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ANJUMANLAR PLATFORMASI

**I RESPUBLIKA ILMIY-
AMALIY KONFERENSIYASI**

**YANGI DAVR ILM-
FANI: INSON UCHUN
INNOVATION G'OYA
VA YECHIMLAR**

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YANGI DAVR ILM-FANI: INSON UCHUN INNOVATSION G'OYA VA YECHIMLAR

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KONFERENSIYASI MATERIALLARI**

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Annotatsiya

Mazkur to'plamda "Yangi davr ilm-fani: inson uchun innovatsion g'oya va yechimlar" mavzusidagi I Respublika ilmiy-amaliy konferensiyasi materiallari jamlangan. Nashrda respublikaning turli oliy ta'lim muassasalari, ilmiy markazlari va amaliyotchi mutaxassislari tomonidan tayyorlangan maqolalar o'rin olgan bo'lib, ular ijtimoiy-gumanitar, tabiiy, texnik va yuridik fanlarning dolzarb muammolari va ularning innovatsion yechimlariga bag'ishlangan.

Ushbu nashr ilmiy izlanuvchilar, oliy ta'lim o'qituvchilari, doktorantlar va soha mutaxassislari uchun foydali qo'llanma bo'lib xizmat qiladi.

Kalit so'zlar: ilmiy-amaliy konferensiya, innovatsion yondashuv, zamonaviy fan, fanlararo integratsiya, ilmiy-tadqiqot, nazariya va amaliyot, ilmiy hamkorlik.

Barcha huquqlar himoyalangan.

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DATA-DRIVEN MANAGEMENT AND MANAGEMENT INFORMATION SYSTEMS (MIS) IN UZBEK HIGHER EDUCATION INSTITUTIONS

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Annotation: The digitalization of higher education management has increased the importance of Management Information Systems (MIS) as a core tool for evidence-based decision-making. In Uzbekistan, universities actively implement digital platforms; however, the managerial use of data remains uneven and fragmented. This study examines how MIS are used for data-driven management in Uzbek higher education institutions, identifies key barriers to effective implementation, and proposes a management model to enhance MIS-based decision-making. Using a mixed-methods approach combining surveys and case studies, the research reveals that while basic data collection systems are widely adopted, analytical and strategic use of MIS outputs remains limited. The findings contribute to the development of data-driven governance in higher education management.

Keywords: Management Information Systems, data-driven management, higher education, educational management, Uzbekistan

O'ZBEKISTON OLIY TA'LIM MUASSASALARIDA MA'LUMOTLARGA ASOSLANGAN BOSHQARUV VA BOSHQARUV AXBOROT TIZIMLARI (BAT)

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Annotatsiya. Oliy ta'limni boshqarishni raqamlashtirish asoslangan qarorlar qabul qilishning asosiy vositasi sifatida boshqaruv axborot tizimlarining (BAT) ahamiyatini oshirdi. O'zbekistonda universitetlar raqamli platformalarni faol joriy etmoqda; biroq, ma'lumotlardan boshqaruvda foydalanish notekis va uzuq-yuluq bo'lib qolmoqda. Ushbu tadqiqotda O'zbekiston oliy ta'lim muassasalarida ma'lumotlarni boshqarish uchun BATdan qanday foydalanilayotgani ko'rib chiqiladi, samarali joriy etish uchun asosiy to'siqlar aniqlanadi va BAT asosida qaror qabul qilish samaradorligini oshirish uchun boshqaruv modeli taklif etiladi. So'rovlar va keys-stadilarni birlashtirgan aralash yondashuvdan foydalangan holda, tadqiqot shuni ko'rsatadiki, ma'lumotlarni yig'ishning asosiy tizimlari keng qo'llanilsa-da, AKT natijalaridan tahliliy va strategik foydalanish cheklanganligicha qolmoqda. Olingan natijalar oliy ta'limni boshqarishda ma'lumotlarga asoslangan boshqaruvni rivojlantirishga xizmat qiladi.

Kalit so'zlar: Boshqaruv axborot tizimlari, ma'lumotlarni boshqarish, oliy ta'lim, ta'limni boshqarish, O'zbekiston.

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Digital transformation has become a central priority in the management of higher education institutions worldwide. Management Information Systems (MIS) play a crucial role in collecting, processing, and analyzing data to support planning, monitoring, and decision-making processes. In Uzbekistan, recent education reforms have accelerated the introduction of digital platforms in universities. Despite these developments, managerial decisions are often based on fragmented information or manual reporting, limiting the effectiveness of institutional governance. This study addresses the gap between MIS implementation and its actual use in data-driven management practices within Uzbek higher education institutions.

The study employs a mixed-methods research design. Quantitative data were collected through a structured survey administered to administrative staff involved in institutional management, including planning, quality assurance, and academic affairs units. Qualitative data were obtained through case studies of two Uzbek universities with implemented MIS platforms. Document analysis of management reports and system-generated indicators complemented the empirical data. [3; 45–58-p.] The collected data were analysed using descriptive statistics and thematic analysis to identify patterns of MIS usage and management practices.

