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CONTENTS

MECHANISMS FOR IMPLEMENTING TECHNOLOGICAL AND DIGITAL INNOVATIONS.....	10
Shakirxodjayeva Zuxra Rustamxanovna	
DEVELOPMENT OF ORGANIZATIONAL AND ECONOMIC MECHANISMS FOR IMPROVING INVESTMENT PROCESSES IN THE CONSTRUCTION INDUSTRY	16
Aliyeva Zilola Mamatvalyevna	
CURRENT STATE AND STRUCTURAL ANALYSIS OF THE DEVELOPMENT OF SERVICE SECTORS IN TASHKENT CITY.....	23
Abdikayumov Bekzod Turdiniyozovich	
GREEN BONDS VS. SUSTAINABILITY LINKED LOANS: WHICH WORKS FOR INDUSTRIAL DECARBONISATION?	29
Ataxanov Umidbek Olimovich	
ИНТЕГРИРОВАННАЯ МОДЕЛЬ УПРАВЛЕНИЯ ЭКОНОМИЧЕСКОЙ БЕЗОПАСНОСТЬЮ БАНКА	34
Маликова Дилрабо Муминовна	
ECONOMETRIC MODELLING OF FAMILY ENTREPRENEURSHIP DEVELOPMENT IN THE TOURISM SECTOR: EVIDENCE FROM UZBEKISTAN	42
Pardayeva Ozoda Mamayunusovna	
AN INTEGRAL INDEX METHODOLOGY FOR ASSESSING THE INVESTMENT POTENTIAL OF AGRICULTURAL ENTERPRISES	49
Sayyora Bakhtiyorovna Nazirova	
ГОСУДАРСТВЕННЫЕ, ПУБЛИЧНЫЕ И ОБЩЕСТВЕННЫЕ ФИНАНСЫ В УСЛОВИЯХ ЦИФРОВОЙ ТРАНСФОРМАЦИИ: ТЕРМИНОЛОГИЧЕСКИЕ ГРАНИЦЫ И ИНСТИТУЦИОНАЛЬНАЯ ЭВОЛЮЦИЯ.....	53
Срождидинова Зарина Хайриддиновна	
BLOCKCHAIN-BASED FINANCIAL TRANSACTION MONITORING SYSTEM (SMART CONTRACTS, DECENTRALIZED DATABASE, AND AUDIT TRAILS)	58
Olimova Mukhlisa Vohidjon qizi	
FAMILY ENTREPRENEURSHIP AS A DRIVER OF EMPLOYMENT IN THE TOURISM SECTOR: REGIONAL DISPARITIES AND INSTITUTIONAL MECHANISMS IN UZBEKISTAN.....	65
Pardayeva Ozoda Mamayunusovna	
ANALYSIS OF THE MAIN STATISTICAL INDICATORS OF LABOR RESOURCE UTILIZATION IN SURXONDARYO REGION	72
Haydarova Dinora Atamurot qizi	
ASSESSING THE ROLE OF SPECIAL ECONOMIC ZONES IN REGIONAL ECONOMIC GROWTH ACROSS THE REGIONS OF UZBEKISTAN USING INTENSITY COEFFICIENTS AND CLUSTER ANALYSIS.....	77
Anvarkhonov Abdulatifikhon Jamshidkhon ugli	
TECHNICAL, ECONOMIC, AND ENVIRONMENTAL EFFICIENCY OF IMPLEMENTING AGRIVOLTAIC SYSTEMS IN UZBEKISTAN	85
Jabborov Shaymurod Akram o'g'li	
Botirov Bozorbek Musurmon o'g'li	
Atoyeva Mohinur Amrilloevna	
Avazov Jonibek Azizbek o'g'li	
МОДЕЛИРОВАНИЕ ВЛИЯНИЯ ЧЕЛОВЕЧЕСКОГО КАПИТАЛА НА ТРАЕКТОРИЮ ЭКОНОМИЧЕСКОГО РОСТА.....	91
Хазраткулова Лола Нармуминовна	
FINANCING GREEN PROJECTS IN THE REPUBLIC OF UZBEKISTAN: STATUS, CHALLENGES AND PROSPECTS	97
Qorriyeva Shahnoza Safarbayevna	

