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Digitalization of Tax Administration as a Factor of Increasing Fiscal Efficiency and Ensuring Social Justice

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ABSTRACT

The article examines current trends in the digital transformation of tax administration in Ukraine in the context of the development of the digital economy and the modernization of the public administration system. The relevance of the study is determined by the need to increase the fiscal efficiency of the state, reduce the scale of the shadow economy, and ensure social justice in the field of taxation. Under martial law conditions, the effectiveness of the tax system directly affects the financial stability of the state and its ability to fulfill social obligations. The purpose of the study is to identify the main advantages, challenges, and prospects for the development of electronic tax administration, as well as to substantiate its impact on the transparency of tax processes, the level of tax discipline, and the effectiveness of tax control. The study employs methods of comparative analysis, generalization, statistical review, and analysis of international experience. The current state of electronic tax administration development in Ukraine is analyzed, and the impact of the automation of tax processes on the quality of tax control and the level of tax revenues is examined. Considerable attention is paid to the international experience of digital transformation of tax systems, particularly the practices of Estonia, Germany, France, and the United Kingdom. The results of the study demonstrate that the implementation of electronic services, automated tax risk analysis systems, and digital monitoring of financial transactions contributes to reducing administrative costs, increasing the efficiency of tax control, and combating the shadow economy. It has been established that the technological modernization of the tax system positively affects the level of fiscal efficiency, improves the accessibility of tax services, and reduces corruption risks. At the same time, several key challenges have been identified, including unequal access to digital infrastructure, insufficient digital literacy among the population, and cybersecurity threats. The conclusions substantiate that the further development of electronic tax administration should combine technological modernization with the principles of transparency, information security, and protection of taxpayers' rights. It is proven that the effective use of digital tools can increase the efficiency of tax control and create the preconditions for the formation of a more socially just taxation system in Ukraine.

KEYWORDS

tax administration, fiscal efficiency, social justice, digital transformation, e-governance, tax system, tax control.

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Цифровізація податкового адміністрування як чинник підвищення фіскальної ефективності та забезпечення соціальної справедливості

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СТАТТЯ

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АНОТАЦІЯ

У статті досліджено сучасні тенденції цифрової трансформації податкового адміністрування в Україні в умовах розвитку цифрової економіки та модернізації системи державного управління. Актуальність дослідження зумовлена необхідністю підвищення фіскальної ефективності держави, скорочення масштабів тіньової економіки та забезпечення соціальної справедливості у сфері оподаткування. В умовах воєнного стану ефективність податкової системи безпосередньо впливає на фінансову стабільність держави та її спроможність виконувати соціальні зобов'язання. Метою дослідження є визначення основних переваг, проблем і перспектив розвитку електронного податкового адміністрування, а також обґрунтування його впливу на прозорість податкових процесів, рівень податкової дисципліни та ефективність податкового контролю. У процесі дослідження використано методи порівняльного аналізу, узагальнення, статистичного огляду та аналізу міжнародного досвіду. Проаналізовано сучасний стан розвитку електронного адміністрування податків в Україні, досліджено вплив автоматизації податкових процесів на якість податкового контролю та рівень податкових надходжень. Значну увагу приділено міжнародному досвіду цифрової трансформації податкових систем, зокрема практикам Естонії, Німеччини, Франції та Великої Британії. Результати дослідження показали, що впровадження електронних сервісів, автоматизованих систем аналізу податкових ризиків і цифрового моніторингу фінансових операцій сприяє скороченню адміністративних витрат, підвищенню оперативності податкового контролю та детінізації економіки. Встановлено, що технологічна модернізація податкової системи позитивно впливає на рівень фіскальної ефективності, підвищує доступність податкових послуг та зменшує корупційні ризики. Водночас визначено і ключові проблеми, серед яких нерівномірний доступ до цифрової інфраструктури, недостатній рівень цифрової грамотності населення та загрози кібербезпеці. У висновках обґрунтовано, що подальший розвиток електронного податкового адміністрування має поєднувати технологічне оновлення із забезпеченням прозорості, інформаційної безпеки та захисту прав платників податків. Доведено, що ефективне використання цифрових інструментів здатне підвищити результативність податкового контролю та створити передумови для формування більш справедливої системи оподаткування в Україні.

