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STRATEGIC MANAGEMENT OF EDUCATION SERVICES EXPORT: EVIDENCE AND POLICY IMPLICATIONS FROM THE BUKHARA REGION

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Abstract: The internationalization of higher education has transformed education services into a strategically important export sector capable of generating foreign-exchange revenue, strengthening human capital, and enhancing regional competitiveness. This study develops and tests an integrated strategic management framework for expanding education services exports in the Bukhara region of Uzbekistan. The research combines comparative analysis, stakeholder surveys, the analytic hierarchy process, composite-index construction, partial least squares structural equation modelling (PLS-SEM), and log-linear scenario forecasting. A Regional Education Export Management Effectiveness Index (HTEMSI) is proposed to assess six management domains through 54 indicators, while a complementary Education Export Management Mechanism Integrity Index (TEBMI) measures the balance and synergy among organizational, economic, integrative, and digital-innovation subsystems. The estimated HTEMSI score for Bukhara is 0.443, indicating that management processes have been formed but remain insufficiently integrated. PLS-SEM results based on 222 international students show that service delivery has the strongest effect on perceived export value ($\beta = 0.676$, $p < 0.001$), followed by student support and retention ($\beta = 0.368$, $p = 0.021$). Scenario forecasts suggest that the number of international students may reach 3,795 under a pessimistic scenario, 5,425 under an inertial scenario, and 7,572 under a target scenario by 2030/31. Under the target scenario, total annual regional inflows, including multiplier effects, could reach USD 94.7 million. The findings support the establishment of a regional coordination centre, a single-window student service system, and an integrated 'Study in Bukhara' destination brand.

Keywords: education services export; strategic management; higher education internationalization; regional competitiveness; HTEMSI; TEBMI; PLS-SEM; Bukhara.

Introduction: The export of education services has become one of the most dynamic segments of the global knowledge economy. Beyond tuition revenue, international education creates demand for accommodation, transport, food services, tourism, financial services, and professional networks. It also enhances institutional reputation, expands academic cooperation, and supports the international circulation of knowledge. Consequently, countries and regions increasingly treat higher education internationalization not merely as an academic policy issue but as a strategic economic-development instrument.

Uzbekistan has substantially expanded access to higher education and has begun to position education and medical tourism as export-oriented service sectors. The rapid growth of foreign-student enrolment demonstrates increasing external demand, yet the share of international students remains relatively low compared with established regional competitors. This gap indicates that growth potential exists, but converting potential into sustainable export outcomes requires coordinated strategic management at both national and regional levels.

Bukhara is particularly well positioned to develop this sector. The region combines a historic academic identity, a globally recognized cultural heritage, competitive living costs, an expanding

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higher-education system, and a strong medical-education segment. Nevertheless, fragmented promotion, weak institutional coordination, insufficient digital infrastructure, limited English-medium programmes, and uneven student-support services reduce the region's ability to transform its comparative advantages into durable competitive advantages.

This article addresses that management gap. Its objective is to develop and empirically substantiate a regional strategic management mechanism for education services export. The study contributes to the literature in three ways: first, it treats education export as a regional strategic-management object rather than only a national trade indicator; second, it introduces two complementary diagnostic tools—HTEMSI and TEBMI; and third, it links institutional assessment with student-level PLS-SEM evidence and scenario-based economic forecasting.

Literature Review and Conceptual Background. The theoretical basis of education services export lies at the intersection of human-capital theory, higher-education internationalization, international trade in services, and strategic-management theory. Human-capital theory explains education as an investment that increases productivity and future income (Schultz, 1961; Becker, 1993). Internationalization research emphasizes cross-border student mobility, institutional partnerships, curriculum internationalization, and the strategic integration of global dimensions into university missions (Knight, 2004; Altbach & Knight, 2007).

From a trade perspective, higher education is supplied across borders through student mobility, institutional presence, distance education, and academic mobility. However, purely trade-based interpretations often understate the institutional and territorial conditions required to deliver a complete international-student experience. International students evaluate not only academic programmes but also admission procedures, visa and migration support, housing, safety, language environment, digital services, and post-study opportunities.

Strategic-management theory provides a framework for integrating these elements. Chandler (1962) emphasized the alignment of strategy and structure; Ansoff (1965) formalized strategic planning; Porter (1980) linked strategy to competitive advantage; the resource-based view focused on valuable and difficult-to-imitate capabilities (Wernerfelt, 1984; Barney, 1991); and the Balanced Scorecard translated strategy into measurable domains (Kaplan & Norton, 1996). For regional education export, these approaches suggest that success depends on the alignment of public policy, university capabilities, private-sector services, promotion, quality assurance, and monitoring.

