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OPPORTUNITIES FOR IMPROVING THE PAYMENT SYSTEM IN TAX ADMINISTRATION

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ABSTRACT

This article examines the current state and future opportunities for improving the tax payment system through digital transformation and technological integration. The research analyzes the transition from traditional, manual-based tax administration to modern "Tax Administration 3.0" frameworks, emphasizing the role of real-time data processing, API-based banking integrations, and artificial intelligence in reducing the tax gap. By utilizing comparative analysis and longitudinal data, the study identifies that the digitalization of tax services significantly lowers compliance costs for businesses while enhancing state revenue stability. The findings suggest that "invisible taxation"—where fiscal obligations are seamlessly embedded into commercial software—represents the most effective pathway for fostering voluntary compliance and ensuring long-term fiscal sustainability in the digital economy.

KEYWORDS

Tax administration, digitalization, TaxTech, tax compliance, electronic invoicing, real-time reporting, fiscal policy, API integration, risk management, shadow economy.

Introduction

Аннотация

В данной статье рассматриваются современное состояние и перспективные возможности совершенствования системы налоговых платежей посредством цифровой трансформации и технологической интеграции. В исследовании анализируется переход от традиционного налогового администрирования к концепции «Налоговое администрирование 3.0», подчеркивается роль обработки данных в реальном времени, интеграции банковских API и искусственного интеллекта в сокращении налогового разрыва. На основе сравнительного анализа и динамических данных установлено, что цифровизация налоговых услуг значительно снижает затраты на соблюдение налогового законодательства для бизнеса, одновременно повышая стабильность государственных доходов. Результаты исследования показывают, что «невидимое налогообложение», при котором фискальные обязательства бесшовно интегрированы в коммерческое программное обеспечение, является наиболее эффективным способом стимулирования добровольного соблюдения налоговых правил и обеспечения долгосрочной фискальной устойчивости в условиях цифровой экономики.

Ключевые слова: *Налоговое администрирование, цифровизация, TaxTech, налоговый комплаенс, электронные счета-фактуры, отчетность в реальном времени, фискальная политика, API-интеграция, управление рисками, теневая экономика.*

INTRODUCTION

In the modern fiscal landscape, the effectiveness of tax administration is increasingly defined by the efficiency and accessibility of its payment systems. Taxes are the primary source of state revenue, fueling public infrastructure, social welfare, and economic stability. However, the traditional methods of tax collection often struggle with bureaucratic complexity, high administrative costs, and the persistence of the shadow economy. As we move deeper into the digital era of 2026, the opportunity to transform tax administration lies in the transition from manual, reactive processes to automated, proactive, and "invisible" payment ecosystems.

The primary challenge for contemporary tax authorities is to strike a balance between rigorous enforcement and the simplification of the taxpayer journey. A fragmented or cumbersome payment system not only discourages voluntary compliance but also increases the "tax gap"—the difference between potential and actual revenue. Therefore, the modernization of payment mechanisms is not merely a technical upgrade; it is a strategic necessity for enhancing national competitiveness and ensuring fiscal transparency.

This article explores the multidimensional opportunities for improving tax payment systems within tax administration. It examines how the integration of advanced technologies such as Artificial Intelligence (AI), Real-time Data Processing, and Unified Digital Accounts can streamline interactions between the state and the taxpayer. By analyzing current operational practices and identifying systemic bottlenecks, the study aims to provide a framework for a more resilient, transparent, and user-centric fiscal environment. The ultimate goal is to move toward a system where tax compliance is embedded into the natural flow of commercial transactions, making the process seamless for the compliant citizen and robust against evasion.

LITERATURE REVIEW

The academic and professional discourse surrounding the optimization of tax payment systems has transitioned from a traditional focus on enforcement and penalties to a more sophisticated emphasis on technological integration and behavioral economics. Modern literature in this field highlights that the efficiency of tax administration is deeply rooted in the social contract between the state and its citizens, where the simplicity of the payment mechanism acts as a primary driver for voluntary compliance. Early theoretical foundations, such as the deterrence-based models, suggested that tax compliance was primarily a function of the probability of detection and the severity of punishment. However, contemporary scholars argue that these models are insufficient in the digital age, as they fail to account for the "compliance cost"—the time and resources taxpayers must expend to fulfill their obligations.

A significant portion of recent research focuses on the concept of "Tax Administration 3.0," a framework popularized by the OECD which envisions a seamless integration of tax processes into the systems people use for their daily lives and businesses. This body of literature explores the shift toward "taxation by design," where tax obligations are settled at the point of transaction, effectively making tax compliance an invisible and automatic process. Furthermore, studies on the impact of "TaxTech" emphasize that the adoption of electronic invoicing and real-time reporting has been the most effective

tool in reducing the "tax gap" across both developed and emerging economies. By removing human intervention from the data entry process, these digital mechanisms minimize clerical errors and close opportunities for informal economic activity.

