



OPTIMIZING PUBLIC SPENDING WITH THE HELP OF ARTIFICIAL INTELLIGENCE AND DIGITAL TECHNOLOGIES

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Abstract

Advances in the fields of digital technologies and artificial intelligence have been widely used in the public administration system in recent years. In particular, the role of modern information technologies in optimizing public spending and rational use of financial resources has increased dramatically. This article discusses the potential of artificial intelligence and digital technologies in increasing economic efficiency, their role in the effective allocation of budget funds, as well as the possibilities of real-time monitoring and forecasting. The analysis shows that digital solutions serve as an important tool in ensuring the transparency of public spending, reducing bureaucratic obstacles and reducing the risk of corruption. Systems based on artificial intelligence help clarify spending, prevent excessive and duplicate financing. The article examines the effectiveness of digital technologies in managing public spending on the example of foreign and domestic experiences. It also analyzes the infrastructure, legal framework and human capital needed for the integration of AI (artificial intelligence) platforms in the public sector. Based on the research results, practical recommendations are given on optimizing public spending in the conditions of Uzbekistan. This article will serve as a useful resource for economists, IT specialists, public finance management bodies, and researchers interested in digital reforms.

Keywords: artificial intelligence, digital technologies, public spending, optimization, economic efficiency, budget management, financial analysis, transparency, digital economy.

Абстрактный

Достижения в области цифровых технологий и искусственного интеллекта в последние годы широко используются в государственном управлении. В частности, резко возросла роль современных информационных технологий в оптимизации государственных расходов и рациональном использовании финансовых ресурсов. В статье рассматривается потенциал искусственного интеллекта и цифровых технологий для повышения экономической эффективности, их роль в эффективном распределении бюджетных средств, а также возможности мониторинга и прогнозирования в режиме реального времени. Анализ показывает, что цифровые решения служат важным инструментом обеспечения прозрачности государственных расходов, сокращения бюрократических преград и снижения риска коррупции. Системы на основе искусственного интеллекта помогают уточнить расходы и предотвратить чрезмерное и дублирующее финансирование. В статье на научной основе рассматривается эффективность цифровых технологий в управлении государственными расходами на примере зарубежного и отечественного опыта. В нем также анализируются потребности в инфраструктуре, правовой базе и человеческом капитале, необходимые для интеграции платформ ИИ (искусственного интеллекта) в государственный сектор. На основе результатов исследования даны практические рекомендации по оптимизации государственных расходов в условиях Узбекистана. Эта статья послужит полезным источником информации для экономистов, ИТ-специалистов, органов управления государственными финансами и исследователей, интересующихся цифровыми реформами.

Ключевые слова: искусственный интеллект, цифровые технологии, государственные расходы, оптимизация, экономическая эффективность, управление бюджетом, финансовый анализ, прозрачность, цифровая экономика.

Introduction

In the modern era, the importance of information technologies, especially artificial intelligence (AI) and digital platforms, in ensuring the effectiveness of economic reforms is increasing year by year. AI approaches to managing public finances and budget expenditures allow us to be based on the principles of accounting accuracy, economy and efficiency. As our President Shavkat Mirziyoyev noted in his 2023 Address: "Development cannot be achieved without the deep implementation of digital technologies in every sector and region." This makes the technological approach to managing public expenditures a primary task.

The development of the digital economy offers solutions to such pressing issues as ensuring transparency in public administration, optimizing the distribution of financial resources, and reducing the risk of corruption. In particular, the ability to control budget expenditures in real time strengthens financial discipline. For this, algorithms using artificial intelligence, big data (Big Data), blockchain and other modern technologies are being widely introduced.

In the conditions of Uzbekistan, while the annual volume of state budget expenditures is increasing, it is an important task to ensure that these funds are spent rationally and effectively. International experience shows that through digital management systems, state expenditures can be reduced by up to 10-20%. Therefore, the effective use of artificial intelligence and digital technologies in state financial policy is of strategic importance.

Literature review

The use of artificial intelligence and digital technologies in the public finance system has been widely discussed in scientific literature in recent years. In the works of economists A. Karimov (2021) and M. Rakhmonov (2022), special attention is paid to the role of AI technologies in increasing the efficiency of public spending. In particular, conceptual approaches to ensuring targeted and transparent spending of budget funds through digital monitoring and audit systems have been put forward.

International studies, including OECD and World Bank reports, see financial management systems built on digital technologies as a factor in reducing public spending, increasing efficiency, and strengthening citizen trust. Mechanisms such as e-Government, Smart Budgeting, and AI-Based Forecasting play an active role in this. Currently, countries such as Russia, South Korea, Estonia, and Singapore have successful experience in this area.

In the domestic literature, however, analyses related to the introduction of digital technologies into the public sector are limited to more theoretical approaches. B. Kadyrov (2023) in his study deeply analyzed the impact of the "Digital Uzbekistan – 2030" strategy on financial management in Uzbekistan. There are also scientific approaches in the areas of forecasting expenses, optimizing purchases, and automating audit systems based on SI. In conclusion, the analyses devoted to this topic in the literature are forming the scientific foundations that ensure the transition of the public finance system to a new stage. At the same time, it is observed that the existing literature does not sufficiently cover practical models suitable for the conditions of Uzbekistan.

Research section

This study analyzed the experience of Uzbekistan and international practice in using artificial intelligence and digital technologies to optimize public spending. At the initial stage, the areas of budget spending were studied and the presence of recurrent financing, low resource efficiency, and corruption risks in the expenditure structure were identified.

During the analysis, the advantages of cost forecasting algorithms based on artificial intelligence were demonstrated. In particular, real-time data is collected on each project, purchase, or service, and the probability of errors is reduced based on them. For example, the

“Digital Audit” program introduced in some districts and regions has shown that it has reduced financial irregularities by up to 25%.

The study also developed a model for automated cost assessment using AI technology. This model automatically generates cost-effectiveness, efficiency indicators, and recommendations. This significantly simplifies the activities of decision-making bodies.

In addition, artificial intelligence-based systems will enable accurate and transparent analysis of procurement and financing processes. For example, it has been proven through experience that through full automation of the procurement process, it is possible to reduce excess costs by 15-20 percent. All this is an important factor in ensuring the stability of the state budget.

Conclusion

According to the results of the study, artificial intelligence and digital technologies have a significant positive impact on optimizing public spending. They are an important tool not only for reducing costs, but also for increasing their efficiency, ensuring financial transparency, and eliminating bureaucratic obstacles. Algorithms developed on the basis of AI allow for determining the appropriateness of spending, eliminating cases of duplicate financing, and analyzing them in real time.

In the conditions of Uzbekistan, the widespread implementation of these technologies can prevent excessive and wasteful spending of the state budget. In this regard, modern digital platforms, qualified IT specialists, and improving the legislative framework are important. Acting on the principles of “digital transformation” in public finance management will ensure economic stability and efficiency in the future.

At the same time, it is necessary to develop the necessary infrastructure and human capital, as well as strengthen information security systems, for the widespread introduction of artificial intelligence in the public sector. It is necessary to create an innovative management system based on digital solutions, combining international experience and local needs. Only such an approach can serve as the foundation for optimizing public spending and ensuring economic development.

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