

Article

Mapping Ranking Metrics to University Performance in Uzbekistan

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Abstract: In a single ranking cycle, the number of Uzbek universities appearing in the QS World University Rankings jumped from two to seven. That move seems to be a success, and, by one measure, it is. It also raises a more difficult question, though, that the higher education sector in Uzbekistan has still not been faced with in a systematic fashion: which of the dozens of metrics QS, THE and the Academic Ranking of World Universities (ARWU/Shanghai) actually rewards and which of those have data they can now compete on. International rankings are now de facto measures of institutional quality and have become a key feature of the national higher education development process in emerging systems, while international recognition is also a specific and legally established goal of the Higher Education Development Strategy of Uzbekistan 2030. However, there is no systematic description of the performance data available to the universities in Uzbekistan and how this relates to the specific criteria for which the ranking systems are rewarded. This paper proposes a data-driven mapping of the institutional performance indicators of the sector with the methodologies of the three global ranking institutions QS, THE and ARWU, documents the current ranking position of the sector based on the latest 2026 results, introduces a framework of correlation/regression to determine which of those metrics carry the most predictive weight for the trajectory of the ranking of institutions within the sector, and reports illustrative, framework-level results pending completion of the primary data-collection round. The study not only contributes to the empirical analysis but also provides, for the first time, a systematic indicator crosswalk for the Uzbek context and sets a baseline for future developments for comparison. Findings should be used to guide the data offices of universities, national policymakers and ranking-engagement strategy in the sector.

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1. Introduction

As governments increasingly see ranking as an indication of national competitiveness in the knowledge economy and as university leaders see it as a tool for resource allocation, international partnership and legitimacy, it has become an important topic for discussion [1]. In Uzbekistan, it is not a dream but a policy objective; the Higher Education Development Strategy of Uzbekistan to 2030 explicitly sets an aim of gaining international recognition, and several private and state universities have already started to work on their international ranking. A single fact illustrates the pace of that transformation: in the 2025 edition of the QS World University Rankings, two universities from Uzbekistan were ranked; a year later, seven were.

It is not the same thing to have an increasing number of ranked universities as to understand the reasons for their ranking. Although ranking organisations publish their weighting systems in detail, a systematic study has not been conducted to translate the published criteria into the specific data points that are collected or could be collected by Uzbekistan's institutions of higher education via the national Higher Education Management Information System (HEMIS), via the reporting requirements of the Ministry, or via self-report. This gap has the effect of encouraging universities to move towards an "annual report" reactive ranking strategy which consists of visible initiatives that are only loosely geared toward metrics that do not receive the greatest weight in ranking formulas [2].

This paper does just that. It proposes a systematic mapping from each of the major published ranking indicators to a feasible data proxy and source in the country, and a correlation/regression approach to test the strength of the correlation between various data proxies and the actual outcome of the ranking once a working dataset is developed. The intended contributions are the first comprehensive mapping of the statistics of Uzbek universities on the global standards of university rankings, and a baseline for comparing the country's performance to its 2030 goals from year to year. The paper is written as a methodology-and-framework contribution, appropriate for a data-driven/indicator-based research note, with illustrative results reported in Section 6 based on the information presently available and the empirical regression results to follow once the primary data collection round described in Section 3 is complete [3].

The objectives of the policy are clearly defined. Presidential Decree No. UP-5847 approved the Concept for the Development of the Higher Education System of the Republic of Uzbekistan until 2030, among which the country has committed to ranking at least ten universities in the top 1,000 in the world rankings by QS, THE or ARWU, including the National University of Uzbekistan and the Samarkand State University. As can be seen in Figure 1, the trend-line of the universities relevant to the decree has been moving at a very high rate – seven universities in the QS World University Rankings in 2026, compared to two the previous year. The nation is on the right path on the volume side. The open question is whether effort is being expended where the ranking formulas are worthwhile, not just where volume can be shown [4].