Existing international indices usually assess resources, reputation, innovation capacity, or system performance. They are less suited to answering a practical management question: how effectively does a region convert its available education-export potential into measurable results? This study defines that difference as the management gap and proposes HTEMSI to measure it. TEBMI complements this assessment by testing whether the principal management subsystems develop in a balanced and synergistic way.

Materials and Methods. The study uses a mixed-method design. The evidence base includes official statistical data, regional higher-education reports, international databases, documentary analysis, expert evaluation, and a survey of international students. The analytical toolkit combines descriptive and comparative analysis, SWOT and PESTEL analysis, the analytic hierarchy process (AHP), composite-index construction, PLS-SEM, and log-linear forecasting.

HTEMSI is structured as a four-level hierarchy consisting of the aggregate index, six management domains, 18 components, and 54 primary indicators. Qualitative process indicators are assessed on a maturity scale from 0 to 4 and normalized to the [0,1] interval. The aggregate index is calculated as a weighted sum of the six domains:

$$HTEMSI = 0.20M_1 + 0.20M_2 + 0.15M_3 + 0.15M_4 + 0.15M_5 + 0.15M_6,$$

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where M_1–M_6 represent normalized values for strategic planning, institutional coordination, operational management, partnership management, monitoring and evaluation, and innovation/digital management.

Domain	Management content	Weight
M_1	Strategic analysis and planning	0.20
M_2	Institutional and organizational coordination	0.20
M_3	Operational management of resources and processes	0.15
M_4	Partnership and stakeholder management	0.15
M_5	Monitoring, evaluation, and control	0.15
M_6	Innovation, adaptability, and digital management	0.15

Table 1. HTEMSI management domains and weights.

TEBMI is designed to identify imbalance among four subsystems: organizational, economic, integrative, and digital-innovation. It is calculated as TEBMI = L × K_s, where L is the weighted average development level and K_s = Mmin/Mmax is the synergy coefficient. The coefficient penalizes a system in which one subsystem significantly lags behind the others.

The student-level model was estimated using PLS-SEM with reflective Mode A. The sample consisted of 222 international students, and statistical significance was evaluated using 5,000 bootstrap resamples. The model tested the effects of regional positioning and branding (M_1), service delivery (M_2), and support and retention (M_3) on perceived export value (PEV), and the subsequent effect of PEV on export-growth potential (EGP).

For the forecast, a nine-point series covering 2017/18–2025/26 was evaluated. The historical trend was approximately 16% per year, supported by both CAGR (16.67%) and log-linear regression (16.18%; R^2 = 0.768). The June 2026 base value was 2,583 international students. Three annual-growth assumptions were applied: 8% pessimistic, 16% inertial, and 24% target.

Results. Current Export Position and Management Effectiveness

Uzbekistan's international-student population rose from 603 in 2016/17 to 12,500 in 2024/25. Despite this rapid increase, international students represented only 0.87% of total enrolment in 2024/25, indicating considerable room for further expansion. Bukhara hosts around 2,500 international students and accounts for approximately one-tenth of the national total. Medical education dominates the regional export structure, representing about 81% of international enrolment.

Direct education-export revenue in Bukhara was estimated at USD 4.78 million in 2024. When accommodation, food, transport, tourism, and other induced expenditures are considered, the annual regional effect may reach USD 30–33 million. This confirms that education export is not limited to university income but operates as a regional service-sector multiplier.

The HTEMSI assessment produced an aggregate score of 0.443. According to the proposed maturity scale, this places Bukhara at the lower boundary of the standardized but incompletely integrated stage. Partnership management was the strongest domain (0.55), whereas monitoring and evaluation (0.35) and institutional coordination (0.40) were the weakest.

Domain	Score	Weight	Contribution

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Strategic planning	0.45	0.20	0.0900
Institutional coordination	0.40	0.20	0.0800
Operational management	0.50	0.15	0.0750
Partnership management	0.55	0.15	0.0825
Monitoring and evaluation	0.35	0.15	0.0525
Innovation and digital management	0.42	0.15	0.0630
HTEMSI	—	1.00	0.4430

Table 2. HTEMSI results for the Bukhara region.