КЛЮЧОВІ СЛОВА

податкове адміністрування, фіскальна ефективність, соціальна справедливість, цифрова трансформація, електронне урядування, податкова система, податковий контроль.

1. Introduction

Tax administration plays an important role in the system of public administration, since the financial stability of the state, the level of budget revenues and the possibility of implementing socio-economic policy largely depend on the efficiency of the tax system. In the current conditions of the development of the digital economy, the issue of digitalization of tax administration, which provides for the introduction of electronic services, automation of tax processes and the development of digital mechanisms of interaction between the state and taxpayers, is of particular relevance. The main task of the modern tax system is not only to ensure stable tax revenues, but also to form a transparent and socially fair taxation system.

These issues are of particular importance in the conditions of martial law and economic instability, when the efficiency of tax administration directly affects the financial capacity of the state to perform social and defense functions. At the same time, the digital transformation of the tax system contributes to increasing the transparency of tax procedures, reducing the administrative burden and reducing corruption risks in the activities of tax authorities.

At the same time, the process of electronization of tax administration is complex and requires improving the regulatory framework, developing digital infrastructure, ensuring cybersecurity and increasing the level of digital literacy of the population. An important task remains the search for effective models of tax administration that can ensure an increase in the fiscal efficiency of the state, transparency of tax policy and the formation of a fairer taxation system.

2. Literature Review

The problems of digitalization of tax administration in modern conditions occupy an important place in scientific research, since digital technologies significantly affect the efficiency of fiscal management, the transparency of tax procedures and the level of taxpayers' trust in the state. These issues are of particular relevance in the context of the development of the digital economy, the need to de-shadow economic processes and ensure social justice in the field of taxation.

The theoretical foundations of tax administration and its role in the system of fiscal management are investigated by O. Vinnytska, who emphasizes the importance of combining effective control over tax revenues with ensuring transparency of the activities of tax authorities [23]. Y. Androsiuk analyzes the transformation of the tax system of Ukraine in the context of digitalization and notes that the introduction of electronic services and digital platforms contributes to the simplification of tax procedures, increasing the efficiency of administration and reducing bureaucratic processes [1].

V. Bortnyk, Y. Lisovska and O. Pryimak draw attention to modern problems of tax administration, including insufficient integration of information systems, complexity of individual procedures and cybersecurity risks [2]. According to the authors, the effectiveness of digitalization depends not only on technical support, but also on the ability of the state to guarantee the safe functioning of digital services. A similar position is supported by O. Chudak, who analyzes the impact of digitalization on the administration of taxes and fees in Ukraine, emphasizing the advantages of electronic document management and automated tax control [3].

A. Kolisnyk examines the international experience of using digital technologies in the field of taxation and the prospects for its adaptation in Ukraine [9]. The author notes that the use of electronic platforms, digital analytics and automated monitoring systems allows to increase the level of tax discipline and reduce the scale of tax evasion. Y. Kostenko considers the digitalization of the tax sphere as an important direction of modernization of public administration and emphasizes the importance of electronic services for simplifying interaction between the state and taxpayers [10].

Y. Opanasyuk and O. Goncharova interpret the digitalization of tax administration as a component of the transformation of the public administration system [17]. The authors emphasize that digital technologies contribute to increasing the transparency of fiscal policy, reducing administrative burden and optimizing tax control. At the same time, M. Khmyz, S. Petkov, Z. Mylianyk and other researchers consider the digitalization of the tax system as one of the key tools for combating the shadow economy and increasing the level of tax discipline [8].

Of great importance for the study are the regulations that determine the principles of digital tax administration in Ukraine. The Tax Code of Ukraine establishes the basic mechanisms of tax administration [20], the Law of Ukraine "On Stimulating the Development of the Digital Economy in

Ukraine" forms the legal conditions for the development of digital technologies [22], and the Law of Ukraine "On the Basic Principles of Ensuring Cybersecurity of Ukraine" defines the mechanisms for protecting the information infrastructure of the state [21]. A separate role is played by the Digital Development Plan of the State Tax Service of Ukraine until 2030, which provides for the automation of tax procedures and the development of digital services [12].

