



DATA-DRIVEN MANAGEMENT IN HIGHER EDUCATION: THE DIGITAL RANKING DASHBOARD AS A STRATEGIC GOVERNANCE TOOL FOR EMERGING UNIVERSITIES

Mukhlisa Mamajonova

Tashkent State University of Economics, Tashkent, Uzbekistan

E-mail: mukhlisamamajonova0080@gmail.com

Abstract: The fragmentation of institutional data across university departments represents a critical barrier to effective ranking strategy implementation in emerging universities. This paper presents the Digital Ranking Dashboard (DRD), a conceptual digital management platform designed to enable real-time monitoring, forecasting, and data-driven decision-making aligned with Times Higher Education (THE) World University Rankings methodology. Developed through analysis of New Uzbekistan University's institutional management system and benchmarking with global platforms (THE DataPoints, QS Insight Suite), the DRD integrates six functional modules: scientific publications panel with Scopus integration, citation tracking, international faculty and student monitoring, grants and startup tracking, faculty-level KPI tracker, and budget-indicator linkage model. The paper argues that digital management infrastructure represents one of the highest-leverage investments available to resource-constrained universities, with estimated implementation costs of 70-120 thousand USD annually compared to potential ranking strategy returns measured in millions.

Keywords: data-driven management, digital dashboard, university rankings, KPI monitoring, higher education governance, THE methodology.

Introduction

Modern university management increasingly depends on the capacity to collect, integrate, and analyze institutional data in real time [1]. International ranking systems such as THE World University Rankings evaluate universities across multiple dimensions, including research quality, research environment, citations, international outlook, and industry income, each requiring systematic data collection from diverse institutional sources [2]. For emerging universities in developing countries, the absence of integrated data management systems creates a fundamental barrier to effective ranking strategy implementation.

Analysis of New Uzbekistan University's (NUU) management system revealed that ranking-relevant data is distributed across multiple departments without centralized coordination: publication data resides in the Scientific Activity Department, international co-authorship information is collected by



the International Relations Department, and teaching quality metrics are managed by the Quality Assurance Department. This fragmentation prevents comprehensive performance assessment and delays strategic decision-making. To address this problem, the Digital Ranking Dashboard (DRD) was developed as a centralized digital platform for ranking-oriented management [3].

DRD Architecture and Functional Modules

The DRD was designed as a localized adaptation of commercial platforms used at globally ranked universities, including THE DataPoints and QS Insight Suite, tailored to the institutional and financial constraints of developing country universities. The platform architecture comprises six integrated functional modules, each corresponding to specific THE ranking indicator blocks. Table 1 presents the module structure.

Table 1. *DRD Functional Modules and THE Indicator Alignment*

Module	THE Indicator Block	Data Source	Update Frequency
Scientific Publications Panel	Research Quality	Scopus API integration	Monthly
Citation Tracking	Citations	Scopus / Web of Science	Quarterly
International Faculty & Students	International Outlook	HR & Admissions databases	Semester
Grants & Startups Monitor	Research Environment	Finance & Innovation offices	Quarterly
Faculty-Level KPI Tracker	All blocks	Aggregated from all modules	Real-time
Budget-Indicator Linkage	All blocks	Finance department	Monthly

The Scientific Publications Panel provides automated tracking of faculty publications indexed in Scopus, with classification by journal quartile (Q1-Q4), co-authorship geography, and citation dynamics. This module directly serves the Research Quality indicator block, which carries the highest weight (30%) in THE methodology. The Citation Tracking module monitors citation growth trajectories and enables identification of high-impact research areas where strategic investment could yield maximum ranking returns.

The International Faculty and Students module tracks the share of international personnel and student body, directly corresponding to the International Outlook block (7.5% weight). The Grants and Startups Monitor provides real-time visibility into research funding flows, supporting the



Research Environment block (29% weight). The Faculty-Level KPI Tracker aggregates data from all modules to generate comprehensive performance dashboards for each faculty, enabling inter-faculty comparison and identification of underperforming areas requiring intervention.

The Budget-Indicator Linkage module represents a distinctive feature of the DRD, connecting financial resource allocation directly to ranking indicator performance. This module enables university administrators to evaluate the cost-effectiveness of investments across ranking dimensions and to optimize resource distribution based on indicator responsiveness. The optimal resource distribution model developed for NUU allocates 35% to Research Quality, 28% to International Outlook, 20% to research infrastructure, 10% to digital monitoring, and 7% to global branding [3].

Integration with Institutional Governance

The DRD does not function as a standalone tool but is designed to integrate with the broader institutional management architecture. Within the proposed governance structure for NUU, the DRD serves as the information backbone connecting five institutional bodies: the Strategic Governance Council, Research and Innovation Committee, International Partnerships Board, Ranking Analytics Center, and faculty-level management units. This integration transforms ranking monitoring from periodic reporting into continuous, data-informed governance.

The platform also supports the three-level KPI system (university-faculty-department) by providing automated KPI calculation, progress tracking, and early warning alerts when indicators fall below target thresholds. This early warning capability is particularly valuable for identifying emerging problems before they affect annual ranking submissions, enabling proactive rather than reactive management responses.

Economic Feasibility

International benchmarking data indicate that digital analytics platform implementation costs range from 70 to 120 thousand USD annually, encompassing software development, database integration, staffing, and maintenance. This represents a fraction of the total ranking strategy investment (estimated at 2.0-2.5 million USD annually for NUU) yet enables substantially more efficient deployment of all other resources. The DRD eliminates manual data collection processes, reduces reporting delays, and provides the analytical foundation for evidence-based resource allocation decisions that maximize ranking returns per dollar invested [4].

Conclusions

The Digital Ranking Dashboard addresses a critical infrastructure gap in emerging university governance by providing an integrated, real-time data



management platform aligned with international ranking methodology. The six-module architecture ensures comprehensive coverage of THE indicator blocks while maintaining cost feasibility for resource-constrained institutions. For universities in Central Asia and comparable developing regions, the DRD concept offers a high-leverage governance investment that can significantly accelerate ranking trajectory by transforming fragmented data into actionable strategic intelligence. Future development should focus on full integration with Scopus, Web of Science, and ORCID APIs, as well as the implementation of predictive analytics capabilities for ranking position forecasting.

REFERENCES

1. OECD, Benchmarking Higher Education System Performance. Paris: OECD Publishing, 2019.
2. Times Higher Education, World University Rankings: Methodology. London: THE, 2024.
3. M. Mamajonova, "Oliy ta'lim muassasalarining xalqaro reyting ko'rsatkichlarini oshirishning strategik boshqaruv mexanizmlari," *Muhandislik va Iqtisodiyot*, no. 7, pp. 185-188, 2025.
4. Elsevier, Research Intelligence Insight Report 2022. Amsterdam: Elsevier, 2022.
5. M. Mamajonova, "Strategic Pathways for Young Universities to Accelerate THE Ranking Success," *Academia Open*, vol. 10, no. 1, pp. 6-17, 2023.
6. E. Hazelkorn, *Rankings and the Reshaping of Higher Education*, 2nd ed. London: Palgrave Macmillan, 2015.
7. M. Mamajonova, "Decoding International University Rankings: A Comparative Analysis of THE and QS Methodologies," *American Journal of Economics and Business Management*, vol. 8, no. 5, pp. 2368-2380, 2025.
8. D. Docampo, "Reproducibility of university rankings," *Scientometrics*, vol. 94, no. 3, pp. 985-996, 2013.