2. Integrity and Synergy of the Management Mechanism

The TEBMI demonstration shows why average performance alone can be misleading. Two systems may have the same weighted average score (L = 0.54), while their practical integrity differs sharply. In the balanced case, $K_s = 0.91$ and TEBMI = 0.49; in the imbalanced case, the organizational subsystem falls to 0.30, reducing K_s to 0.43 and TEBMI to 0.23. The index therefore functions as a diagnostic tool for targeting resources toward the weakest subsystem.

3. PLS-SEM Evidence from International Students

Path	β	t	p	Decision
Positioning/branding → PEV	-0.173	2.56	0.010	Not supported
Service delivery → PEV	0.676	4.68	<0.001	Supported
Support/retention → PEV	0.368	2.32	0.021	Supported
PEV → export-growth potential	0.414	5.65	<0.001	Supported

Table 3. PLS-SEM path coefficients and hypothesis tests.

Service delivery is the dominant strategic lever. Its coefficient is positive and strong (β = 0.676), with a large reported effect size ($f^2 = 0.326$). This result implies that academic quality, English-language provision, admission procedures, infrastructure, and the overall reliability of service delivery shape perceived value more strongly than promotion alone. Support and retention also have a positive and statistically significant effect (β = 0.368). By contrast, positioning and branding do not generate an independent positive effect after service quality is considered. Branding therefore becomes credible only when it is supported by a strong student experience.

4. Scenario Forecast to 2030/31

Scenario	2026/27	2027/28	2028/29	2029/30	2030/31
Pessimistic (8%)	2,790	3,013	3,254	3,514	3,795
Inertial	2,996	3,476	4,032	4,677	5,425

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(16%)					
Target (24%)	3,203	3,972	4,925	6,107	7,572

Table 4. Scenario forecast of international students in Bukhara.

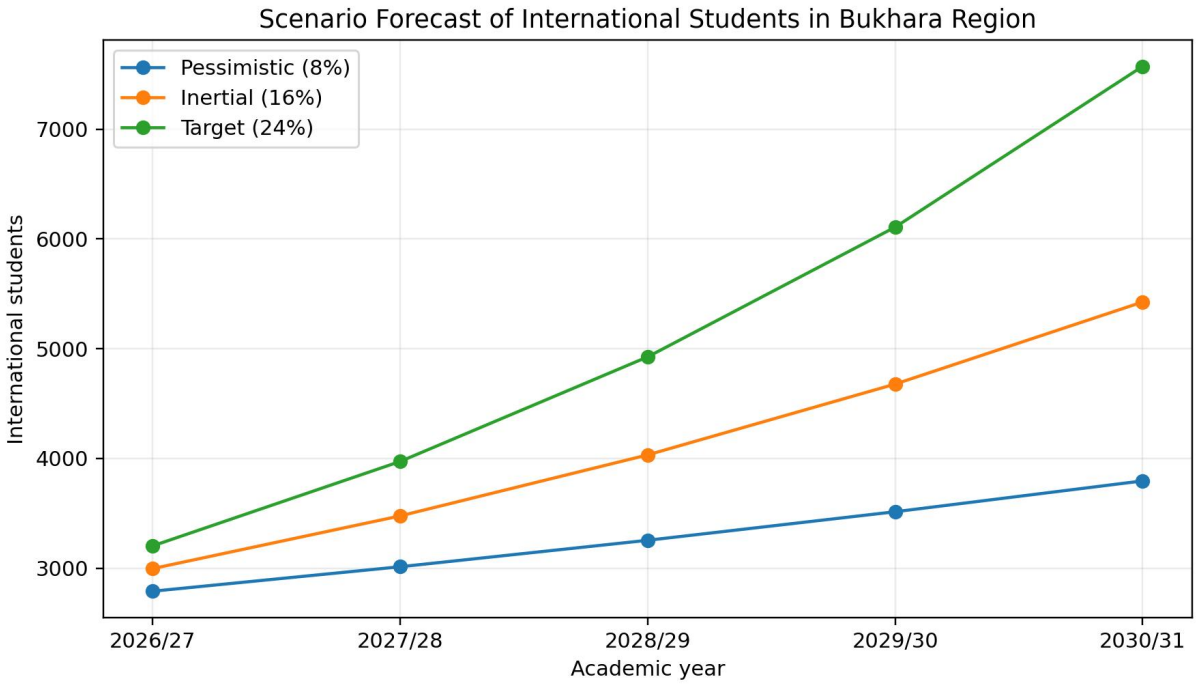


Figure 1. Scenario trajectories for international-student enrolment.