International research also pays considerable attention to the digital transformation of tax administration. In the work "Digital Revolutions in Public Finance" edited by S. Gupta, M. Keen, A. Shah and G. Verdier, digitalization is considered as an important factor in the modernization of the public finance system [6]. OECD analytical materials are devoted to the digital transformation of tax administrations, the use of big data and automated analytics in the field of taxation [14; 16]. M. Nose in the IMF study emphasizes that digital technologies contribute to increasing the efficiency of tax collection and reducing tax losses [13].

A separate area of research concerns the provision of social justice in the context of the digital transformation of the state. H. Dean considers social policy as a mechanism for the fair distribution of public resources [4], and S. Hansson focuses on the concept of equal opportunities and the need to ensure transparent access of citizens to public services [7]. A. Farazmand emphasizes that the digitalization of public administration should be accompanied by an increase in the level of transparency, accountability and social orientation of public policy [5].

Despite a significant number of scientific papers, certain aspects of digitalization of tax administration remain insufficiently researched. In particular, the relationship between the digitalization of the tax system, increasing fiscal efficiency and ensuring social justice requires further analysis. Insufficient attention is also paid to the impact of digital technologies on the level of tax confidence of the population, the transparency of tax control and the fairness of the distribution of the tax burden.

3. Problem Statement

The purpose of this study is to scientifically substantiate the role of digitalization of tax administration as a factor in increasing fiscal efficiency and ensuring social justice in the context of digital transformation of public administration. The main attention is paid to the analysis of the current state of digitalization of the tax system of Ukraine, the identification of the key advantages and problems of the introduction of digital technologies in the field of tax administration, as well as the analysis of their impact on the transparency of tax processes, the level of tax discipline and the effectiveness of tax control. An important area of research is also the analysis of international experience in the digitalization of tax systems and the possibilities of its adaptation in Ukraine.

4. Methods and Materials

The study was based on a comprehensive analysis of scientific papers, regulations, analytical reports of international organizations and official statistical materials related to the digital transformation of tax administration and the development of the e-governance system. The main attention was paid to the study of the impact of digital technologies on the effectiveness of tax control, the level of fiscal efficiency of the state and ensuring social justice in the field of taxation.

In the process of the study, official materials of the State Tax Service of Ukraine, the Ministry of Finance of Ukraine, analytical reports of the OECD, IMF, the World Bank and the European Parliament were used. Particular attention is paid to the analysis of the Digital Development Plan of the State Tax Service of Ukraine until 2030, statistical data on the development of electronic tax administration, the level of use of digital services and the introduction of automated tax control systems. The analysis of official data made it possible to assess the current state of digital transformation of the tax system of Ukraine and identify the main trends in its development.

One of the key research methods was a comparative analysis of international experience in the digitalization of tax systems. The practices of Estonia, Germany, France and the United Kingdom were studied, where the development of electronic tax administration, automation of tax procedures and the use of digital analytical systems have become important tools for improving the efficiency of fiscal policy. Comparison of international experience with Ukrainian realities made it possible to identify promising areas for the modernization of tax administration in Ukraine.

A combination of quantitative and qualitative methods of analysis was used for the study. Descriptive statistics were used to assess the dynamics of the development of electronic tax services, the level of digitalization of tax processes and changes in the tax control system. High-quality content analysis of regulations and strategic documents made it possible to determine the features of state policy in the field of digital transformation of the tax system and identify key problems of its functioning.

The study also analyzed the relationship between the automation of tax processes, the transparency of tax administration and the level of fiscal efficiency of the state. Special attention is paid to the study of the impact of digital control mechanisms on reducing administrative costs, reducing corruption risks and increasing the level of tax discipline. This made it possible to identify the main advantages and risks of digital transformation of tax administration in modern conditions.

5. Results and Discussion

Digitalization of tax administration in Ukraine has become one of the key areas of modernization of the public administration system and transformation of fiscal policy in the context of the development of the digital economy. The need to introduce modern digital technologies into the activities of tax authorities is due not only to the need to increase the efficiency of tax control, but also to the desire of the state to ensure the transparency of tax procedures, reduce the level of shadowing of the economy and form a fairer system for distributing the tax burden.