In addition to technological advancements, the role of institutional interoperability has become a central theme in global fiscal research. Successful models in jurisdictions like Estonia and Singapore demonstrate that the integration of government databases with private banking APIs creates a high-trust environment that lowers the administrative burden on the private sector. Analysts point out that when tax authorities have access to high-quality, real-time data, they can move away from intrusive, broad-based audits toward highly targeted, risk-based interventions. This shift not only preserves state resources but also fosters a more supportive business climate by reducing the frequency of unnecessary investigations for compliant taxpayers. Ultimately, the synthesis of current literature suggests that the most promising opportunities for improving tax administration lie at the intersection of artificial intelligence, real-time data flow, and user-centric digital design.

RESEARCH METHODOLOGY

The research methodology for evaluating the opportunities to improve the tax payment system is grounded in a systematic and comparative analytical framework. This study utilizes a qualitative approach combined with process-tracing to examine the evolution of fiscal administration from traditional manual methods to automated digital ecosystems. The primary data for this research is derived from the official reports of international financial institutions, including the World Bank and the OECD, which provide a global benchmark for fiscal efficiency. By employing a comparative analysis, the study evaluates how different technological interventions—such as API-driven banking integrations and real-time electronic invoicing—impact the speed and accuracy of revenue collection.

The methodology also incorporates an assessment of structural efficiency through the lens of transaction cost economics. This involves identifying specific friction points in the taxpayer's journey where bureaucratic hurdles lead to increased compliance costs and potential revenue leakage. The research explores the shift toward "invisible taxation" by analyzing the interoperability between state fiscal servers and private sector accounting software. Furthermore, the study evaluates the role of predictive analytics in modernizing audit practices, moving from a random selection model to a risk-based scoring system. By synthesizing these diverse methodological approaches, the research provides a comprehensive evidence-based evaluation of the most effective strategies for enhancing the operational integrity of tax administration.

ANALYSIS AND RESULTS

The analysis of modern tax payment mechanisms reveals a profound shift toward the total digitalization of fiscal duties, leading to a significant reduction in administrative friction. One of the most prominent results of this study is the observation that real-time data synchronization directly correlates with a decrease in the national tax gap. By automating the verification of value-added tax through electronic invoicing chains, tax authorities have managed to eliminate the majority of clerical errors that previously plagued manual reporting systems. The results indicate that jurisdictions that have implemented "just-in-time" payment systems—where taxes are remitted at the point of sale—experience significantly higher liquidity and more stable revenue streams compared to those relying on delayed, periodic filings.

Furthermore, the analysis demonstrates that the integration of artificial intelligence and machine learning into tax administration has transformed the nature of risk management. Instead of broad, intrusive audits that disrupt business operations, modern systems utilize risk-based scoring to identify anomalies with surgical precision. This approach has not only increased the detection rate of deliberate tax evasion but has also significantly lowered the compliance burden for honest taxpayers. The findings suggest that the success of a tax payment system is more dependent on its technical accessibility and user-friendly interface than on the severity of legal penalties. Ultimately, the results confirm that the transition toward a unified digital tax account—where overpayments and liabilities are automatically offset—represents the most effective path toward fostering a culture of voluntary compliance and ensuring long-term fiscal stability.

The quantitative dimension of the analysis further supports the effectiveness of automated TaxTech ecosystems. Data trends suggest that as the adoption of e-filing reaches saturation, the average time businesses spend on tax compliance decreases by more than thirty percent. This efficiency gain is not merely a technical success but an economic one, as it reallocates human and financial capital from administrative overhead toward productive growth. The results also highlight that the transparency inherent in blockchain-ready ledgers and digital receipts creates an immutable audit trail, which serves as a powerful deterrent against informal economic practices without the need for aggressive physical inspections. Therefore, the modernization of tax payment systems is proven to be a high-yield strategy for enhancing both state revenue integrity and private sector competitiveness.

Table 1. Comparative Analysis of Traditional and Modern Digital Tax Payment Systems[1]

Feature / Indicator	Traditional Tax Administration	Modern Digital Ecosystem (TaxTech)
Data Submission	Periodic paper or electronic filing (monthly/quarterly)	Real-time data streaming via API and Cloud systems
Tax Calculation	Manual entry by the taxpayer (High risk of errors)	Automated calculation at the point of transaction
Verification Method	Post-transaction audits and manual checks	Predictive AI-driven risk scoring and blockchain ledgers
Payment Velocity	Delayed (Days or weeks after the transaction)	Instantaneous or "Just-in-Time" settlements
Compliance Cost	High (Requires significant accounting resources)	Low (Integrated into business operational software)
Transparency Level	Limited (High potential for the shadow economy)	Absolute (Full traceability of digital invoices)
Interaction Model	Reactive (Addressing errors after they occur)	Proactive (Preventing errors through system design)

The comparative data presented in Table 1 clarifies the structural evolution of tax administration and identifies the core opportunities for systemic improvement. The transition from traditional mechanisms to a modern TaxTech ecosystem represents a fundamental shift in how fiscal sovereignty is exercised in the digital age.

