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### DIGITALIZING HIGHER EDUCATION HEMIS INFORMATION SYSTEM

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#### Abstract

Reforms underway in Uzbekistan’s higher education system are closely linked to the “Digital Uzbekistan – 2030” strategy, and in this process the higher education management information system—HEMIS—is taking shape as a central infrastructure. With HEMIS, it becomes possible to plan the educational process, monitor students’ academic performance, account for faculty workload, and manage contracts and financial operations in a digital environment. This thesis analyzes HEMIS’s functional role in digitalizing higher education, its place within the mobile application and an integrated digital ecosystem, as well as challenges related to technical infrastructure, digital competencies, and information security, and directions for addressing them. The impact of digital transformation on education quality, management efficiency, and transparency is briefly summarized based on existing research and regulatory documents.

**Keywords:** Digitalizing higher education, HEMIS, management information system, digital ecosystem, digital transformation, HEMIS Mobile.

In modernizing Uzbekistan’s higher education system, digital transformation has been identified as a priority direction, and the normative basis of this process is the “Digital Uzbekistan – 2030” strategy approved by Presidential Decree No. PF-6079 of October 5, 2020 [1]. This document views education as one of the



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key drivers of the digital economy and requires management to be carried out based on information systems, increasing the share of electronic services, and ensuring mechanisms for education quality and fair assessment. In recent years, practice has expanded in higher education institutions to automate class schedules, maintain ratings and attendance in digital form, and provide students with online services such as contracts, certificates, and other services. As a result, traditional paperwork is gradually decreasing, and an opportunity is emerging to make management decisions in real time based on statistical data; in turn, this strengthens openness and comparability of information for students and teachers, as well as for ministries and agencies.

In scientific research on digitalizing higher education, the HEMIS (Higher Education Management Information System) is defined as the main management information system that integrates academic, administrative, and financial processes of higher education institutions in Uzbekistan into a single digital platform [2]. The known architecture of the system includes modules such as “Administrative Management”, “Academic Process”, “Research Activity”, and “Financial Management”; through these modules, student contingent data, curricula, class schedules, faculty workload, assessment results, contract payments, and scholarship information are maintained in a single database [3]. Through a student’s personal account, one can view their curriculum, the list of subjects by semester, current ratings and final grades, academic debt status, and information on contract payments; teachers, in turn, can quickly enter data into the electronic journal, record attendance and assessment results, and monitor learning dynamics by group and subject. In this way, HEMIS operates as a mechanism that transparently accounts for the rating points accumulated by a student during the semester in accordance with credit–module system requirements. In recent years, a mobile application developed on the basis of



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HEMIS has also been introduced, enabling students to quickly access schedules, rating indicators, and other academic information via smartphone [4]. Such mobile services not only create convenience for users but also contribute to the development of digital culture and an environment of continuous online communication.

Recent studies evaluating the digital transformation of Uzbekistan's higher education show that, as a result of HEMIS integration with other national platforms—my.edu.uz, stat.edu.uz, kontrakt.edu.uz, my.uzbmb.uz, and other information systems—a unified digital ecosystem is being formed [5]. Real-time data exchange increases management efficiency, reduces subjectivity in assessment, ensures accuracy of statistics and reports, and strengthens financial transparency in contract and payment processes. At the same time, scientific sources note problems such as insufficient infrastructure, low speed and stability of the internet in some regions, uneven levels of digital competencies hindering full use of the HEMIS interface and functions, and incomplete integration between information systems. These factors indicate that digital transformation is not only the introduction of technology, but a complex process of renewing management, the regulatory framework, and human resources [6]. In the future, to improve HEMIS and related systems, it is necessary to introduce AI-based analytical modules, early identification of students at risk, recommendations for individual learning pathways, strengthening information security, simplifying the user interface, and ensuring deeper integration with other education platforms through open APIs. Otherwise, existing technical solutions will not fully realize their potential and it will be difficult to achieve the expected efficiency in the digitalization of higher education.



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problems and solutions”.

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