

Federal State Educational Institution
Higher Education
RUSSIAN ACADEMY OF NATIONAL ECONOMY
AND PUBLIC SERVICE
UNDER THE PRESIDENT OF THE RUSSIAN FEDERATION
South Russian Institute of Management



As a manuscript

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**INVISIBLE TECHNOLOGIES OF TAX ADMINISTRATION: THE
IMPACT OF ARTIFICIAL INTELLIGENCE ON THE COMFORT OF
TAXPAYERS AND THE EFFICIENCY OF THE TAX SYSTEM**

Specialty 5.2.4 Finance

Annotation

Dissertations for an academic degree
PhD in Economics

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Rostov-on-Don 2026

Relevance of the Research Topic

The rapid transition of the global and Russian economy onto a digital track affects practically every sphere of public administration, and tax administration is no exception. Amid growing volumes of data and increasingly complex digital transactions, traditional methods of tax administration are losing their former effectiveness, while artificial intelligence (hereinafter – AI) is becoming one of the key technologies capable of substantially optimizing fiscal processes.

The relevance of the dissertation research is determined by a combination of the following factors. First, one of the objectives of tax administration is to create comfortable conditions for taxpayers, and the introduction of AI can substantially reduce the administrative burden on them, making interaction with tax authorities more convenient and transparent. Second, contemporary financial science lacks a unified interpretation of the tools and technologies of tax administration, which complicates their systematic study and implementation. Third, the development of theoretical approaches and practical recommendations for improving tax administration under conditions of digitalization constitutes an independent and significant scientific task.

Thus, the relevance of the work is determined by the need to develop conceptual approaches to, and practices for, adapting tax administration to the conditions of the digital economy, to substantiate the use of AI for optimizing fiscal processes and increasing taxpayer satisfaction, and to develop methodological and applied solutions ensuring the achievement of these objectives.

Degree of Scientific Elaboration of the Research Topic

General theoretical issues of tax administration have been examined in the works of a wide range of Russian and foreign scholars (L.Ya. Abramchik, A.V. Bryzgalin, I.I. Kucherov, M.V. Mishustin, I.A. Mayburov, T.F. Yutkina, J. Alm, E. Kirchler, V. Tanzi, B. Torgler, and others). The issues of tax digitalization are

addressed in the works of D. Nellen, R. de la Feria, M.P. Kazakova, S.A. Sulzhenko, and other authors; the application of AI in tax administration and tax law has been studied by O.A. Gerasimenko, D.M. Nefedov, N.I. Rudneva, N.V. Borodaenko, E.V. Kuzmina, O.I. Lyutova, as well as by foreign research centers (the OECD, the Inter-American Center of Tax Administrations, the Social Science Research Network, and the IMF).

At the same time, the analysis performed shows that existing research, although multifaceted, remains fragmentary in nature: the scientific literature lacks a unified concept that comprehensively accounts for the interests of all groups of beneficiaries of the digitalization of tax administration – tax authority employees, taxpayers, and the state. This gap predetermined the purpose of the present dissertation research.

Purpose and Objectives of the Research

The purpose of the dissertation research is to develop theoretical propositions and practical recommendations for the application of invisible technologies within the tax administration system, aimed at increasing the effectiveness of tax control and the convenience of taxpayers' fulfillment of their tax obligations.

To achieve this purpose, the work addresses a set of tasks, including: revealing the essence and substantive characteristics of tax administration in the digital economy; theoretically substantiating the concept of “invisible technologies” of tax administration; analyzing the mechanisms of tax administration and their evolution in the context of digitalization; identifying the parameters for reconfiguring the interaction between tax authorities and taxpayers; conducting a comprehensive analysis of the practice of implementing invisible technologies in Russia and abroad; developing approaches and indicators for evaluating the effectiveness of their application; identifying the risks and threats of the digital transformation of tax administration; identifying the advantages and disadvantages of AI implementation;

and identifying the legal barriers to digital transformation and developing ways to overcome them.

