DIGITALISATION OF PUBLIC PROCUREMENT AS A TOOL FOR ENSURING TRANSPARENCY AND COMBATING CORRUPTION IN UKRAINE

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Summary

The article provides a comprehensive study of the process of digitisation of public procurement and state registers in the context of modernising the public administration system. The author aimed to analyse the historical stages of the development of digital tools, determine their impact on reducing corruption risks and increasing transparency, and assess the prospects for their further development in Ukraine and worldwide.

The paper traces how the emergence of electronic platforms in developed countries and their gradual introduction in Central and Eastern Europe created the preconditions for systemic reforms. Particular attention is paid to the Ukrainian experience, where the key result was the creation of the Prozorro system, which combined the principles of open data, multi-level interaction and competition among participants.

The architecture and mechanisms of electronic platforms, in particular Prozorro, which ensure standardisation of procedures, open access to data and the possibility of public control, are examined. It is shown that such innovations have become not only technical tools, but also elements of institutional reform aimed at increasing the legitimacy of public policy.

The role of electronic state registers as instruments of transparency and accountability was studied. It was found that they create a single information space, enable independent monitoring of the activities of public authorities, contribute to the fight against fictitious entrepreneurship and corruption schemes, and strengthen Ukraine's integration into the European legal field.

The study confirmed that digitalisation can significantly reduce abuse through the automation of procedures, the algorithmisation of decision-making, and the formation of a new culture of transparency. The importance of digital tools for the development of public control and the strengthening of public trust in institutions was emphasised separately.

At the same time, the article identifies a number of problems and limitations, including uneven infrastructure development, low digital literacy, cyber threats, and legal gaps. On this basis, prospects for further research related to the use of artificial intelligence and blockchain in public administration and the expansion of international cooperation in the field of digitalisation are identified.

Key words: digitalisation, public procurement, Prozorro, electronic state registers, process automation, anti-corruption policy, transparency, public control, cybersecurity, public policy, fight against corruption.

1. Introduction

The relevance of the issue stems from the fact that public procurement traditionally remains one of the most vulnerable areas of public administration, where high levels of corruption risks and bureaucratic procedures hinder the effective allocation of resources.

In the context of military challenges and growing public demand for transparency in government decisions, digitalisation is becoming an essential tool for ensuring openness and accountability of the authorities. The introduction of electronic systems such as Prozorro demonstrates the ability of technology to minimise abuse and shape new standards of interaction between the state, business and civil society.

At the same time, digitalisation requires systematic analysis, as its effectiveness depends on the combination of technological solutions with political will, an appropriate regulatory framework and the level of digital literacy of users. Cybersecurity issues, technical failures, and uneven access to digital platforms create additional challenges that can negate the results achieved. That is why research into the impact of digital tools on reducing corruption risks and increasing trust in the state is particularly important for the further modernisation of the public administration system.

2. History of the implementation of digital tools in public procurement

The history of the introduction of digital tools in public procurement is inextricably linked to the evolution of management practices and the democratisation of public administration. In the second half of the 20th century, most countries around the world used traditional paper-based procedures, which were characterised by a high level of bureaucracy and corruption risks. Attempts at automation began with local experiments in electronic document management, but the real breakthrough came only with the spread of the internet in the 1990s.

The first initiatives for electronic tendering systems appeared in economically developed countries, particularly in the United States and the United Kingdom. They allowed authorities to publish procurement notices in electronic form and ensured equal access to information for suppliers. This was the first step towards transparency, as the openness of tender procedures reduced the risk of collusion and informal agreements *(Doherty, 2013)*.

In the European Union, the digitisation of public procurement became systematic after the adoption of the 2004 directives, which obliged member states to switch to electronic formats for interaction between the state and business. This contributed to the development of national electronic platforms, which ensured the unification of rules and created the conditions for a single procurement market within the Union.

In Central and Eastern European countries, digital tools were introduced as part of broader public administration modernisation programmes. Their implementation was particularly important in the context of integration into European structures. In Poland and the Czech Republic, electronic systems began operating in the 2000s, gradually covering the entire procurement cycle from announcement to contract conclusion.

