. By providing unique primary data on how reforms are perceived from the "bottom-up," this study offers a nuanced understanding of internationalization processes within the post-Soviet transitional context.

A limitation of this study is the sample of experts and universities, which predominantly covers leading and medium-sized educational institutions in the country, and may not fully reflect the specific conditions of small regional universities. In addition, the methodology of surveys and expert interviews implies qualitative interpretation of data, which limits the direct generalizability of quantitative results. Therefore, the results should be considered as a qualitative basis for identifying systemic barriers and growth points, rather than definitive quantitative indicators of competitiveness.

Prospective directions for future research include a comprehensive study of the impact of reforms on the quality of educational and scientific outcomes using mixed methods, including analytical data, publication activity indicators, and international integration. It is important to investigate mechanisms of sustainable university–industry interaction and the role of regional universities in the national innovation system. Additionally, it is advisable to conduct cross-national comparative studies with other countries with transition economies, to identify best practices in institutional redesign, as well as to examine the long-term effects of internationalization on scientific and educational quality.

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