The transformation of tax administration in Ukraine took place gradually and was accompanied by changes in regulatory and legal support, the structure of public administration and mechanisms of interaction between the state and taxpayers. At the initial stages of the development of the tax system, the main emphasis was placed on strengthening fiscal control and ensuring stable receipt of tax payments to the budget. At the same time, a significant part of the procedures remained excessively bureaucratized, which complicated communication between business, citizens and tax authorities.

The adoption of the Tax Code of Ukraine has become an important stage in the systematization of tax legislation and the formation of uniform principles of tax administration. However, even after its adoption, the tax administration system for a long time was characterized by the complexity of procedures, a high level of administrative burden and insufficient transparency of certain tax control mechanisms. This, in turn, created preconditions for the development of the shadow economy and a decrease in the level of taxpayers’ trust in state institutions.

Significant changes in the field of tax administration began with the introduction of digital technologies and the gradual transition to electronic interaction between the state and taxpayers. The development of electronic document management, electronic taxpayer cabinet, automated tax risk monitoring systems and online services has significantly changed approaches to the administration of taxes and fees. Digitalization has made it possible to reduce the time spent on reporting, reduce the number of paperwork procedures and increase the efficiency of information processing.

An important stage of digital transformation was the introduction of the concept of e-governance, which provides for the integration of digital services into the public administration system. Within the framework of this concept, tax authorities have been able to use modern analytical tools, automated databases and digital mechanisms for controlling tax transactions.

In modern conditions, the digitalization of tax administration performs not only a fiscal but also a social function. Thanks to the automation of tax procedures, the state gets the opportunity to minimize corruption risks, reduce the impact of the human factor and ensure a more uniform approach to tax administration. This is especially important in the context of ensuring social justice, since a transparent taxation system directly affects the level of public trust and the efficiency of redistribution of budget resources [9].

Important factors in the digital transformation of the tax system are the development of digital infrastructure, the level of automation of processes, the institutional capacity of tax authorities, the state of cybersecurity and the availability of digital services for the population. In Table 1 presents the main factors that affect the effectiveness of digitalization of tax administration.

According to the State Tax Service of Ukraine, the share of tax reporting submitted in electronic format has consistently exceeded 90% in recent years, and in some categories of taxpayers, it is approaching 98%. This indicates the gradual formation of a digital model of interaction between the state and business. At the same time, this trend also demonstrates the growing dependence of the tax system on the functioning of digital infrastructure, which actualizes the need to strengthen cyber protection and modernize information systems.

Table 1. Main factors influencing the effectiveness of digitalization of tax administration

Factor	To digitalization	After the introduction of digital services	Modern challenges
Tax procedures	Complex and bureaucratized	Partial automation of processes	The need for further integration of services
Transparency level	Limited access to information	Openness of electronic services	Risks of data manipulation
Tax control	Mostly manual control	Automated monitoring of operations	Adapting to new evasion schemes
Communication with taxpayers	Personal visit to the State Tax Service	Online interaction through digital platforms	Digital Population Inequality
Cybersecurity	Low level of digital risks	Growing reliance on IT systems	Cyberattacks and data breaches
Fiscal efficiency	High administrative costs	Optimization of administration	The need to modernize analytical systems

Source: Developed by the author based on [1; 2; 10; 12].

The approach to tax control has also changed significantly. If earlier the main emphasis was on post-factum inspections and paper document management, today automated risk analysis mechanisms, electronic audit and digital monitoring of financial transactions are becoming increasingly important. Accordingly, the electronization of tax processes gradually changes the very logic of the functioning of the fiscal system, transferring it from a model of response to violations to a model of preventive control.

After the introduction of electronic services, the mechanisms of interaction between the state and taxpayers have changed significantly. A significant part of the procedures that previously required physical presence in the tax authorities have been transferred to a digital format. This had a positive impact on the speed of information processing, reducing the administrative burden and increasing the availability of tax services [2].

At the same time, the digitalization of tax administration has created new challenges for the public administration system. In particular, the dependence of the tax system on the functioning of information technologies has significantly increased, which has actualized the problem of cybersecurity. In modern conditions, the protection of information resources and personal data of taxpayers is becoming one of the key elements of the effective functioning of the digital tax system.