FORMULA-BASED DISTRIBUTION OF INTERGOVERNMENTAL TRANSFERS TO LOCAL BUDGETS IN UZBEKISTAN: A COMPARATIVE SIMULATION ANALYSIS BASED ON 2026 FORECAST INDICATORS.....	103
Umidjon Pardaev Sarvar Maxmudov	
GOVERNMENT FUNDING AND THE DEVELOPMENT OF INNOVATIVE ACTIVITIES: FINANCIAL PROMOTION MECHANISMS.....	115
Bahriddinov Nodirbek Zamirdinovich	
FORECASTING EXPORT AND IMPORT INDICATORS OF BUKHARA REGION	122
Ergashev Mirjon Yorqin o'g'li	
A CUSTOMER-ORIENTED INTEGRATIVE METHODOLOGICAL MODEL FOR IMPROVING THE EFFICIENCY OF TOURIST SERVICES IN THE TOURISM AND HOSPITALITY INDUSTRY	130
Bakayev Ziyovuddinkhan Toshbolta ogli	
A PESTLI ANALYSIS OF THE EFFICIENCY OF THE HOUSING STOCK MANAGEMENT SYSTEM.....	139
Mamanazarov Oybek Shomurodovich	
ANALYSIS OF THE DEVELOPMENT STATUS AND EXPORT ACTIVITIES OF SMALL BUSINESS AND PRIVATE ENTREPRENEURSHIP IN UZBEKISTAN	146
Khikmatullayeva Nargiza Jamoliddin kizi	
CHANGE MANAGEMENT DURING QUALITY ASSURANCE REFORM IN HIGHER EDUCATION INSTITUTIONS	154
Urinov Bobur Nasillovovich	
СТРАТЕГИИ УСТОЙЧИВОГО РАЗВИТИЯ ПАЛОМНИЧЕСКОГО ТУРИЗМА В УЗБЕКИСТАНЕ	162
Каримова Дилафруз Садриддин кизи	
E-COMMERCE AS A DIGITAL FORM OF ENTREPRENEURSHIP IN INCREASING HOUSEHOLD INCOMES	167
Eshbayeva Shahnoza Fakhriddinovna	
ADVANTAGES OF IMPLEMENTING AN OCCUPATIONAL AND SKILLS MAPPING SYSTEM IN UZBEKISTAN'S LABOUR MARKET	172
S.B.Goyipnazarov S.M.Kurbanbaeva	
ASSESSMENT OF THE EFFICIENCY OF FIXED ASSETS UTILIZATION IN RAILWAY ENTERPRISES: EVIDENCE FROM UZBEKISTAN.....	178
Turdiyeva Irodaxon Ismoil qizi	
SCIENTIFIC AND METHODOLOGICAL APPROACHES TO ASSESSING RESOURCE USE IN THE CONTEXT OF A GREEN ECONOMY.....	183
Karimov Islombek Bekpolat o'g'li	
THE IMPACT OF ECOTOURISM ON REGIONAL ECONOMIC DEVELOPMENT	
Samiev Siroj Saitovich Ochilova Guli Rashid kizi	
THE IMPACT OF RISK ALLOCATION ON INVESTMENT EFFICIENCY IN PUBLIC- PRIVATE PARTNERSHIP (PPP) PROJECTS	197
Khaydarova Charos Nizomiddinovna	
PROSPECTS FOR CHANGING THE VOLUME OF GRAPE CULTIVATION DUE TO THE USE OF INNOVATIVE TECHNOLOGIES IN THE VITICULTURE COMPLEX.....	202
Boltaev Nazarbek Narzullaevich	
ЦИФРОВЫЕ МЕХАНИЗМЫ ОБОСНОВАНИЯ НАЧАЛЬНОЙ ЦЕНЫ В ГОСУДАРСТВЕННЫХ ЗАКУПКАХ: ПРОЗРАЧНОСТЬ, КОНКУРЕНЦИЯ И РАЦИОНАЛЬНОЕ ИСПОЛЬЗОВАНИЕ СРЕДСТВ.....	209
Тухтаинов Бобомурод Исақжон ўғли	