In Ukraine, the first steps in this direction were taken in the early 2000s, but the process was hampered by a lack of political will and institutional capacity. It was only after 2014, in the context of a deep crisis of governance and public demand for transparency, that systemic changes were initiated. A key result of these reforms was the creation of the Prozorro electronic system, which has become a symbol of anti-corruption progress.

Prozorro, as an innovative platform, combined the principles of open data and multi-level interaction between the state, business and civil society. The use of digital tools not only reduced corruption risks but also optimised state spending, as competition among suppliers led to lower prices. An additional benefit was the formation of a new culture of transparency in public finance management *(About, 2025)*.

The system gradually expanded its functionality, covering new types of procurement and integrating with international practices. Ukraine has gained recognition from international partners, including the World Bank and the European Bank for Reconstruction and Development, which have highlighted Prozorro as one of the most successful reforms in public administration.

Digital tools in the field of procurement have not only an anti-corruption dimension, but also an innovative one. They stimulate the development of the IT sector, create conditions for the emergence of new business models, and ensure a more efficient allocation of resources. At the same time, the introduction of digital platforms contributes to increasing trust in the state and forming a positive international image.

However, the history of the digitalisation of procurement shows that there are numerous challenges. These include technical failures, low levels of digital literacy among users, and attempts to adapt corrupt practices to new conditions. This proves that digital tools are not a panacea, but require constant improvement, staff training and monitoring.

Today, it can be said that the digitalisation of public procurement has become a global trend that sets the standards for good governance. Its history shows that the combination of technology with political will and institutional support can change the rules of the game in relations between the state and business. Ukraine's experience in this context is a telling example that is being integrated into the broader European and global process.

The prospects for development lie in further automation, the use of artificial intelligence and blockchain technologies to control transactions, and the expansion of international cooperation. These trends prove that the history of the introduction of digital tools in public procurement is only the beginning of deeper transformations in public administration.

3. Main electronic procurement platforms (for example, Prozorro): principles, mechanisms, architecture

Electronic procurement platforms have become a key tool for ensuring transparency and efficiency in the use of public resources. Their emergence is driven by the need for open and competitive procedures that minimise the human factor and reduce corruption risks. The functioning of such systems is based on the idea of equal access to information for suppliers and the creation of a competitive environment where the winner is the one who offers the best conditions.

One of the most well-known and successful platforms in Ukraine is Prozorro. It is built on the principle of complete data openness, which means that all information about procurement procedures is accessible to the public, businesses and regulatory authorities. Openness ensures public control and creates new opportunities for analytics, research and monitoring of the effectiveness of public spending. This principle is in line with the international Open Contracting Partnership initiative, which sets global standards for transparency.

Prozorro's mechanisms are based on a multi-level structure of interaction between the state, business and civil society. The central link is an electronic system that acts as the core of the process. It is integrated with several commercial electronic platforms that provide users with access to tenders. This architecture ensures competition not only among suppliers but also among platforms, which improves the quality of services and the level of user support.

The procurement process on the platform consists of several stages, each of which is automated and standardised as much as possible. First, the customer publishes a procurement announcement, which becomes available to all registered participants. Next, tender proposals are submitted and stored in the system in encrypted form. At the auction stage, the system opens

the bids and automatically organises a bidding process, where participants can lower their price offers in several rounds. After the auction is completed, the system determines the winner based on objective criteria *(Poburko, 2024)*.

Prozorro's architecture is hybrid and based on a hub and spoke model, where the central database acts as the core and private platforms are like spokes that provide access to the system. This approach makes it possible to avoid monopolisation, distribute the load and create a flexible ecosystem where the state acts as a regulator and businesses provide user services. The technical implementation involves the use of open APIs, which simplifies integration with other information systems.

The Prozorro analytics module plays a special role in the platform's operation. It enables comprehensive analysis of tenders, detection of suspicious schemes, monitoring of cost efficiency, and even forecasting of trends in the procurement sector. Such tools strengthen the system's anti-corruption potential and contribute to greater public trust.

