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OPTIMIZATION OF FINANCIAL MANAGEMENT AND MARKETING
RESEARCH BASED ON BIG DATA AND ARTIFICIAL INTELLIGENCE

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Abstract: This article examines the optimization of financial management and marketing research through the use of Big Data and artificial intelligence technologies in the context of the digital economy. The study analyzes the role of modern technologies in processing large volumes of data, improving financial decision-making processes, and predicting consumer behavior. In addition, the possibilities of using artificial intelligence-based analytical tools in the development of marketing strategies are explored. The results show that the implementation of Big Data and artificial intelligence technologies in business processes contributes to improving the efficiency of financial management and increasing the accuracy of marketing research.

Keywords: Big Data, artificial intelligence, financial management, marketing research, digital economy, data analytics, fintech.

Annotatsiya: Mazkur maqolada raqamli iqtisodiyot sharoitida Big Data va sun'iy intellekt texnologiyalaridan foydalanish orqali moliyaviy menejment va marketing tadqiqotlarini optimallashtirish masalalari tahlil qilinadi. Tadqiqot davomida katta hajmdagi ma'lumotlarni tahlil qilish, moliyaviy qarorlar qabul qilish jarayonini takomillashtirish hamda iste'molchilar xatti-harakatlarini prognozlashda zamonaviy texnologiyalarning ahamiyati o'rganildi. Shuningdek, marketing strategiyalarini ishlab chiqishda sun'iy intellekt asosidagi analitik vositalardan foydalanish imkoniyatlari ko'rib chiqildi. Tadqiqot natijalariga ko'ra, Big Data va sun'iy intellekt texnologiyalarini biznes jarayonlariga joriy etish korxonalarda moliyaviy boshqaruv samaradorligini oshirish hamda marketing tadqiqotlarining aniqligini ta'minlashga xizmat qilishi asoslab berildi.

Kalit so'zlar: Big Data, sun'iy intellekt, moliyaviy menejment, marketing tadqiqotlari, raqamli iqtisodiyot, ma'lumotlar analitikasi, fintech.

INTRODUCTION

In recent years, the rapid development of digital technologies has significantly transformed various sectors of the economy, including financial management and marketing research. In the context of the digital economy, the ability to collect, process, and analyze large volumes of data has expanded considerably. Therefore, Big Data and artificial intelligence technologies have become important strategic tools for business development.

Big Data technologies allow organizations to process vast amounts of information obtained from different sources in real time. Artificial intelligence systems can analyze this



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data, generate forecasts, and support automated decision-making processes. As a result, companies can improve the efficiency of financial management and enhance the effectiveness of marketing strategies.

The integration of financial management and marketing research allows organizations to better understand market trends, identify consumer needs, and develop more effective strategic decisions.

LITERATURE REVIEW

The impact of digital technologies on economic processes has been widely studied by many researchers. In particular, Big Data analytics is considered a crucial tool for improving business decision-making processes and enhancing organizational competitiveness (Manyika et al., 2011). In marketing research, Big Data technologies are used to analyze consumer behavior, identify market segments, and optimize marketing strategies (Davenport & Harris, 2007). Artificial intelligence algorithms enable companies to predict purchasing behavior and provide personalized marketing offers (Russell & Norvig, 2020). In the field of financial management, artificial intelligence-based analytical systems help evaluate financial risks, support investment decision-making, and improve financial forecasting accuracy (Brynjolfsson & McAfee, 2014).

RESEARCH METHODOLOGY

The research is based on several scientific methods, including system analysis, statistical analysis, comparative analysis, and analytical evaluation. These methods were used to examine the role of Big Data and artificial intelligence technologies in improving financial management and marketing research. In addition, statistical data from international organizations, research institutions, and global market reports were analyzed to evaluate the impact of digital technologies on business performance.

RESULTS AND DISCUSSION

The global adoption of Big Data and artificial intelligence technologies has grown rapidly in recent years. According to recent statistics, approximately **78% of companies working with Big Data integrated artificial intelligence technologies into their operations in 2024** (Gitnux, 2025). The global Big Data analytics market has also demonstrated significant growth. The market size reached **approximately \$307.5 billion in 2023 and is expected to grow from \$447.7 billion to \$1.176 trillion by 2034** (Fortune Business Insights, 2024). Artificial intelligence is also widely used in marketing research. Studies indicate that **around 69% of marketing professionals use AI technologies in the development of marketing strategies**, which significantly improves marketing efficiency and campaign performance (Gitnux, 2025). Big Data technologies enable organizations to analyze financial information more effectively, detect financial risks earlier, and optimize investment decisions. Financial institutions, including banks, widely use these technologies to evaluate credit risks and detect fraud. Similarly, artificial intelligence enhances marketing research by analyzing customer behavior patterns, identifying market segments, and developing personalized marketing strategies. AI-based recommendation systems used by e-commerce platforms significantly increase customer engagement and sales performance.



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The integration of Big Data and artificial intelligence technologies therefore creates a competitive advantage for organizations by improving decision-making speed, reducing operational costs, and increasing the efficiency of marketing strategies.

CONCLUSION AND RECOMMENDATIONS

The results of the study indicate that the use of Big Data and artificial intelligence technologies plays a significant role in optimizing financial management and marketing research. These technologies enable organizations to process large volumes of information, identify market trends, and develop effective strategic decisions.

Based on the findings of this study, the following recommendations can be proposed:

- I. Companies should implement Big Data-based analytical platforms to improve financial forecasting systems.
- II. Artificial intelligence models should be used in financial management processes to enhance risk assessment and decision-making accuracy.
- III. Digital analytics platforms should be widely applied in marketing research.
- IV. Organizations should invest in training specialists in data analytics and digital technologies.
- V. The integration of financial management and marketing analytics should be strengthened through digital technologies.

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