The issue of the impact of digitalization on the level of fiscal efficiency requires special attention. The introduction of automated systems for tax risk analysis, electronic audit and digital monitoring of financial transactions allowed the state to strengthen control over the timely payment of taxes and reduce the scale of tax violations. Table 2 presents the main results of the impact of digitalization on the tax administration system of Ukraine.

Table 2. Impact of digitalization on the tax administration system of Ukraine

Direction of influence	Key results
Automation of tax procedures	Reduction of reporting and data processing time
Electronic document management	Reduced paperwork and costs
Online services of the State Tax Service	Increasing the availability of tax services
Automated tax control	Increase in the efficiency of detecting violations
Digital Analytics	Improving Tax Revenue Forecasting
System transparency	Reduction of corruption risks
De-shadowing of the economy	Strengthening control over financial transactions

Source: Formed by the author based on [8; 9; 13; 14].

According to OECD estimates, the use of automated tax risk analysis systems allows individual states to reduce administrative costs for tax administration by 20-30 % [14]. In addition, the introduction of digital tax control mechanisms has a positive effect on the level of voluntary payment of taxes, as the transparency of procedures increases and the possibility of selective application of control measures decreases. It is fiscal efficiency that today largely determines the financial capacity of the state to fulfill social obligations, support the defense sector and ensure the stability of the economic system. Therefore, the development of electronic tax administration is gradually becoming not only a technical, but also a strategic direction of state policy.

The analysis of current trends shows that digitalization has a positive effect on the level of fiscal efficiency of the state. First of all, this is manifested in the growth of tax administration efficiency, reduction of information processing costs and strengthening of analytical capabilities of tax authorities. The use of digital platforms allows you to monitor financial transactions in real time, which significantly increases the effectiveness of the fight against tax offenses. At the same time, digital technologies contribute to the formation of a more systematic approach to the management of tax revenues, as they allow you to quickly identify risky transactions, analyze the behavior of taxpayers and predict possible budget losses. As a result, tax authorities are gradually moving from a predominantly reactive control model to a preventive tax risk management system.

No less important is the fact that digitalization is changing the very nature of interaction between the state and taxpayers. If earlier tax administration was often associated with complex bureaucratic procedures, significant time costs and a high level of administrative burden, modern digital services significantly simplify the process of fulfilling tax obligations. Submission of electronic reporting, use of the taxpayer's electronic cabinet, automatic generation of certain types of reports and remote communication with tax authorities contribute to increasing the level of tax discipline and trust in state institutions.

Along with the fiscal effect, digitalization also has an important social dimension. In modern conditions, social justice in the field of taxation increasingly depends on the transparency of the tax system, equality of conditions for taxpayers and minimization of opportunities for tax evasion. Automation of tax control allows you to reduce the subjective influence of officials and provide a more objective approach to the audit of tax transactions. This is especially important in the context of building public confidence in the tax system, since it is the transparency of procedures and the same rules for all participants in economic relations that are the basis of an effective tax policy [10].

Along with the positive effects of digital transformation, there are also certain challenges. First of all, this concerns cybersecurity, personal data protection, and the risks of technical failures in the operation of digital platforms. In addition, the insufficient level of digital literacy of certain categories of taxpayers may create additional difficulties in the process of using electronic services. In this regard, the further development of electronic tax administration should be accompanied by the improvement of the regulatory framework, the development of digital infrastructure and the increase in the level of information security of state information systems [4].

In this context, international experience in the digitalization of tax systems is of particular importance. Many countries around the world are actively implementing digital tax administration tools using elements of artificial intelligence, digital reporting, and automated risk analysis (Table 3).

Table 3. International experience in the digitalization of tax administration

Country	Features of digitalization	Opportunities for Ukraine
Estonia	Full digitalization of public services	Expanding electronic interaction with taxpayers
Germany	Automated tax control	Strengthening the analytical mechanisms of the State Tax Service
France	Digital VAT administration	Improvement of the electronic monitoring system
Sweden	High levels of digital trust	Formation of a transparent administration model
United Kingdom	Online tax reporting system	Simplification of tax procedures for business

Source: Formed by the author based on [11; 16; 18].

