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A NEW INNOVATIVE APPROACH TO PUBLIC PROCUREMENT

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Abstract

Large-scale reforms aimed at digitalizing the public procurement system are continuing in New Uzbekistan. Through electronic tendering, online auctions, and e-marketplace platforms, significant results have been achieved in ensuring the efficient use of budgetary funds, reducing the influence of the human factor, and limiting corruption risks. However, at present, the most pressing issue remains the transformation of public procurement from a simple electronic system into an intelligent management system.

According to experts, the main problem in public procurement is often manifested not in the decision-making process itself, but in the insufficient development of mechanisms for data analysis and the preliminary forecasting of risks. Is this really the case? Let us attempt to analyze this issue.

For instance, in certain cases, market prices may be artificially inflated, technical requirements may be tailored to the interests of a particular participant, or hidden agreements among tender participants may occur. A conventional electronic platform may register such situations; however, an intelligent approach is required to analyze them and determine the level of risk in advance.

In the current process of global digitalization, the public procurement system is being transformed into one of the strategic directions of economic governance. In traditional procurement mechanisms, the high level of human involvement, the slow processing of information, and insufficient transparency created corruption-



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related risks. Digital control systems and artificial intelligence technologies are emerging as important innovative tools for overcoming these problems.

The introduction of artificial intelligence elements into public procurement primarily creates opportunities for the automatic analysis of data. For example, algorithms can identify suspicious cases in tender procedures, artificial price inflation, repeated participants, conflicts of interest, and other risk factors. This, in turn, increases the targeted and efficient use of public funds.

In addition, the digitalization of all procurement processes through electronic platforms ensures openness and accountability. Electronic databases serve as a rapid source of information for public authorities, business entities, and the wider public. As a result, the competitive environment is strengthened, and equal participation opportunities are formed.

Analyses show that in developed countries, public procurement systems based on artificial intelligence demonstrate high effectiveness in optimizing budget expenditures, saving time, and reducing human errors. However, in this process, issues such as cybersecurity, the protection of personal data, and ensuring the neutrality of algorithms are also of urgent importance. Therefore, the development of digital public procurement systems requires the improvement not only of technical mechanisms but also of legal and institutional frameworks.

In general, digital control and artificial intelligence are opening a new stage in the management of public procurement. These technologies are regarded as an important innovative direction for increasing the efficiency of public administration, reducing corruption, and ensuring economic stability.

From this perspective, the introduction of a “Digital Risk Index” system into public procurement may constitute an important scientific and practical innovation. According to this model, each tender or procurement process is automatically assessed on the basis of several criteria:



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- the ratio of the proposed price to the market value;
 - the number of participants;
 - the history of previous contracts of the winning organization;
 - repeated or suspicious cases in the technical requirements;
 - repeated procurements within a short period;
 - the risk level of budgetary funds.

Artificial intelligence can analyze this information and form a “trust index” for each procurement process. If the system identifies a high level of risk, the tender is automatically directed to additional monitoring or audit. This creates an entirely new stage in preventing corruption-related factors. The introduction of such intelligent analytical mechanisms is particularly important in the electric power sector.

Under the conditions of the current global digital transformation, public administration systems are undergoing a process of fundamental change. One of the most important directions of these changes is the public procurement system. Since a significant share of state budget funds is spent through public procurement, ensuring transparency, accountability, and efficiency in this area has become a strategic task. From this point of view, the introduction of digital control and artificial intelligence technologies serves as one of the key factors in modernizing the public procurement system.

In the traditional public procurement system, document circulation was carried out in paper form, the human factor played a dominant role in decision-making processes, and data were stored in a fragmented manner. These circumstances led to bureaucratic barriers, corruption risks, and inefficient spending of budgetary funds. For this reason, many countries are seeking to increase the efficiency of the system through the digitalization of public procurement.



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According to OECD data (2023), the digital public procurement system is considered “one of the most effective instruments for ensuring transparency and accountability in the management of public funds.” Furthermore, the World Bank report (2022) emphasizes that in countries where electronic procurement systems have been introduced, budget expenditures have decreased by 10–25 percent.

Electronic platforms occupy a central place in the digital public procurement system. Through these platforms, relations between public procuring entities and suppliers are automated, tender processes are made more transparent, and opportunities for real-time monitoring are created. This reduces the impact of the human factor in public procurement and expands the competitive environment.

Artificial intelligence technologies have formed a new stage in the public procurement system. According to Russell and Norvig (2021), artificial intelligence is a system that enables the automation of human intellectual processes. In the context of public procurement, these technologies make it possible to analyze tender processes, detect suspicious transactions, and forecast risks.

Through AI algorithms, the following tasks can be performed: identifying links among tender participants, monitoring price manipulations, forecasting corruption risks, and automating decision-making processes. According to the research of Adams and co-authors (2023), machine learning algorithms are capable of detecting fraud cases in public procurement with a high level of accuracy.

Digital control systems create the possibility of continuous monitoring of public procurement processes. Through Big Data technologies, large volumes of information are analyzed, and hidden patterns are identified. According to Davenport (2022), data-driven governance is a new model of public administration. Blockchain technology plays an important role in ensuring reliability and transparency in public procurement. Tapscott (2021) defines blockchain as “a



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system that ensures trust through digital algorithms.” Through this technology, tender processes are stored in an immutable digital registry, thereby limiting any possibility of manipulation.

International experience shows that countries such as Singapore, Estonia, and South Korea have achieved high efficiency by fully digitalizing public procurement. According to World Bank data (2023), digital procurement systems significantly reduce the level of corruption and improve the quality of public services.

At the same time, a number of challenges remain in this area. These include cybersecurity, the neutrality of artificial intelligence algorithms, the shortage of qualified personnel, and issues related to legal regulation. Floridi (2021) emphasizes that artificial intelligence technologies should be associated not only with efficiency but also with ethical and legal oversight.

The results of the study show that the introduction of digital control and artificial intelligence into the public procurement system is shaping a new innovative stage of public administration. This process is not merely a matter of technical modernization; it also includes institutional reforms. In the future, the deeper integration of AI, Big Data, and blockchain technologies may transform public procurement into a fully automated, transparent, and efficient system.

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