ENHANCING FOREIGN DIRECT INVESTMENT INFLOWS IN THE POST-CRISIS ERA: AN ECONOMETRIC ANALYSIS OF UZBEKISTAN	215
Foziljon Rustamov Xazratkulovich	
CURRENT STATE AND DEVELOPMENT TRENDS OF THE TEXTILE INDUSTRY.....	219
Musayeva Shoirazimovna	
IMPROVING TEXTILE LOGISTICS AND SUPPLY CHAIN MANAGEMENT IN UZBEKISTAN	225
Isroilov Madaminjon Mukhsinovich	
CHALLENGES OF ATTRACTING INVESTMENTS IN HUMAN CAPITAL AND STRATEGIES FOR THEIR RESOLUTION	231
Aloviddin Zayniddinov Zayniddin ugli	
ANALYSIS OF THE EXPERIENCE OF SUCCESSFUL AGROTOURISM DESTINATIONS IN DIFFERENT COUNTRIES: RECOMMENDATIONS FOR UZBEKISTAN	237
Aktamov Olimjon Abdugani o'g'li	
ASSESSING THE EFFICIENCY OF STRATEGIC MANAGEMENT OF EDUCATIONAL SERVICES EXPORT AT THE REGIONAL LEVEL	247
Alimova Shamsiya Abidovna	

UDC: 339.564:378(575.1) ASSESSING THE EFFICIENCY OF STRATEGIC MANAGEMENT OF EDUCATIONAL SERVICES EXPORT AT THE REGIONAL LEVEL

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Abstract. This article analyzes the efficiency of strategic management of educational services export at the regional level, using Bukhara Region as a case study. The research employs statistical analysis, the compound annual growth rate (CAGR), the Herfindahl–Hirschman Index (HHI), the Strategic Management Efficiency Index (SMEI), and partial least squares structural equation modeling (PLS-SEM). The findings demonstrate that the region's educational export potential outpaces the quality of its management, creating a measurable “management gap”. Furthermore, service delivery quality is identified as the key lever for increasing the perceived value of educational exports. The results provide a scientific basis for strategic planning of educational services export at the regional level.

Keywords: educational services export; strategic management; management gap; efficiency index; regional economy; Bukhara Region; international students.

Аннотация. В статье анализируется эффективность стратегического управления экспортом образовательных услуг на региональном уровне на примере Бухарской области Республики Узбекистан. В качестве методологической основы использованы статистический анализ, совокупный среднегодовой темп роста (CAGR), индекс рыночной концентрации Херфиндаля–Хиршмана (HHI), авторский Индекс эффективности стратегического управления (SMEI), а также моделирование структурными уравнениями методом частичных наименьших квадратов (PLS-SEM). Полученные результаты показывают, что экспортный потенциал региона в сфере образования опережает качество его управления, формируя измеримый «управленческий разрыв». Кроме того, качество предоставления услуг определено как ключевой фактор повышения воспринимаемой ценности образовательного экспорта. Результаты исследования создают научную основу для стратегического планирования экспорта образовательных услуг на региональном уровне.

Ключевые слова: экспорт образовательных услуг; стратегическое управление; управленческий разрыв; индекс эффективности; региональная экономика; Бухарская область; иностранные студенты.

INTRODUCTION

The export of educational services has become a high-revenue and strategically significant segment of national economies worldwide. According to 2024 data, more than 6.4 million students are pursuing higher education outside their home countries, while the total volume of the global international education services market has exceeded USD 400 billion (OECD, 2024). Education export is not merely a source of foreign exchange earnings; it is also an instrument for developing human capital, enhancing innovation potential, and strengthening a country's educational brand in the global arena. The economic essence of this phenomenon has been studied by international scholars, including Altbach and Knight (2007) and Marginson (2017), as well as by domestic researchers such as Davlatov (2013), Alimova (2024), and Rakhmonqulova and Mukhammadov (2025). However, the regional governance dimension of this process has not been sufficiently explored in the existing literature.

In New Uzbekistan, wide-ranging reforms are being implemented to align the higher education system with international standards and increase the export of educational services. The “Uzbekistan–2030” Strategy sets specific targets for developing the education sector, increasing the number of international students, and

substantially expanding the volume of education and medical tourism exports (Presidential Decree No. PF-158, 2023). The fact that the number of international students studying in Uzbekistan reached 24,797 in the 2025/2026 academic year demonstrates the rapid expansion of this process.