The analysis of international experience shows that the most successful models of tax administration are those in which the electronization of processes is combined with a high level of institutional trust and stability of the legal environment. For example, in Estonia, almost 99% of tax returns are filed online, and the average time to fill out a declaration for citizens is only a few minutes [20]. This demonstrates how significantly modern digital mechanisms can reduce the administrative burden and increase the efficiency of public services.

For Ukraine, it is important not only to mechanically borrow individual digital tools or software solutions, but also to form a holistic and strategically oriented model for the modernization of the tax system. The experience of European countries convincingly demonstrates that digital transformation provides maximum effect only if it is implemented in a comprehensive manner, when technological changes are combined with increased transparency of public policy, simplification of administrative procedures and an increase in the level of public trust in tax authorities. In modern conditions, it is the trust of taxpayers that becomes one of the key factors in the efficiency of the tax administration system, as it contributes to the voluntary fulfillment of tax obligations and the reduction of the level of shadowing of the economy.

One of the most successful models of digital transformation of public administration today is the experience of Estonia, which occupies a leading position among the digitalized countries of the world. Most public services, including taxation, in the country operate in electronic format, which ensures a high level of accessibility of services for households and businesses. Thanks to the introduction of digital identification, automated data exchange between government agencies and an electronic reporting system, it was possible to significantly reduce administrative costs, minimize bureaucratic procedures and increase the efficiency of tax control. For Ukraine, this experience is especially valuable, as it demonstrates the possibility of creating a single digital space of public administration, within which tax services become as fast, transparent and user-oriented as possible [6].

In Germany, the digitalization of the tax system is based primarily on the use of automated tax risk analysis tools and digital monitoring systems for financial transactions. The use of modern analytical platforms allows you to quickly identify potential violations of tax legislation, predict the risks of tax evasion and minimize losses of the state budget. At the same time, in France, special attention is paid to the development of the system of electronic administration of value-added tax, which provides more effective control over the movement of financial flows and contributes to increasing the transparency of business transactions. This approach allows not only to strengthen the fiscal function of the state, but also to create a more stable and predictable environment for doing business.

In Ukraine, the process of digitalization of the tax system also demonstrates a gradual increase in the efficiency and expansion of the functionality of digital services. The introduction of the taxpayer's electronic cabinet, the system of electronic VAT administration, automated monitoring of risk transactions, electronic document management and other digital solutions has become an important stage in the modernization of the activities of the State Tax Service. The use of digital platforms has significantly simplified the interaction of taxpayers with regulatory authorities, reduced the time for reporting and partially reduced the level of corruption risks in the field of tax administration [1].

At the same time, despite the presence of positive trends, the process of digital transformation of the tax system of Ukraine is accompanied by a number of significant problems and challenges. Some digital services require further technical improvement, some administrative procedures remain overly complex and insufficiently adapted to the needs of businesses and citizens. An additional problem remains the uneven level of digital literacy of the population, which complicates the full use of electronic services in different regions of the country. In addition, the issues of cybersecurity, personal data protection and ensuring the stability of the functioning of digital infrastructure in the face of growing cyber threats remain relevant. That is why the further development of digitalization of tax administration should be based not only on technological updating, but also on the formation of an effective information security system, improving regulatory and legal support and increasing the level of digital competence of society.

In Table 4 presents the main advantages and problems of digitalization of tax administration in Ukraine.

Table 4. Advantages and Problems of Digitalization of Tax Administration in Ukraine

Dignity	Problems
Simplification of tax procedures	Uneven access to digital services
Reduction of administrative costs	Technical failures of information systems
Increased transparency	Cyber threats and data breaches
Reduction of corruption risks	Insufficient level of digital literacy
Automation of tax control	Complexity of individual electronic procedures
Increase the speed of administration	The need for continuous modernization of systems

Source: Developed by the author based on [2; 3; 10; 21].