The findings indicate that most universities utilise MIS primarily for operational data collection, such as student enrolment, academic records, and reporting to regulatory bodies. [6; 59–76-p.] However, the use of MIS for analytical and strategic decision-making remains limited. Key barriers include insufficient integration of data systems, lack of staff training in data analysis, and weak alignment between MIS outputs and managerial needs. Institutions with more advanced MIS integration demonstrated higher efficiency in planning and monitoring processes.

Table 1. MIS-based management model for higher education institutions

Management Level	MIS Function	Key Data Sources	Management Use	Expected Outcomes
Strategic	Integrated MIS dashboards	Enrollment data, financial indicators, research outputs	Strategic planning, policy formulation, resource allocation	Evidence-based strategies, long-term sustainability
Tactical	Analytical MIS reports	QA indicators, performance metrics, staff workload	Monitoring and coordination	Improved institutional performance
Operational	Transactional MIS modules	Student records, schedules, reporting forms	Routine decision-making and control	Increased efficiency and accuracy
Analytical	Data analytics tools	Historical and real-time datasets	Forecasting and scenario analysis	Risk reduction, proactive management
Governance	MIS-supported reporting systems	Compliance and accreditation data	Accountability and transparency	Improved governance quality

Table 1 presents an MIS-based management model that shows how Management Information Systems support decision-making across different management levels in higher education institutions. At the strategic level, integrated MIS dashboards combine enrolment, financial, and research data to support long-term planning, policy development, and resource allocation. At the tactical level, analytical MIS reports based on quality assurance and performance indicators assist managers in monitoring and coordinating institutional activities. At the operational level, transactional MIS modules support routine administrative decisions using student records and reporting data, increasing efficiency and accuracy. The analytical level focuses on data analytics tools that use historical and real-time data for forecasting and scenario analysis, enabling proactive management. Finally, at the governance level, MIS-supported reporting systems enhance accountability and transparency through compliance and accreditation data, leading to improved governance quality and data-driven institutional management. [1; 7–32-p.]

Based on the integrated findings, an MIS-based management model is proposed. The model links management levels with specific MIS functions and data sources, demonstrating how data-driven decision-making can enhance strategic, tactical, and operational management in higher education institutions. [2; 38–71-p.] Unlike fragmented data usage, the proposed model emphasises system integration, analytical capacity, and governance transparency. The methodology goes beyond description by operationalising MIS usage through measurable indicators and applying correlation analysis. The proposed MIS-based management model is derived empirically from survey and case-study findings, ensuring analytical and practical relevance.

MIS Maturity Level In Uzbek Higher Education Institutions. The quantitative analysis indicates that the majority of surveyed institutions demonstrate a moderate level of MIS maturity. While all participating universities reported the use of basic transactional MIS modules, such as student information systems and reporting tools, only a limited number had fully integrated platforms combining academic, financial, and quality assurance data. [4; 3–20-p.]

Approximately 68% of respondents indicated that their institutions operate with *partially integrated MIS*, whereas only 19% reported the presence of fully integrated systems with analytical dashboards. The remaining institutions relied on fragmented or manual data consolidation processes. These findings suggest that MIS implementation in Uzbek higher education institutions remains primarily operational rather than analytical.

Correlation analysis revealed a positive relationship between MIS maturity and management effectiveness indicators. Institutions with higher levels of system integration and analytical functionality reported significantly faster decision-making cycles and improved accuracy of planning forecasts. Specifically, the availability of analytical dashboards showed a moderate positive correlation with decision-making speed and monitoring efficiency. In contrast, institutions relying on isolated systems demonstrated weaker associations between data availability and management outcomes. [5; 101–125-p.] These results confirm that MIS maturity is a key factor influencing the effectiveness of data-driven management.

Analysis of survey responses showed that MIS outputs are predominantly used for *regulatory reporting and operational control* rather than strategic management. Over 70% of respondents indicated regular use of MIS-generated data for compliance and routine

monitoring, while only 34% reported systematic use of MIS analytics for strategic planning and scenario analysis. Case-study evidence further confirmed that decision-making processes often depend on manually prepared reports, even in institutions with advanced digital infrastructure. This gap highlights the underutilisation of MIS analytical potential in managerial practices.

The results suggest that the effectiveness of MIS in higher education management depends not only on technological infrastructure but also on organisational and human factors. Limited analytical capacity and weak data culture constrain the transition to data-driven management. The findings align with international research emphasising the role of leadership and governance frameworks in leveraging MIS for strategic purposes. Developing a structured MIS-based management model may enhance evidence-based decision-making in Uzbek higher education institutions.

This study has demonstrated that while MIS adoption in Uzbek higher education institutions is progressing, their potential for data-driven management is not fully realised. Strengthening analytical competencies, improving system integration, and aligning MIS outputs with management objectives are essential for effective governance. The proposed MIS-oriented management approach contributes to the development of modern educational management practices in Uzbekistan and supports ongoing digital transformation reforms.

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