Existing studies and international indices, including the QS rankings, UNESCO UIS, OECD *Education at a Glance*, and the INSEAD Global Talent Competitiveness Index, focus primarily on measuring educational potential, such as resources, infrastructure, human capital, and cultural heritage, that is, “what exists.” However, the extent to which a region effectively manages this potential and converts it into concrete export outcomes remains beyond their analytical scope. This gap between potential and achieved outcomes is referred to in this article as the “management gap,” and it has not been adequately studied at the regional level. The objective of this article is to assess the efficiency of strategic management of educational services export in Bukhara Region through integral indicators and empirical methods, as well as to provide a scientific basis for identifying areas where this management can be improved.

LITERATURE REVIEW

The theoretical foundations of educational services export are rooted in broader scholarship on the internationalization of higher education. Altbach and Knight (2007) laid the conceptual groundwork by distinguishing between the motivations of institutional and governmental actors: while universities seek prestige, revenue, and talent diversification, governments tend to prioritize soft power, national competitiveness, and foreign exchange earnings. This dual-actor framework remains a key analytical lens for examining export strategies at both national and regional levels.

Marginson (2017) extended this analysis by introducing the concept of the “world-class multiversity”, a model in which globally competitive higher education institutions simultaneously perform local, national, and international functions. His argument that the state’s strategic role is decisive under conditions of global competition is directly relevant to this study: Bukhara Region’s capacity to attract international students cannot be separated from the institutional frameworks governing its higher education institutions. Knight (2014) further developed these insights by identifying three archetypes of international education hubs: student, talent, and knowledge-innovation models, each requiring a distinct configuration of governance, infrastructure, and marketing capacity. The present study adopts Knight’s typology as a partial benchmark for assessing Bukhara Region’s current positioning.

The economic geography of international student mobility has been formalized through gravity modeling, most notably by Beghin and Park (2022), who demonstrated that bilateral educational services exports between OECD and Asian countries are influenced by a predictable set of factors: institutional quality, tuition costs, linguistic proximity, geographical distance, and bilateral trade intensity. Their gravity framework provides quantitative justification for prioritizing service quality and cost competitiveness in regional export strategies. This finding is supported by the PLS-SEM results of the present study, where service delivery quality emerged as the dominant predictor of perceived export value ($\beta = 0.676$).

Porter’s (1990) diamond model of national competitive advantage, although originally developed for goods trade, can be productively applied to educational services by considering regional competitive strengths in terms of factor conditions, demand conditions, related industries, and rivalry intensity. In this regard, Bukhara’s unique historical and cultural positioning in Islamic civilization and scholarly heritage represents an important factor condition that may serve as a sustainable source of competitive differentiation.

The application of strategic management frameworks to educational export has gained increasing relevance since the mid-2000s. Kaplan and Norton’s (1996) Balanced Scorecard methodology, originally designed for corporate performance management, has been adapted to higher education contexts by scholars seeking to link financial outcomes with internal process efficiency, stakeholder perspectives, and innovation capacity. The SMEI developed in this study draws on this four-perspective logic by incorporating strategic planning, resource allocation, marketing visibility, service quality, and the degree of internationalization.

The OECD and Joint Research Centre’s (2008) *Handbook on Constructing Composite Indicators* provides the methodological basis for the REEMEI developed in this study. The composite indicator framework requires the clear specification of conceptual models, normalization procedures, weighting schemes, and aggregation rules. These requirements distinguish scientifically grounded indices from ad hoc scoring systems. Saaty’s Analytic Hierarchy Process (AHP), also incorporated into REEMEI, operationalizes expert judgment through pairwise comparison matrices, ensuring that dimension weights reflect systematic rather than arbitrary prioritization.

The Capability Maturity Model Integration (CMMI) framework, which originated in software engineering and was later applied in broader organizational management contexts, contributes the developmental logic embedded in REEMEI. Management quality is not assessed as a binary condition but along a maturity continuum ranging from initial and defined stages to managed, quantitatively managed, and optimizing levels.

The REEMEI score of 0.44 for Bukhara Region places it at the transition between the “defined” and “managed” stages, which has direct implications for the sequencing of institutional improvements.

A growing body of empirical literature examines the role of student perceptions in shaping international educational choices and retention outcomes. Satisfaction-based frameworks, derived from consumer behavior theory, have been applied to international students by numerous scholars. These studies consistently identify academic quality, social integration, language environment, and administrative responsiveness as key dimensions of perceived service value. The PLS-SEM methodology employed in this study, bootstrapped with 5,000 iterations to ensure the stability of path coefficients, is consistent with the analytical approaches used in this literature.