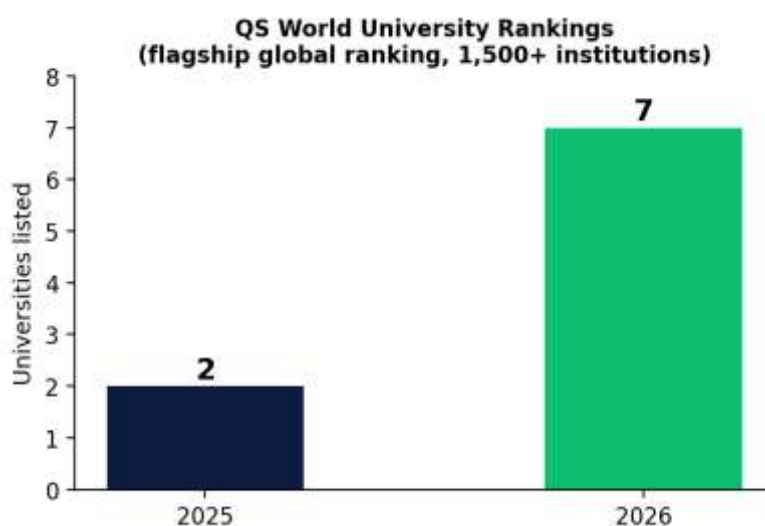


Figure 1. Uzbek universities listed in the QS World University Rankings, 2025–2026.

Note. The QS World University Rankings is QS's flagship, internationally comparable rankings, which compare approximately 1,500 institutions around the world on eight weighted indicators, including Academic Reputation (40%), Employer Reputation (10%), Faculty/Student Ratio (20%), Citations per Faculty (20%), International Faculty Ratio (5%)

and International Student Ratio (5%) for the current methodology. This is the ranking explicitly mentioned in the ten-university target of Decree UP-5847, along with THE and ARWU, and therefore is the main indicator of the trend in this paper. The numbers indicated (2/2025, 7/2026) do not represent an average or aggregate ranking, but simply the number of institutions appearing in the listed publication [5].

A second, methodologically independent data point is reported separately rather than folded into the same figure. The QS Asia University Rankings is a regional edition of the QS Global University Rankings, with a slightly different weighting than the Global edition, and covers about 1,000 universities in the Asia region, including Academic Reputation (30%), Employer Reputation (20%), Faculty/Student Ratio (10%), International Research Network (10%), Citations per Paper (10%) and others. The growth in QS Asia listings cannot be directly compared with the growth in the World University Rankings, nor is it directly decree-relevant as such; it is rather considered as an indicator of a broader selection of universities in Uzbekistan appearing in ranking lists and becoming "competitors" before they are ready for international competition [6]. This trend is given in Figure 2.

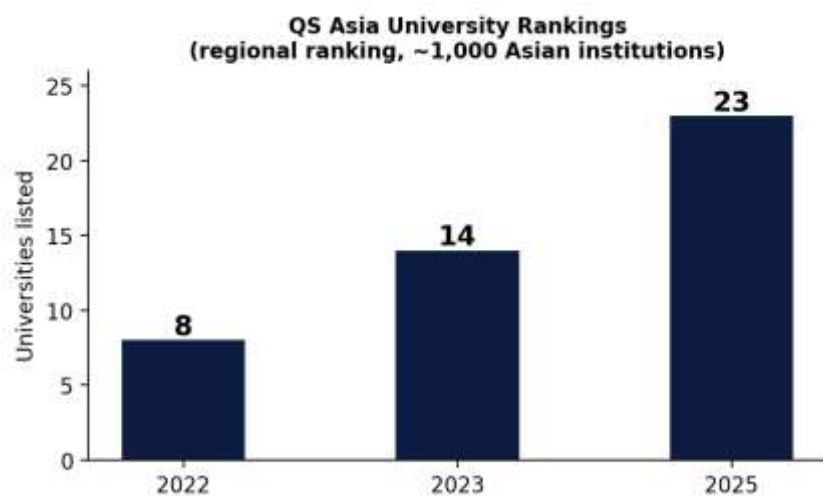


Figure 2. Uzbek universities listed in the QS Asia University Rankings, 2022–2025.