Despite the positive dynamics of the introduction of digital technologies in the field of taxation, the process of digital transformation of tax administration in Ukraine cannot currently be considered fully completed or stable. Although in recent years the state has significantly expanded the list of electronic services and automated mechanisms for interaction with taxpayers, in practice there are still a number of problems that affect the efficiency of the system. Some electronic services continue to operate unstably, some digital platforms need technical updating, and some tax procedures remain excessively complicated for small businesses, individual entrepreneurs and citizens who do not have sufficient experience in using digital tools. These difficulties are especially noticeable in regions with a lower level of digital infrastructure development, where access to high-quality Internet communication and modern electronic services remains limited.

At the same time, it is the development of automated tax processes that creates the prerequisites for a gradual reduction in the impact of the human factor in the field of tax control and administration. This is of utmost importance, not only from an economic but also from a social point of view. Automation of inspections, electronic document management and the use of analytical systems allow minimizing the subjectivity of management decisions, reducing corruption risks and providing a more transparent mechanism of interaction between the state and taxpayers. As a result, a fairer system of tax control is formed, in which the same rules are applied to all participants in economic relations, regardless of the scale of business or the level of administrative influence. This trend indicates a gradual transition from the traditional administrative-punitive model of tax authorities' activities to a modern service-analytical model focused not only on control, but also on creating comfortable conditions for voluntary fulfillment of tax obligations.

At the same time, one of the most tangible problems remains the digital inequality between different categories of the population and business entities. Not all citizens have the same opportunities to use electronic services, since the level of digital literacy, technical support and access to digital infrastructure differs significantly depending on the region of residence, age or social status. For part of the population, the use of the taxpayer's electronic cabinet or other digital services is still a complex and incomprehensible process. In such conditions, digitalization can not only simplify interaction with the state, but also create additional barriers for certain groups of the population. That is why the process of modernization of tax administration should be accompanied by the development of digital education, raising the level of digital culture of the population and creating accessible mechanisms for consulting support [3].

The problem of cybersecurity, which is becoming of strategic importance in the context of active digitalization, requires special attention. The growth in the number of electronic services is accompanied by the accumulation of significant amounts of confidential information about citizens, enterprises and financial transactions. Accordingly, any technical failures, information leaks, or cyberattacks can pose serious risks for both taxpayers and the state as a whole. In the context of modern cyber threats, the issues of personal data protection, the stability of digital platforms and the reliability of electronic systems are becoming no less important than the efficiency of tax administration. That is why the further development of digital services should be accompanied by the constant improvement of information security mechanisms and the introduction of modern data protection technologies.

Despite the existing problems and challenges, current trends in the development of the tax system indicate a significant potential for digitalization to increase the efficiency of public administration and ensure social justice. Digital technologies make it possible to make the tax administration system more transparent, fast and accessible, as well as create conditions for reducing the level of the shadow economy and increasing voluntary tax discipline. At the same time, digitalization contributes to the formation of a new model of interaction between the state, business, and society, in which openness, predictability, and trust are key [8].

In the future, one of the priority areas of development should be the deepening of the integration of digital services between various government agencies, the improvement of analytical control systems and the expansion of the capabilities of automated analysis of tax risks. The development of the digital culture of the population is no less important, since the effectiveness of digital transformation largely depends not only on technical solutions, but also on the readiness of society to use them. At the same time, special attention should be paid to the formation of a fair mechanism of tax control, which will ensure equality of conditions for all taxpayers, minimize opportunities for tax evasion and contribute to increasing the level of public trust in state institutions.

To increase the efficiency of digitalization of tax administration, it is advisable to implement a set of interrelated measures aimed at modernizing digital infrastructure, simplifying tax procedures, improving the mechanisms of electronic interaction between the state and society, and ensuring a high level of information security. Only a combination of technological innovations, effective public administration and increasing the digital competence of the population will allow the formation of a modern, transparent and socially oriented system of tax administration capable of functioning effectively in the digital economy (Table 5).

Table 5 Recommended directions for improving digital tax administration

Problem	Recommended measure	Expected result
Insufficient integration of services	Unification of digital platforms of the State Tax Service	Simplified administration
Cyber threats	Strengthening data protection systems	Improving information security
Complexity of electronic procedures	Optimization of user services	Increasing availability of services
Low digital literacy	Educational programs for the population	Improving the efficiency of using services
Lack of transparency	Expanding Open Digital Data	Strengthening trust in the tax system

Source: Developed by the author.