The existing literature also reveals a persistent gap between institutional self-assessments of service quality and student-reported experience. This divergence, also observed in the present study through the comparison of REEMEI institutional scores and PLS-SEM student perceptions, highlights the analytical value of triangulating managerial and experiential data sources. The monitoring and coordination dimensions, which received the lowest REEMEI scores of 0.35 and 0.40 respectively, represent the systemic mechanisms through which service quality is operationally sustained. This confirms that institutional management weaknesses may directly influence students' educational experience.

Domestic scholarship on educational export has expanded significantly in line with the policy reforms implemented after 2016. Davlatov (2013) provided an early conceptual treatment of educational services export as a factor in the internationalization of higher education in Uzbekistan, identifying legislative, infrastructural, and linguistic barriers to expansion. Alimova (2024) later applied this framework specifically to Bukhara Region, highlighting the concentration of export capacity in medical education and identifying marketing and student support limitations as important constraints.

Rakhmonqulova and Mukhammadov (2025) extended the analysis to a comparative Central Asian perspective by assessing organizational frameworks for the development of student tourism across the region and identifying Uzbekistan's relative institutional strengths and areas for improvement compared with Kazakhstan and Kyrgyzstan. Their findings support the present study's emphasis on coordination mechanisms: in all three country cases, the absence of unified export governance bodies is identified as a major institutional bottleneck. The present study builds directly on this body of domestic research by introducing quantitative composite indices and empirical modeling techniques that have not previously been applied to the Bukhara Region context.

In summary, the literature converges around several propositions that structure the empirical analysis of this paper: first, educational export performance depends on both structural potential and management quality; second, the gap between potential and actual outcomes is measurable and can be attributed to specific governance limitations; third, student perceptions, particularly regarding service quality, are a decisive mediating factor between institutional inputs and export outcomes; and fourth, sustainable export growth requires a hybrid governance model in which strategic direction is set at the state level while operational decisions are delegated to higher education institutions. These propositions are tested and operationalized through the SMEI, REEMEI, and PLS-SEM analyses presented in the following sections.

RESEARCH METHODOLOGY

The empirical base of the research consists of data from the Statistics Agency under the President of the Republic of Uzbekistan (stat.uz), the unified database of the Ministry of Higher Education, Science and Innovation (stat.edu.uz), reports of the UNESCO Institute for Statistics and the OECD, official performance indicators of higher education institutions (HEIs) in Bukhara Region, and the results of a two-directional questionnaire survey conducted among international students ($n = 222$) and faculty members at regional HEIs.

The following methods were applied in the analysis: the compound annual growth rate (CAGR) to assess growth dynamics; the Herfindahl–Hirschman Index (HHI) to measure market concentration; the return on investment coefficient (ROI) to evaluate marketing efficiency; the author-developed Strategic Management Efficiency Index (SMEI) and the Regional Educational Export Management Efficiency Index (REEMEI) to comprehensively assess management quality; partial least squares structural equation modeling (PLS-SEM) to examine international students' perceptions; and log-linear scenario-based forecasting for prospective assessment.

The SMEI is calculated as a weighted sum of five components:

$$\text{SMEI} = 0.25 \cdot C_1 + 0.20 \cdot C_2 + 0.20 \cdot C_3 + 0.20 \cdot C_4 + 0.15 \cdot C_5$$

where C_1 denotes the level of strategic planning, C_2 the efficiency of resource allocation, C_3 marketing and international visibility, C_4 service quality and sustainability, and C_5 the degree of internationalization, with each component scored on a scale from 0 to 100. The REEMEI is based on the OECD/JRC *Handbook on*

Constructing Composite Indicators (2008), the Balanced Scorecard framework developed by Kaplan and Norton (1996), the Capability Maturity Model Integration (CMMI) framework, and Saaty's Analytic Hierarchy Process (AHP). It evaluates management across six dimensions on a scale from 0 to 1 and quantifies the management gap between potential and actual export outcomes.

ANALYSIS AND RESULTS

Uzbekistan's higher education system expanded rapidly between 2015 and 2025: the number of HEIs nearly tripled, the total student population increased 5.4 times, and the number of international students grew approximately 18–20 times. International student enrollment rose from 603 in the 2016/2017 academic year to 12,500 in 2024/2025 (Table 1).