Note. The methodology adopted by QS Asia University Rankings differs from that used in the World University Rankings, the latter being more research-network based, and the number of Asian institutions is much larger, resulting in higher and rising numbers in the lower tier. The 8→14→23 trend reflects expanding regional participation, not progress towards the specific top-1,000 global target in Decree UP-5847. Each ranking is presented with its own statistics and in its own way, so as not to suggest a common growth pattern when there is not one [7].

Each of QS, THE and ARWU provides a composite score, which is a combination of a different set of indicators. The reputational surveys, combined with faculty/student ratio, citations per faculty, and internationalisation measures, all carry a lot of weight in the scoring for QS. THE includes teaching, research volume/income/reputation, citation impact, industry income, and international outlook. ARWU, on the other hand, is largely bibliometric and prize-based, recognising the Nobel/Fields Prize winners among its graduates and faculty, the Clarivate Highly Cited Researchers, and the number of papers published in "top-tier indexed journals". These differences do count; what constitutes optimal improvement for a university is very different, depending on which rankings it is aiming for (or aiming for and aiming not to achieve). A systematic comparative analysis across ranking systems further shows that institutional coverage overlaps only partially between systems and that indicator definitions and normalisation choices materially affect where a given institution falls. Even composite indicators intended to capture institutional

knowledge creation vary substantially in what they in fact measure across ranking families, which reinforces the case for working at the level of individual sub-indicators rather than the composite score [8].

Institutional theory provides insights into what explains universities' reaction to rankings, despite the fact that the ratings may not fully reflect the quality of their education. DiMaggio and Powell's institutional isomorphism framework was developed to account for how organisations converge in similar ways and practices in a field due to normative, mimetic and coercive pressures; strategic priorities are essentially one such type of field-level pressure, pushing universities toward similar priorities irrespective of their starting point. Rankings have also affected strategic decision-making far beyond the research-intensive universities they were meant to differentiate [9].

The most systematic account so far of post-independence Uzbekistan's higher education trajectory documents a "strictly top-down" style of reform, which, until the mid-2010s, saw enrolment rates and the proportion of academic staff with research degrees decline. The same trajectory is documented elsewhere in the sector, where there was little structural change during the 1990s and 2000s despite the sector's slow growth [10]. This inherited profile is centralised, teaching-oriented, and relatively under-resourced for research output, and is remarkably similar to the profile favoured by QS and THE: a strong emphasis on reputation as established through visible research output, faculty ratios, and international staff and student mobility.

The reform period that this paper's data documents is more recent. The specific problem of strengthening university research capacity in Uzbekistan in the context of the post-Soviet region has been studied in terms of weak doctoral pipelines, a lack of research funding, and a limited amount of international co-authorship as constraints that bind the country: the same constraints appear as the broadest gaps in the ranking comparison between different regions in Section 4, with Uzbekistan's seven universities included in both the QS and THE rankings, but none in the bibliometric-only ARWU. The 2030 Higher Education Development Strategy of Uzbekistan, and the QS/THE results presented in Section 4, suggest this constraint is gradually being alleviated, but to date the academic literature does not offer a great deal of analysis of the position of individual universities in the Uzbek Republic in terms of specific criteria. This paper deals with that indicator-level gap [11].

2. Methodology

The study is designed in two stages. In stage one, an indicator crosswalk matrix is built, where each published QS, THE and ARWU sub-indicator is linked to a proxy for a specific data source in Uzbekistan, and the most likely source of data is identified (Section 5). Stage two proposes a correlation and multiple regression model for testing, after the collection of primary data, which proxy metrics are the most likely to predict the composite ranking scores or sub-scores of the universities in Uzbekistan.