The proposed measures are comprehensive in nature and are aimed not only at technical improvement of digital services, but also at the formation of a more efficient, transparent and convenient model of interaction between the state, business and citizens. In our opinion, the further development of electronic tax administration should be accompanied not only by updating the digital infrastructure, but also by a real simplification of tax procedures, increasing the level of digital accessibility of services and strengthening information security. Digital services must be not only technologically modern, but also understandable for users, adapted to the needs of different categories of the population and focused on minimizing bureaucratic barriers in the process of interaction with tax authorities.

Of particular importance in modern conditions is the issue of building trust in digital mechanisms of public administration. The effectiveness of digitalization largely depends on how citizens and business entities will feel the stability, security and transparency of the functioning of electronic services. If digital tools work unstable or create additional difficulties for users, this can negatively affect not only the level of tax discipline, but also the general attitude of society towards state institutions. That is why digital transformation should be accompanied by continuous improvement of the service component of the tax authorities' activities, the development of consulting support and an increase in the level of digital literacy of the population [9].

In addition, it is important to ensure a balance between the fiscal efficiency of the state and compliance with the principles of social justice. Excessive automation without proper regulation can create risks for the protection of taxpayers' rights, especially in cases of automated blocking of transactions or the use of tax risk assessment algorithms. In such conditions, the issue of transparency of digital systems and the possibility of prompt appeal against decisions made by automated mechanisms becomes especially relevant. That is why the modernization of the tax system should be carried out comprehensively, taking into account the economic, social, legal and ethical aspects of the functioning of digital technologies.

It should also be borne in mind that the digitalization of tax administration is gradually changing the very philosophy of interaction between the state and the taxpayer. If earlier the tax authorities mainly performed a control and punitive function, the modern digital model is increasingly focused on the service approach, automation of routine processes and the creation of a comfortable environment for voluntary fulfillment of tax obligations. Such a transformation is an important prerequisite for the formation of partnership relations between the state and society, which, in turn, has a positive effect on the level of tax culture and financial responsibility of citizens.

In general, current trends indicate that the digital transformation of tax administration is gradually becoming one of the key factors in improving the efficiency of public administration. Its impact is manifested not only in the growth of tax revenues or the reduction of administrative costs, but also in the increase in the transparency of public policy, the quality of public services and the level of public trust in state institutions. In the long term, it is digitalization that can create the basis for the formation of a more open, predictable and socially oriented taxation system that will meet the modern challenges of the digital economy.

The proposed areas of improvement are aimed not only at the technical renewal of the tax system, but also at the formation of a new model of interaction between the state and taxpayers, within which transparency, accessibility, security and mutual trust will be of key importance. In modern conditions, digitalization should be considered not just as a tool for automating individual processes, but as an important mechanism for improving the efficiency of public administration, ensuring transparency of tax procedures and forming a socially fair taxation system capable of functioning effectively in the context of the global digital transformation of society.

6. Conclusions

As a result of the study, it was found that the digital transformation of tax administration significantly affects the public administration system and gradually forms a new model of interaction between the state and taxpayers. The analysis showed that the introduction of electronic services, automated tax risk analysis systems and digital control mechanisms contributes to increasing the fiscal efficiency of the state, reducing administrative costs and increasing the transparency of tax procedures. At the same time, the process of digital transformation is accompanied by new challenges, including uneven access to digital infrastructure, insufficient level of digital literacy of the population, and cybersecurity risks.

The results obtained show that the development of electronic tax administration has a positive effect on the level of tax discipline, contributes to the de-shadowing of the economy and minimization of corruption risks. Based on the international experience of Estonia, Germany, France and the United Kingdom, promising areas for the modernization of the tax system of Ukraine have been identified, in particular, the development of digital services, automated monitoring and analytical systems of tax control.

Recommended measures include further development of digital infrastructure, improvement of cyber protection mechanisms, simplification of electronic tax procedures and increasing the digital accessibility of services for households and businesses. Further research should be aimed at studying the impact of digital technologies on the effectiveness of tax control, the level of tax confidence of the population and the formation of a socially fair taxation system. Thus, the digital transformation of tax administration is gradually becoming an important factor in improving the efficiency of public administration and ensuring social justice.

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