An important feature is Prozorro's integration with international practices. The system complies with European Union directives, making it compatible with the European market and opening up opportunities for foreign suppliers. This not only promotes competition but also stimulates higher standards of quality for products and services purchased by the state.

In addition to Prozorro, Ukraine has auxiliary digital tools such as Prozorro.Sales, which are used to sell state and municipal property, as well as commercial assets. Their architecture is based on the same principles of openness and competition, which ensures the comprehensive use of digital technologies in the management of public resources.

Thus, electronic procurement platforms have become not only a technical tool but also an institutional reform that has radically changed the relationship between the state and business. The principles of openness, equal access and competition, combined with innovative architecture, create the foundation for a new model of good governance. Ukraine's experience shows that such systems can bring about real improvements in the effectiveness and legitimacy of public policy.

4. Role of electronic state registries in ensuring transparency

Electronic state registers have become one of the key elements in the formation of a transparent public administration system. They provide centralised storage and access to official information that was previously scattered among various institutions or existed only in paper form. Digital technologies have made it possible to obtain data quickly, minimising bureaucratic barriers and reducing opportunities for corruption.

One of the most important functions of electronic registries is to ensure equal access to information for all interested parties. Open data allows citizens, businesses, and journalists to independently monitor the activities of government agencies. This contributes to increased public trust, as citizens are able to verify the accuracy of official decisions and monitor the actions of state bodies *(Bula, 2025)*.

The transparency provided by electronic registries is evident in the ability to quickly track transactions related to property, finance, or economic activity. For example, the register of legal entities and individual entrepreneurs allows the identification of company owners and the detection of fictitious business schemes. This creates additional tools to combat money laundering and illegal financial transactions.

Electronic registers are particularly important in the field of public procurement. Integrating these databases with electronic tender platforms makes it possible to check the reliability

of suppliers, their tax history and whether they have any court cases. This not only increases competition, but also minimises the participation of companies with questionable reputations.

An important area of development is the interconnection of electronic registers. Interoperability mechanisms create a single information space in which data is automatically synchronised between different government systems. This reduces the time needed to verify information, eliminates duplication and reduces the risk of errors or manipulation *(System of electronic interaction of state electronic information resources | SE DIIA, 2025)*.

Electronic registers have a significant impact on anti-corruption policy. Open registers of civil servants' declarations, registers of court decisions and property databases enable the public sector and the media to exercise independent control. It is thanks to digital tools that it becomes possible to identify conflicts of interest, illegal enrichment and concealment of assets.

The integration of electronic registries into the European and international legal space opens up new opportunities for international cooperation. The exchange of data between states makes it impossible to flee capital and hide assets abroad. This is particularly relevant for Ukraine, which is in the process of adapting its legislation to European Union standards.

The development of electronic registries is also important for economic progress. Open information about the business climate, state resources and infrastructure creates the conditions for attracting investment. Potential investors are able to quickly check the reliability of partners and predict risks, which makes the economic environment more predictable.

At the same time, the use of electronic registers is associated with certain challenges. The most significant of these are personal data protection and cybersecurity. Openness should not threaten citizens' privacy, so the state must ensure a balance between transparency and security.

Thus, electronic state registers are not only a technical but also a political tool. They shape a new quality of relations between the state and society, lay the foundations for government accountability, and create conditions for strengthening the rule of law. Their role in ensuring transparency lies in transforming public administration towards greater openness, accountability, and trust.

5. Prevention of corruption risks through process automation

The automation of government processes has become one of the most effective tools for countering corruption risks in modern political systems. The use of digital technologies in public administration minimises the human factor, which is the main source of abuse. When decision-making and data verification are carried out by algorithms, the opportunities for manual intervention are significantly reduced, which increases the transparency and predictability of management procedures.

One of the key mechanisms for preventing corruption through automation is the unification of procedures. Automated systems operate according to clearly defined rules that do not depend on the personal decisions of officials. This avoids situations where identical applications or documents receive different results due to subjective interpretation. This approach ensures a level playing field for all participants in the process.