The research hypothesis is that a comprehensive approach to the use of AI-based invisible technologies in tax administration significantly increases its effectiveness and leads to the satisfaction of the interests of taxpayers, tax authority employees, and the state, through the digitalization of processes, improvement of data quality, and optimization of the interaction between tax authorities and taxpayers.

Object of the Research

The object of the research is the process of tax administration in the Russian Federation.

Subject of the Research

The subject of the research is the impact of artificial intelligence technologies on the transformation of the tax administration mechanism in the Russian Federation.

Field of the Research

The dissertation research corresponds to the passport of scientific specialty 5.2.4 “Finance” and was carried out within the following areas: item 13, “Taxes and Taxation. Tax Policy. Tax Administration. Ensuring Budgetary Sustainability”; item 34, “New Technologies in the Financial Sector and Their Impact on the State of Financial Services Markets. Digital Financial Technologies (Fintech). Digital Financial Assets.”

Research Methodology and Methods

The methodological basis of the research comprised a set of general scientific and special methods of cognition. Among the general scientific methods, analysis and synthesis were applied to study the theoretical and practical aspects of AI application in tax administration and to form a comprehensive approach to the

subject of the research; induction and deduction were used to formulate and test the research hypotheses. Among the special methods, modeling and simulation, the case-study method, methods of empirical and comparative analysis, the historical-logical approach, and the tools of behavioral economics were employed.

For the quantitative processing of data obtained through a survey of tax authority employees, a set of mathematical-statistical methods was applied, including descriptive statistics (mean values, dispersion, and variation of indicators) and correlation analysis, which made it possible to objectively assess the relationships between the components of the digital maturity of tax administration.

Theoretical Basis of the Research

The theoretical basis of the research comprised the concepts and scientific approaches of Russian and foreign scholars, in particular Keynesian theory and supply-side economics, the institutional approach to the problems of digital technology implementation, and the propositions of neoclassical economic theory, which views the taxpayer as a rational agent minimizing costs and maximizing utility. Behavioral economics plays a substantial role in the theoretical foundation of the work: taking into account psychological and behavioral factors (trust in the state, perceptions of the fairness of the tax system, propensity for rule compliance) underlies the concept of “invisible administration” introduced by the author, which holds that increasing convenience and transparency and reducing stress factors for taxpayers stimulates voluntary tax compliance.

Regulatory, Empirical, and Informational Basis of the Research

The regulatory and legal basis of the work comprised legislative and regulatory acts of the Russian Federation, as well as orders and letters of the Ministry of Finance of the Russian Federation and of the Federal Tax Service of Russia.

The empirical basis of the research comprised statistical data and reports of the Federal Tax Service of Russia and the Ministry of Finance of the Russian Federation, materials from studies of foreign practice in implementing invisible technologies, and the results of the author's own survey of tax authority employees, conducted as part of the dissertation research and reflected in the appendices to the work.

Scientific Novelty

The scientific novelty of the work lies in the development of a comprehensive definition of the digital mechanism of tax administration, integrating the implementation of invisible technologies and automated solutions in the fiscal sphere. The specific elements of scientific novelty and the main propositions submitted for defense are as follows:

- an original interpretation is proposed of the concept of "tax administration" under conditions of the digital economy as a set of managerial and technical measures based on the application of digital technologies, automation, artificial intelligence, and big-data analysis, aimed at ensuring effective control over, and the collection of, and compliance with, tax obligations (item 13 of the specialty passport);

- a detailed strategy (roadmap) for modernizing the tax system has been developed, forming the basis of the author's concept of "invisible administration" – a system of organizational, technological, and legal mechanisms aimed at creating convenient, transparent, and predictable interaction between taxpayers and tax authorities; the principles of invisible tax interaction are identified – transparency, accessibility, technological sophistication, time savings, data security, and flexibility (item 13);

- on the basis of the author's survey of tax authority employees, it is established that the effectiveness of implementing AI and automated systems is

determined not only by the level of technological modernization but also by the professional training of personnel, their adaptation to new tools, and the organizational readiness of the system for change; accordingly, the digitalization of tax administration should be regarded as a comprehensive process that includes personnel- and institution-related transformations (item 13);