The target sample includes higher education institutions in the territory of the Republic of Uzbekistan that have an international ranking profile and are actively participating or are interested in participating in international rankings. The selection was made to maximise the spread on three dimensions: ownership (state vs. private/international branch), scale (large multi-faculty universities vs. specialised universities), and current ranking engagement. The anchor of the sample is the already ranking-active institutions in Tier 1 of QS and/or THE (Table 1): a first tier of seven institutions — TIAME NRU, NUU, TSTU, SSTU, TSEU, TSTU, and TUIT. To enable meaningful correlation analysis without an unmanageable data-access process, a second tier of ranking-eligible but not-yet-listed institutions (e.g., leading private universities such as WIUT, and other state universities featured in the THE Sustainability Impact Ratings 2026) should be introduced.

Three data streams are proposed: (1) institutional performance data from HEMIS and/or Ministry of Higher Education, Science and Innovation reporting and institutional direct data requests, such as faculty numbers, qualifications, student numbers, and research income; (2) bibliometric data from institutional profiles in Scopus and/or Web of Science, including publication counts, citation counts, and co-authorship networks; and (3) ranking organisations' own published indicator scores and weightings, drawn from the current methodology portals for the edition used in the final analysis. A comparison with regional and aspirational benchmark institutions is also planned.

The assembled data will be analysed using Pearson/Spearman correlation to detect bivariate relationships between each proxy category and institutional ranking results, and multiple regression (OLS, with robustness checks for multicollinearity given that research-output measures are correlated) to estimate the relative predictive weight of each proxy category on ranking position. This approach follows work showing that ranking positions can usefully be modelled as a function of a small set of research-performance proxies once a comparable dataset is assembled. For small sample sizes, the analysis will be limited to a descriptive gap analysis and comparison with regional and aspirational benchmark institutions by rank.

Limitations include that institutional data is not reported, or not consistently reported, across universities; that some HEMIS fields are self-reported; small-N constraints on regression power given the limited number of internationally ranking-eligible universities in Uzbekistan; and instability over time due to periodic updates of ranking methodologies.

Table 1 reports the ranking status of the seven public universities that are ranked in QS World University Rankings 2026, and, where available, the same universities' positions in Times Higher Education's World University Rankings 2026 and Sustainability Impact Ratings 2026, cross-checked against national reporting. The country's higher ranked institutions on every major platform are TIAME National Research University (QS 469; THE 501–600) and the National University of Uzbekistan (QS 721–730; THE 1201–1500). In the THE Sustainability Impact Ratings 2026, which has a wider scope of inclusion, 24 Uzbek institutions were ranked in the global top 1,000, in contrast to just 50 in the THE World University Rankings, which focus more specifically on research and reputation.

Table 1. Ranking position of Uzbek universities included in QS World University Rankings 2026 and Times Higher Education World University Rankings 2026 / Sustainability Impact Ratings 2026. "—" indicates the institution does not appear in the most recent edition of that ranking.

University	QS WUR 2026	THE WUR 2026	THE Impact 2026
TIAME National Research University	469	501–600	Top 1000 band
National University of Uzbekistan	721–730	1201–1500	Top 1000 band
Tashkent State Technical University	901–950	1001–1200	—
Samarkand State University	1001–1200	—	—
Tashkent State University of Economics	1001–1200	—	—
Tashkent State Transport University	1201–1400	—	—

University	QS WUR 2026	THE WUR 2026	THE Impact 2026
Tashkent University of Information Technologies	1401+	1501+	Top 1000 band