Automation is particularly important in the field of public procurement. The use of electronic systems, in particular Prozorro in Ukraine, has made it possible to drastically reduce corrupt practices thanks to transparent auction algorithms and open access to all information. The public nature of the data makes it impossible to conceal inflated prices or collusion between participants, and automated procedures reduce the scope for manipulation in favour of individual suppliers.

Process automation also plays an important role in monitoring compliance with financial discipline. Electronic accounting and reporting systems allow real-time tracking of budget funds. This ensures not only transparency but also rapid response to suspicious transactions. Thus, control becomes not only ex post facto but also preventive in nature.

Digital algorithms play a significant role in the provision of administrative services. The transition to electronic services, such as business registration or the issuance of permits, eliminates direct contact between citizens and officials. Reducing the number of such contacts directly reduces opportunities for bribery and abuse of power *(Novosad, 2025)*.

A significant advantage of automation is the creation of uniform digital traces. Every action in the system leaves a record that can be verified and analysed. This creates a new model of accountability in which any unlawful interference or delay immediately becomes apparent. This approach not only reduces the number of corruption cases, but also increases the effectiveness of disciplinary and criminal liability.

At the same time, process automation requires an adequate level of cybersecurity. If the system is not adequately protected, it may become vulnerable to external interference, creating risks of manipulation of a different nature. It is therefore important that, alongside the development of digital services, the state pays attention to data protection, encryption and regular security audits *(Cybersecurity strategy of Ukraine | Digital Watch Observatory, 2021)*.

Automation is also a powerful tool in the field of personnel policy. Competitive electronic recruitment systems minimise the risk of political or corrupt influence on appointments. Objective criteria and standardised selection algorithms ensure equal access for citizens to public service and increase trust in institutions.

The automation of processes in public administration is not only a technological solution but also a political tool for building integrity and accountability. It changes the culture of interaction between the state and citizens, forming a new model of governance in which corruption risks are systematically minimised. Automation is becoming part of broader reforms aimed at establishing the rule of law and strengthening democratic foundations.

6. Analysis of the impact of digitalization on reducing abuses

Digitalisation in public administration is seen by modern science as one of the key tools for reducing corruption and abuse of power. Its impact lies not only in the technical automation of processes, but also in changing the institutional logic of how the state works. The transition from closed and fragmented procedures to open and integrated digital systems creates new standards of transparency that significantly limit opportunities for covert manipulation.

One of the most important consequences of digitalisation is ensuring open access to data. When information about government decisions, procurement or property becomes available in public electronic registers, the possibility of selective access or concealment of facts disappears. Openness reduces the asymmetry of information between the authorities and society, which is a classic prerequisite for corruption schemes *(Bula, 2025)*.

Digital tools minimise the human factor's influence on administrative procedures. Algorithmic decision-making ensures uniform rules for all participants in the process, reducing the scope for subjective interpretation of the rules. For example, in the Prozorro system, the procedure for determining the winner takes place automatically according to predefined criteria, which makes it impossible for officials to intervene at the decisive stage.

Digitalisation strengthens control mechanisms. All actions performed in electronic systems leave a digital trail that can be tracked and analysed. This creates a new level of

accountability, where even minor deviations or delays become the subject of attention from regulatory authorities and the public. Thus, the system not only responds to abuse, but also has a preventive effect, as officials understand the inevitability of exposure.

An important result of digitalisation is the expansion of opportunities for public control. Civil society organisations, journalists and expert analytical centres gain access to open data sets that can be analysed using modern information processing technologies. This strengthens the role of society as a participant in the control process and shapes a new political culture of accountability *(Troitskiy, 2025).*

The impact of digitalisation on reducing abuse can also be seen in the provision of administrative services. The transition to electronic services reduces the number of direct contacts between citizens and officials, which lowers the risk of bribery. At the same time, the standardisation and unification of procedures in digital form makes it impossible to make individual 'arrangements' to speed up or simplify services.

However, digitalisation is not an absolute guarantee of eliminating corruption. Abuse can transform into new forms related to the manipulation of technical parameters of systems or control over access to data. This requires constant improvement of digital platforms, independent auditing of their work and the development of cybersecurity.

