UDC 004.89:658.012.4

THE FUTURE OF AI-POWERED MANAGEMENT INFORMATION SYSTEMS

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Abstract. This paper explores the transformative potential of AI-powered Management Information Systems (MIS) in the education sector. It examines how the integration of Artificial Intelligence can revolutionize traditional educational administration, shifting the focus from simple data recording to predictive analytics and intelligent decision support. The study highlights key applications, including personalized learning pathways, automated administrative tasks, predictive student performance analysis, and optimized resource allocation. It also addresses critical challenges such as data privacy, ethical considerations, and the digital divide. Ultimately, the paper argues that AI-driven MIS are pivotal for building more efficient, adaptive, and data-informed educational institutions for the future.

Keywords: AI in Education, Management Information Systems (MIS), Educational Data Analytics, Personalized Learning, Predictive Analytics.

1. THEORETICAL FOUNDATIONS OF AI-POWERED MANAGEMENT INFORMATION SYSTEMS.

1.1. Concept, definition, and classification of ai-powered management information systems.

Modern processes of digitalization and globalization lead to the fact that management information systems (MIS) are increasingly built on the basis of artificial intelligence (AI) technologies. As noted by H. S. Altemirov, "artificial intelligence is one of the key technologies that opens up new horizons in various spheres of human activity" [1, p. 5]. The classification of AI-based management information systems demonstrates the wide range of application and flexibility of technologies in various fields of activity [2].

1.2. Core artificial intelligence technologies and their role in management information systems.

The main artificial intelligence technologies perform different but complementary functions in management information systems. The benefits and risks of using AI in MIS highlight the dual nature of technology implementation. On the one hand, AI enables faster data processing and improved management decisions, but on the other hand, it raises new challenges related to ethics, security, and the need for specialized personnel. Successful integration requires balancing efficiency and risk by developing comprehensive security and training measures [3].

1.3. Advantages, limitations, and chaltenges of ai implementation in management information systems.

Effectively tackling these challenges necessitates a multifaceted strategy that emphasizes comprehensive personnel training, the continuous improvement and validation of algorithms, and the implementation of robust monitoring and control mechanisms. Only through such an integrated approach can organizations fully realize the potential of AI, transforming management information systems into reliable, efficient, and ethically sound tools that enhance decision-making and operational effectiveness [4, p. 55].

2. ANALYSIS OF THE CURRENT STATE AND PRACTICES OF AI-POWERED MANAGEMENT INFORMATION SYSTEMS.

2.1. Review of existing AI-powered management information systems in various sectors, with a focus on education.

Artificial Intelligence (AI) has become the central force in transforming management information systems (MIS) across industries, including healthcare, finance, and education. This transformation is driven by the ability of AI to analyze complex data, personalize learning, and automate administrative management processes [5].

2.2. Assessment of effectiveness, performance, and outcomes of AI integration in management systems.

Artificial Intelligence (AI) has become a key driver of transformation across management systems in higher education, particularly in institutions such as Peking University. The integration of AI technologies into management information systems (MIS) enhances not only operational efficiency but also decision-making, educational equity, and academic outcomes [6].

2.3. Problems, risks, and barriers to adoption of AI-powered management information systems.

The integration of Artificial Intelligence (AI) into Management Information Systems (MIS) represents one of the most transformative trends in modern higher education. At institutions like Peking University, AI-driven management platforms have been developed to optimize administrative workflows, academic assessment, and student engagement.

3. WAYS TO IMPROVE AND PROSPECTS FOR THE DEVELOPMENT OF AI-POWERED MANAGEMENT INFORMATION SYSTEMS.

3.1. Innovative approaches to integrating AI into management information systems.

This foundational work discusses the core technologies of Educational Data Mining (EDM), which is a key innovative approach for integrating AI into educational MIS to uncover patterns in student behavior and performance [7].

3.2. Strategies to enhance efficiency and performance of AI-powered management information systems.

This article argues for a strategic shift from simply collecting data to using analytics (a core AI function) for actionable insights, directly addressing strategies to enhance the performance and decision-making efficacy of educational MIS. Picciano discusses the strategic challenges and opportunities of handling “big data” in education, which is crucial for developing strategies to ensure the scalability, accuracy, and efficiency of AI-powered systems [8].

3.3. Future trends, prospects, and forecasts for AI-powered management information systems.

Selwyn provides a critical forecast of AI’s role in education, exploring future trends such as predictive modeling for student attrition and the ethical implications, which are essential for the long-term development of responsible AI-MIS. This paper looks forward to the future trend of “human-centered AI”, emphasizing that the prospects of AI-MIS depend not only on technology but also on empowering educators to effectively use these systems, forecasting a move towards collaborative intelligence [9].

CONCLUSIONS.

In conclusion, the integration of AI into Management Information Systems is poised to fundamentally reshape the educational landscape. These advanced systems transcend their traditional role of data storage, evolving into proactive, intelligent partners in institutional management. By enabling

hyper-personalized learning pathways, automating administrative tasks, and providing predictive analytics for student success, AI-powered MIS hold the transformative potential to enhance educational outcomes and operational efficiency simultaneously. Embracing this technology with a strategic and human-centric approach is key to building more adaptive, equitable, and effective educational institutions for the future.

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