- on the basis of machine-learning methodologies, a practical description has been developed of an algorithm for implementing artificial intelligence in a specific business process of a tax authority – forecasting the deterioration of a taxpayer's financial condition – suitable for pilot implementation and subsequent scaling to other functions of the Federal Tax Service of Russia (item 34);

- based on an analysis of successful foreign cases (process automation, pre-filled tax returns, intelligent chatbots, risk analytics), recommendations have been developed for adapting these practices to Russian specifics, including strengthening the protection of personal data, applying risk-oriented forecasting models, and integrating interagency databases (item 34);

- measures are proposed for updating legislation in the field of tax administration – updating the Tax Code of the Russian Federation and legislation on personal data and information – to regulate the use of AI in the tax sphere, including mechanisms for appealing decisions made by automated systems (item 13).

Theoretical and Practical Significance of the Research Results

The theoretical significance of the work lies in advancing scientific understanding of the content of tax administration under conditions of the digital economy, formalizing the concept of “invisible technologies,” and creating a conceptual model that unites the interests of taxpayers, tax authority employees, and the state.

The practical significance of the research is confirmed by the direct implementation of its results in the activities of the Federal Tax Service of Russia.

The scientific-analytical approaches proposed by the author for data segmentation and the analysis of hidden correlations, based on clustering algorithms, formed the basis of the methodology for calculating the Employee Loyalty Index (Service ELI), officially approved by Order No. ED-7-29/1309@ of the Federal Tax Service of Russia dated December 30, 2025, “On Approval of the Methodology for Calculating the Employee Loyalty Index.” The implementation of these approaches made it possible to automate the collection and processing of data, transforming it into a continuous monitoring system, and turned the loyalty index from a passive indicator into a proactive management tool that identifies latent problems at early stages of their formation. The research results may be used by public authorities in developing digital transformation programs, as well as in the educational process – in preparing training courses in the fields of “Taxes and Taxation,” “Finance,” and “Digital Transformation of Business.”

Degree of Reliability and Validation of the Results

The reliability of the research results is ensured by the application of a set of mutually complementary scientific methods, the use of verified statistical data from the Federal Tax Service of Russia and the Ministry of Finance of the Russian Federation, and the representativeness of the data from the author’s survey of tax authority employees.

The practical application of the research results is confirmed by an implementation certificate issued by the Federal Tax Service of Russia, according to which the algorithm developed in the dissertation for a multifaceted model of implementing invisible digital technologies based on artificial intelligence, together with the author’s proposed approaches to data segmentation and the analysis of hidden correlations, formed the basis of the methodology for calculating the Employee Loyalty Index (Service ELI), approved by Order No. ED-7-29/1309@ of the Federal Tax Service of Russia dated December 30, 2025.

The main propositions and results of the dissertation research are reflected in 11 scientific publications by the author, including 3 articles published in journals recommended by the Higher Attestation Commission (VAK) under the Ministry of Science and Higher Education of Russia (in particular, “Theory and Practice of Social Development,” “State and Municipal Administration. Scholarly Notes,” and “Corporate Governance and Innovative Development of the Economy of the North”), and 8 publications indexed in the Russian Science Citation Index (RSCI), including an article in the international collection “Proceedings on Engineering Sciences” (Scopus).

In addition, the research results were validated through the author’s participation in 5 scientific-practical conferences and symposiums, including all-Russian conferences (with international participation) and the international conference AC-ESI–2026 “Educational and Social Innovations” (Kunming, China, February 26 – March 1, 2026), at which a paper entitled “Invisible Technologies in Tax Administration: Artificial Intelligence and the Transition to Tax Administration 3.0” was presented, providing expert validation of the hypotheses and conclusions formulated in the work.

Scope and Structure of the Work

The dissertation consists of an introduction, three chapters comprising nine sections, a conclusion, a list of references containing 95 titles, and three appendices containing the instruments and results of the author’s survey of tax authority employees. The total volume of the work is 212 pages of typescript, containing 15 formulas, 9 tables, and 34 figures.