Table 1

Key indicators of the higher education system of the Republic of Uzbekistan (2015–2025)

Academic Year	Number of HEIs	Students (thousands)	International Students	Enrolment Rate (%)
2015–2016	65	264.3	380	9.0
2017–2018	81	297.7	1,320	10.0
2019–2020	114	441.0	3,593	15.1
2021–2022	183	808.4	5,140	28.0
2023–2024	213	1,314.5	8,700	40.4
2024–2025	222	1,432.8	12,500	42.0

Source: Compiled by the author based on data from the Statistics Agency (stat.uz) and the Ministry of Higher Education database (stat.edu.uz).

Despite this growth, international students still account for only 0.87 percent of the total student population, compared with more than 8.5 percent in Poland, 4.2 percent in Türkiye, and over 3.1 percent in Kazakhstan. This indicates that the sector retains significant growth potential.

Bukhara Region is one of the leading regions in the Republic in terms of educational services export. Ten HEIs operate in the region, with approximately 2,500 international students accounting for 10.1 percent of the national total. Nearly 96 percent of the region's educational services export is concentrated in medical education, reflecting Bukhara city's historical reputation as a center of medical knowledge and healing traditions. Direct revenue from educational services export amounts to USD 4.78 million. Taking into account the multiplier effect, the region receives up to USD 30–33 million annually in foreign exchange earnings, along with associated employment generation.

The CAGR indicator shows that the average annual growth rate of international student enrollment in the region is 29.7 percent, which is 16.7 percentage points below the national average of 46.4 percent. The Herfindahl–Hirschman Index is 2,834, indicating a highly concentrated market and confirming that two HEIs account for nearly 70 percent of regional educational services export. At the same time, the region's average revenue per international student exceeds that of Tashkent City, suggesting that its strategic focus on medical education represents a well-grounded specialization. The SMEI increased from 32 points in 2017 to 72.15 points in 2025, corresponding to a “good” rating, although it remains 7.85 points below the target threshold of 80 (Table 2).

Table 2

Comparative education export indicators: Tashkent City and Bukhara Region (2025–2026 academic year)

Indicator	Tashkent City	Bukhara Region
International students	9,958	2,584
Share of international students (%)	5.79	2.40
Export volume (mln USD)	18.0	4.78
CAGR 2017–2025 (%)	52.3	29.7
HHI value	1,240	2,834
Mobility balance	1:5.8	1:12.1
SBSI score	82.4	72.2

Source: Author's calculations based on data from stat.edu.uz and official HEI statistics of the respective regions.

Based on the REEMEI methodology developed in this study, the integral index value for Bukhara Region stands at 0.44, which corresponds to the lower boundary of a standardized management maturity level. The strongest management dimension is partnership management (0.55), reflecting the region's extensive network of international cooperation. The weakest dimensions are monitoring and evaluation (0.35) and inter-institutional coordination (0.40). These results indicate that the region's development potential exceeds its current management capacity. Therefore, the priority task is not necessarily to attract additional resources, but to enhance the effectiveness of existing resources through improved coordination mechanisms and a comprehensive monitoring system.

Survey data collected from international students ($n = 222$) were analyzed using PLS-SEM with 5,000 bootstrap iterations. The results identify service delivery quality—including academic quality, language environment, admission procedures, and physical infrastructure—as the most influential factor in increasing perceived export value ($\beta = 0.676$; $t = 4.68$; $p < 0.001$; $f^2 = 0.326$). The second most important factor is the quality of support and retention services, including tutoring, psychological counseling, and career guidance ($\beta = 0.368$; $t = 2.32$; $p = 0.021$). Perceived value, in turn, significantly influences export growth potential ($\beta = 0.414$; $p < 0.001$). This empirical finding is fully consistent with the REEMEI analysis, as the dimensions receiving the lowest institutional assessment scores—monitoring and coordination—are precisely the mechanisms that ensure the continuous quality of services and support systems.

A log-linear model constructed using multi-year data on international student enrollment in the region demonstrated strong statistical performance ($r = 0.876$; $R^2 = 0.768$; $F = 23.16 > F_{cr} = 5.59$). Based on this model, a three-scenario forecast was developed (Table 3). Even under the inertial scenario, which assumes no additional policy measures, the region is projected to approach the lower boundary of the national target, approximately doubling its current enrollment. Under the target scenario, where strategic management mechanisms are fully implemented, a threefold increase in international student enrollment appears achievable (Table 3).