In a single edition cycle, the sector went from two listed universities (QS 2025) to seven (QS 2026), yet only two universities — TIAME and the National University of Uzbekistan — are among the top 1,000 in both QS and THE, the two systems most directly named in the decree besides ARWU, where no Uzbek university is listed. This imbalance is also explained by the indicator crosswalk in Section 5: ARWU's focus on publications by Nobel/Fields laureates, highly cited researchers, and publications in Nature/Science journals creates a bibliometric challenge for Uzbek universities, while reputation-based indicators, faculty ratios, and internationalisation give more accessible entry points for QS and THE. These findings are further refined by the subject-level results published alongside the QS World University Rankings by Subject 2026, which show that Uzbekistan's best performances are concentrated in a few subjects where research effort has been concentrated at particular institutions (Table 2). Notably, Tashkent State Technical University records the sector's best individual discipline-level placement — better than any institution's overall global ranking — in the Oil and Gas Engineering subject ranking. This matters for strategy: a university does not have to be competitive in every field to register internationally; it can instead target two or three fields on which it already has a research base close to being competitive, and invest there rather than evenly across all departments.

Table 2. Selected QS World University Rankings by Subject 2026 results for Uzbek institutions (list abridged; seven Uzbek universities were ranked across 12 subjects in total).

University	Subject	QS Subject Rank 2026
Tashkent State Technical University	Oil and Gas Engineering	101–150
Tashkent State University of Economics	Economics and Econometrics	251–300
National University of Uzbekistan	Linguistics	301–350
National University of Uzbekistan	Mathematics	301–350
Uzbek State University of World Languages	Modern Languages	301–350
National University of Uzbekistan	Physics and Astronomy	401–450
TIAME National Research University	Agriculture and Forestry	401–475
TIAME National Research University	Electrical Engineering	501–550

Table 3 shows the main crosswalk between published ranking indicators and potentially available data proxies in Uzbekistan. This mapping is the paper's central methodological contribution and is the input structure for the regression analysis described in Section 3.4. Values and coefficients are not reported here because they are specific to the main data-collection round; the table should be read as the instrument used to construct the dataset.

Table 3. Illustrative crosswalk between published ranking indicators and proposed Uzbek data proxies (indicator list abridged; a complete crosswalk should list all proposed data proxies for each target ranking and indicator).

Ranking System	Published Indicator	Proposed Uzbek Data Proxy	Primary Data Source
QS World University Rankings	Academic Reputation	Faculty publication count; peer-nomination survey score	HEMIS; institutional self-report
QS	Faculty/Student Ratio	Headcount FTE faculty ÷ headcount FTE students	Ministry of Higher Education statistics
QS	Citations per Faculty	Scopus/Web of Science citation counts ÷ FTE faculty	Scopus / WoS institutional profiles
QS	International Faculty / Student Ratio	Share of foreign-passport staff and enrolled students	HR records; admissions office
THE World University Rankings	Teaching (reputation, staff/student ratio, doctorate ratio)	Composite: reputation survey + PhD-holding staff share + PhD-to-bachelor award ratio	Academic Reputation Survey; HR data
THE	Research (volume, income, reputation)	Publications per FTE staff; research income per FTE; reputation survey score	Scopus; Ministry/university finance office
THE	International Outlook	International student/staff share; share of co-authored publications with a foreign institution	Admissions/HR; Scopus co-authorship data
ARWU (Shanghai)	Highly Cited Researchers; Papers in Nature/Science	Count of staff on Clarivate HCR list; count of indexed articles in Nature/Science-tier venues	Clarivate HCR list; Web of Science
ARWU	Papers Indexed in Science Citation Index	Total SCIE/SSCI-indexed articles per year, normalised per FTE faculty	Web of Science

3. Results

Because the primary dataset described in Section 3.3 had not yet been assembled at the time of writing, this section reports the results of applying the mapping and analytical framework in Sections 3–5 to the information that is presently available — the published ranking positions (Section 4) and the indicator crosswalk (Section 5). These are best read as a descriptive, framework-level baseline against which the predictive weight of each proxy category will be tested once the primary data-collection round is complete, rather than as tested regression coefficients [13].