Scenario	Students	Direct revenue, USD million	Including multiplier, USD million
Pessimistic	3,795	20.9	47.4
Inertial	5,425	29.8	67.8
Target	7,572	41.6	94.7

Table 5. Expected regional foreign-exchange inflows in 2030/31.

The difference between the inertial and target scenarios may be interpreted as a management premium. Under the inertial trajectory, Bukhara reaches 5,425 students, while the target trajectory reaches 7,572. The additional 2,147 students and the associated economic effects are not simply a function of external demand; they depend on the quality of coordination, service delivery, digital systems, student support, and regional promotion.

Discussion. The findings demonstrate that regional education-export growth depends less on isolated promotional campaigns than on the integration of strategy, institutions, services, partnerships, and monitoring. Bukhara possesses meaningful demand-side and place-based advantages, yet the HTEMSI result reveals a conversion problem: the region's potential is stronger than its management architecture.

The empirical evidence also clarifies the sequencing of strategic interventions. Marketing should not be the first stand-alone intervention. The negative independent coefficient for positioning and

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branding does not imply that branding is irrelevant; rather, it indicates that a brand unsupported by reliable services may not enhance perceived value. The appropriate sequence is therefore to improve service delivery and student support, integrate these improvements into a single-window model, and then communicate them through a unified regional brand.

A regional coordination centre can reduce institutional fragmentation by distributing strategic and operational responsibilities between public authorities and higher-education institutions. Its core functions should include export strategy, shared data infrastructure, quality monitoring, international promotion, agent certification, investment facilitation, and coordination with migration, banking, housing, and tourism services.

The proposed single-window model addresses the international student's full lifecycle: pre-arrival admission and visa procedures, the first 72 hours after arrival, registration and adaptation, study-period services, and graduation or exit. A case-manager principle and integrated digital platform can improve responsiveness while generating the data required for monitoring. This directly strengthens the weakest HTEMSI domain and provides measurable KPIs such as processing time, satisfaction, retention, and Net Promoter Score.

The 'Study in Bukhara' brand should operate as an integrated market platform rather than a logo. Its components should include a multilingual portal, coordinated participation in international education fairs, a certified-agent network, unified visual identity, digital marketing, and a customer-relationship management system. The brand's value will depend on its integration with the single-window service system and credible academic-quality assurance.

Policy Recommendations. First, establish a Bukhara Regional Education Export Coordination Centre with a clear mandate, shared governance, and a unified monitoring system.

Second, implement a single-window administrative and student-support platform integrating universities, migration authorities, banks, housing providers, and other relevant services.

Third, prioritize English-medium programmes, international accreditation, laboratory modernization, and digital learning infrastructure.

Fourth, introduce the HTEMSI assessment annually and use the TEBMI framework to identify imbalances among management subsystems before allocating new resources.

Fifth, launch the 'Study in Bukhara' brand only as part of a broader service-quality and data-driven export strategy.

Sixth, diversify the regional education-export portfolio beyond medical education to reduce concentration risk and expand demand across disciplines.Conclusion. This study develops an integrated framework for the strategic management of education services export at the regional level. The Bukhara case shows that substantial academic, cultural, and market potential does not automatically produce export outcomes. Management quality, institutional coordination, service delivery, monitoring, and subsystem balance determine whether regional potential is converted into sustainable value. HTEMSI identifies the management gap, TEBMI measures structural integrity, PLS-SEM reveals the student-experience mechanisms that shape perceived value, and scenario forecasting quantifies the potential economic return from improved management. The results indicate that service delivery and student support should precede stand-alone branding initiatives. With a regional coordination centre, a single-window model, and an integrated destination brand, Bukhara could approach 7,572 international students and generate up to USD 94.7 million in annual regional inflows by 2030/31 under the target scenario. The framework may be adapted to other regions seeking to convert higher-education capacity into export-led regional development.

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Limitations and Future Research. The analysis is region-specific and relies partly on expert-based maturity assessments. Future research should validate HTEMSI across multiple regions, test measurement invariance across student groups, incorporate longitudinal satisfaction and retention data, and estimate causal effects of specific policy interventions. More detailed input-output analysis would also improve the precision of regional multiplier estimates.

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