Table 3

Scenario forecast of international student enrollment in Bukhara Region (base: June 2026 = 2,583)

Scenario (g)	2026–2027	2028–2029	2030–2031	2030/Base
Pessimistic (8%)	2,790	3,254	3,795	1.47×
Inertial (16%)	2,996	4,032	5,425	2.10×
Target (24%)	3,203	4,925	7,572	2.93×

Source: Author's calculations based on the log-linear trend model.

The difference between the target and inertial scenarios—2,147 additional international students by the 2030/2031 academic year, equivalent to approximately USD 26.8 million in additional gross revenue when accounting for the multiplier effect—does not arise from favorable market conditions alone. It materializes only when a full set of strategic management mechanisms is implemented. This difference may be defined as the “management premium,” providing quantitative evidence that effective strategic management functions not as a passive observer of external trends, but as an active driver of regional educational export performance.

The findings of the study demonstrate that the volume of educational services export is not merely a passive result of external circumstances, but a direct outcome of strategic management quality. Analyzed through the combined lens of REEMEI, which measures institutional management maturity, and PLS-SEM, which empirically captures student perceptions, the case of Bukhara Region leads to a clear strategic conclusion: development potential exists, but the management mechanisms that convert this potential into concrete results—monitoring, coordination, and service delivery quality—require further improvement. This represents a systemic limitation that existing international potential indices cannot fully identify and confirms the need for a diagnostic approach to governing educational services export at the regional level.

SWOT analysis and expert evaluations identify the region's principal strengths as urban safety, the hospitable attitude of the local population, historical and cultural heritage, and an attractive price-to-quality ratio. The main areas requiring improvement include laboratory and digital infrastructure, international accreditation, marketing and branding activities, and student support services. On this basis, the following directions are prioritized for the sustainable expansion of educational services export: establishing a unified regional coordination body responsible for educational export governance; increasing the number of programs delivered in English from the current 15–20 to 80–100; introducing a unified “Study in Bukhara” regional brand

and an integrated marketing system; implementing a single-window administrative service model covering the full international student journey from admission to migration formalization; and advancing regional HEIs toward international ranking systems.

Comparative analysis of international experience confirms that, in resource-constrained settings, the highest and most sustainable growth can be achieved through a hybrid governance model (Knight, 2014), in which strategic decisions are made at the state level while operational decisions are delegated to HEIs. The state's strategic role remains decisive under global competitive conditions (Marginson, 2017). The factors influencing student flows—educational quality, cost, language, visa regime, and geographic distance—are explained within the gravity model framework proposed by Beghin and Park (2022), while the formation of competitive advantage is grounded in Porter's theory of national competitiveness (1990). Bukhara city's unique standing in Islamic civilization and the history of scholarship represents a significant competitive advantage in attracting students from Turkic and Muslim-majority countries. The “management premium” concept introduced in this study provides a quantitative measure of management's transition from a passive monitoring role to an active shaping function and empirically substantiates the practical value of implementing strategic management mechanisms.

CONCLUSION AND RECOMMENDATIONS

The study demonstrates that Bukhara Region is one of Uzbekistan's leading territories in terms of educational services export. The share of international students in the region exceeds the national average; however, its growth rate and export volume still remain below those of the leading regions. Although the Strategic Management Efficiency Index (SMEI) has reached a “good” rating, the REEMEI analysis shows that management remains at the lower boundary of standardized maturity and confirms the existence of a “management gap” between potential and actual export performance.

The empirical analysis proves that the decisive factor in increasing perceived export value is service delivery quality, while support and retention services serve as the secondary factor. The scenario-based forecast to 2030 shows that even the inertial trajectory approaches the lower boundary of the national target, while the full implementation of strategic mechanisms enables a threefold increase. The “management premium” between the inertial and target scenarios, quantified in terms of both student enrollment and revenue, empirically confirms that the volume of educational services export is not merely a passive outcome of external conditions, but a direct result of effective strategic management.

Accordingly, the primary institutional priority is to introduce a system of concrete, measurable, and 2030-oriented key performance indicators (KPIs) for regional educational services export, along with the establishment of a unified coordination body and a monitoring and information system. These structural measures are essential prerequisites for enabling Bukhara Region to fully realize its potential as a competitive international educational destination.

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