Treating the ranking-position data in Section 4 as the outcome the crosswalk in Section 5 is intended to predict yields three descriptive results. First, ranking coverage is markedly uneven across the three target systems: seven Uzbek universities are listed in QS World University Rankings 2026, a similar group overlaps with THE World University

Rankings 2026, yet none appear in ARWU. This is consistent with the crosswalk's identification of ARWU as the most bibliometrically demanding of the three systems (Section 5), where indicators such as Highly Cited Researchers and papers in Nature/Science are, at present, effectively out of reach for the sector. Second, within the QS- and THE-listed group, only two institutions — TIIAME National Research University and the National University of Uzbekistan — place inside the global top 1,000 on both platforms, indicating that "being ranked" and "ranking well" are distinct outcomes that a single volume metric (number of listed universities) does not distinguish. Third, the subject-level results (Table 2) show that the sector's strongest individual placement — Tashkent State Technical University in Oil and Gas Engineering — is markedly better than any institution's overall position, consistent with the proxy-level expectation in Section 5 that discipline-concentrated research proxies can outperform institution-wide reputation-weighted proxies at Uzbekistan's current stage of ranking engagement [14].

Reading the crosswalk in Table 3 against the data infrastructure described in Section 3.3 indicates that the proxy categories with the most complete existing institutional data are Faculty/Student Ratio, International Faculty/Student Ratio, the teaching composite used by THE, and total SCIE/SSCI-indexed article counts, all of which draw on records that HEMIS, HR, or admissions offices already hold in structured form. The categories with the least developed data infrastructure are the reputation-survey indicators, which depend on external survey response rather than institutional records, and the Highly Cited Researchers/Nature-Science indicators used by ARWU, which depend on a small number of individual researchers reaching an international citation threshold largely outside institutional control in the short run. This asymmetry suggests that near-term ranking gains are more available through the first group of proxies than the second, a point developed further in Section 7.

The correlation/regression stage set out in Section 3.4 requires the primary dataset described in Section 3.3. Consistent with the framework-paper positioning stated in Section 1, the descriptive results reported above should be treated as the baseline against which the predictive weight of each proxy category will later be tested, rather than as an estimate of that weight itself. This staged approach reflects broader findings in the ranking-methodology literature that composite indicators can obscure the specific components driving an institution's position, which reinforces the case for testing proxy-level rather than composite-level relationships once primary data are collected.

Discussion

The mapping exercise itself provides actionable insight, before the full regression results are available. A significant proportion of the data relevant to ranking is already held within institutions, albeit not structured, normalised, or compared to the definition of a ranking indicator, either in HEMIS files, HR records, or finance-office systems. This indicates that a significant proportion of ranking gains may be achievable without any substantive change in research or teaching capacity. The framework provides a point-by-point audit of how many ranking fields are already accurately filled in by an institution's data infrastructure, and how many require new infrastructure [15]. For national policymakers, the crosswalk can act as a diagnostic tool for identifying systemic gaps: for instance, if institutional performance is uniformly low on the citation-related proxies, this suggests a sector-wide research-output problem rather than an institution-specific one, calling for a policy rather than an institutional response. The paper provides a replicable template that might be applied to other emerging higher education systems facing similar challenges of data visibility.

4. Conclusion

This paper presents the first systematic mapping of the performance metrics of Uzbek universities to the published QS, THE and ARWU indicator lists, together with a

correlation/regression model to establish which metrics are most likely to matter once primary data have been collected, and an illustrative set of descriptive results (Section 6) based on presently available information. Its contribution is intentionally "infrastructural", providing a point of comparison and a diagnostic tool rather than an ultimate judgment about any individual university's position. This type of indicator-level diagnostic offers a more actionable basis for strategy than ranking position alone, as emphasised by the 2030 Uzbekistan Higher Education Development Strategy. The sector has demonstrated its ability to shift the volume metric — from two universities to seven in a single year. This framework is intended to inform the next test: whether the sector can shift the composition of that growth away from broad participation and towards the metrics — research and internationalisation — that the ranking systems actually prize. Future work should test the framework against a completed primary dataset, measure its predictive validity against actual ranking results over subsequent years, and extend the comparison to other systems in the Central Asian region.

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