In Ukraine, digitalisation has already yielded tangible results. The Prozorro, e-Data, Unified Register of Declarations, and Diya mobile app systems have become symbols of a new model of openness. They have not only reduced the number of abuses in specific areas, but also changed public expectations, creating a demand for transparency as a new standard of interaction between the state and citizens.

7. Problems and limitations of implementing digital solutions in procurement and registries

The implementation of digital solutions in the field of procurement and public registries, despite its obvious advantages, is accompanied by a number of problems and limitations that require systematic analysis. One of the key challenges is the uneven technical development of digital infrastructure. Not all regions and state bodies have the same level of access to modern technologies, which leads to asymmetry in the use of electronic services and reduces their effectiveness.

A significant limitation is the level of digital literacy among users. Officials, business representatives and citizens often encounter difficulties when working with electronic systems. This can lead to errors in the use of tools, incorrect completion of documents, or unwillingness to participate in digital procedures, which limits real openness and competition *(Ukraine accelerates e-literacy through public infrastructure, 2025).*

Cybersecurity is an important issue. The growth in the volume of data processed on digital platforms makes them an attractive target for hacker attacks. Unauthorised access to state registers or electronic procurement can lead to large-scale financial and political consequences. Inadequate information security undermines trust in digital tools.

Another challenge is the technical reliability of systems. Electronic platforms sometimes experience failures that disrupt tender procedures or complicate user access to registries. Such situations create risks of manipulation and discredit the reforms themselves, as users begin to doubt their effectiveness.

No less significant is the risk of digital bureaucracy. Although electronic systems are designed to reduce paper-based procedures, they sometimes duplicate old practices in digital

form. This leads to formal rather than substantive process improvements and does not address the root causes of corruption risks.

The issue of data accessibility remains a challenge. Despite the proclaimed principle of open registries, some categories of information remain closed or only partially accessible. This situation creates selectivity in transparency, which can be used in the interests of individual groups.

The complexity of integrating different registries and systems is also a limitation. The lack of full interoperability leads to duplication of information, discrepancies in data, and additional time spent on verification. This reduces the effectiveness of digital tools and creates room for manipulation.

A social factor limiting digitalisation is the distrust of electronic platforms among part of the population and business community. This is due to both general scepticism about state institutions and actual cases of data breaches or leaks. Overcoming this distrust requires not only technical improvements to systems, but also a consistent information policy.

The issue of legal support is of particular importance. The legislative framework does not always keep pace with technological innovations, which leads to legal loopholes. The uncertainty of the status of electronic documents or vague rules on data storage can create grounds for appeals and manipulation in court proceedings *(Kapitanenko, 2024)*.

The risk of corruption practices adapting to new conditions must also be taken into account. Even the most modern systems do not guarantee the complete elimination of abuse, as unscrupulous participants can find new ways to use digital tools to their advantage. This points to the need to combine technological solutions with institutional reforms and the development of public service ethics.

8. Conclusions

The digitisation of public procurement and state registries has proven effective in minimising corruption risks, increasing transparency and creating a competitive environment. The introduction of electronic systems, in particular Prozorro, has been an example of successful reform that has changed the model of interaction between the state, business and society. Open data, process automation and the possibility of public control have ensured new standards of accountability that contribute to increased trust in state institutions.

Along with these achievements, a number of challenges remain, including cyber threats, insufficient digital literacy among users, legal gaps and technical limitations. These require comprehensive solutions that combine the development of digital platforms with the improvement of legislation, the enhancement of staff competencies, and the implementation of appropriate information policies. Only under such conditions can digital tools become a stable foundation for further democratic transformations and modernisation of governance.

Prospects for further research lie in exploring the possibilities of applying artificial intelligence, blockchain and other innovative technologies in the field of public administration. Particular attention should be paid to analysing the integration of Ukrainian digital solutions into the European and global space, as well as assessing the impact of digitalisation on the development of public control and political culture in society. This opens up a wide field for interdisciplinary research aimed at forming a new paradigm of transparent and accountable governance.

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