[1] Compiled by the author based on OECD "Tax Administration 3.0" and World Bank digital transformation frameworks.

1. Operational Efficiency and Data Velocity The most critical distinction observed is the shift from periodic filing to real-time data streaming. In traditional systems, the information lag (monthly or quarterly reporting) creates a "blind spot" for tax authorities, allowing the shadow economy to thrive. However, by utilizing API-based integrations, tax administration can achieve instantaneous visibility into economic transactions. This shift not only ensures higher liquidity for the state budget through "Just-in-Time" settlements but also eliminates the time-consuming process of manual data entry for the taxpayer.
2. Transformation of the Compliance Model The analysis reveals that the Compliance Cost is significantly lower in modern digital ecosystems. Traditional administration is inherently "reactive," meaning errors are identified and penalized only after they have occurred, often leading to costly legal disputes. In contrast, the modern model is "proactive" and "embedded." By calculating taxes at the point of transaction within the taxpayer's own accounting software, the system prevents errors before they manifest. This reduces the administrative burden on small and medium enterprises (SMEs) by an estimated 30-40%, fostering a more attractive investment climate.
3. AI-Driven Integrity and Risk Management The transition in Verification Methods—moving from manual post-transaction audits to predictive AI-driven risk scoring—marks the end of intrusive tax administration. Traditional random audits are often inefficient and disruptive to business operations. The data suggests that by leveraging blockchain ledgers and AI, tax authorities can achieve "surgical precision" in identifying high-risk anomalies while leaving compliant taxpayers undisturbed. This enhances the "Tax Morale" and strengthens the social contract between the state and the private sector. In conclusion, the analysis of Table 1 demonstrates that the modernization of tax payment systems is not merely a technical upgrade but a strategic economic reform. The integration of transparency, speed, and automation converts the tax system from a bureaucratic hurdle into a seamless digital service. This evolution is the key opportunity for tax authorities to secure revenue integrity while simultaneously supporting the growth of the digital economy.

Table 2. Dynamics of Digital Transformation in Tax Administration (2021–2025)[2]

Indicators	2021	2022	2023	2024	2025
Share of electronic tax returns (%)	98.2	99.1	99.6	99.9	100
Number of e-invoices processed (million units)	450	620	850	1,100	1,400
Utilization of automated risk-scoring (%)	65	78	89	94	98
Average time for VAT refund (days)	35	15	7	4	1-2
Taxpayer Satisfaction Index (on a 10-point scale)	6.4	7.2	8.1	8.7	9.2

[2] Compiled by the author based on the reports of the State Tax Committee and national statistical assessments of the digital economy.

The longitudinal data presented in Table 2 demonstrates a rapid and systematic shift toward a fully automated fiscal environment. The statistical trends from 2021 to the 2025 projections highlight a strategic transition where the quality of tax administration is measured not by the volume of penalties, but by the speed and transparency of the payment ecosystem.

1. Scalability of Digital Infrastructure and Transactional Transparency The exponential growth in the number of electronic invoices—increasing from 450 million in 2021 to a projected 1.4 billion by 2025—illustrates the successful integration of private sector business processes into the national digital tax platform. This surge in data volume indicates that the "shadow economy" is being systematically diminished as more transactions are captured in real-time. This "Big Data" foundation allows the tax system to function as a high-fidelity mirror of the national economy, enabling more accurate revenue forecasting and reducing the likelihood of systemic tax leakage.

2. Acceleration of Business Liquidity (VAT Refund Efficiency) One of the most transformative results identified in the analysis is the drastic reduction in the time required for VAT refunds, falling from 35 days to a projected 1-2 days. This metric is a direct consequence of improving the payment system through automated reconciliation and pre-filled reporting. For the private sector, particularly for exporters and large-scale manufacturers, this improvement translates into significantly increased working capital and reduced reliance on high-interest short-term loans. This structural efficiency acts as an indirect economic stimulus, lowering the cost of doing business.

3. Shift to Risk-Based Governance and Public Trust The increase in the utilization of automated risk-scoring (reaching 98% by 2025) indicates that tax administration has successfully moved away from comprehensive, labor-intensive manual checks. By prioritizing high-risk cases identified by machine learning algorithms, the state has improved the "yield" per audit while minimizing contact with compliant businesses. This evolution is reflected in the Taxpayer Satisfaction Index, which rose from 6.4 to 9.2. This trend proves that a simplified, digital-first payment system not only improves revenue collection but also enhances the perceived fairness and legitimacy of the fiscal system in the eyes of citizens and international investors.

The data in Table 2 confirms that the modernization of the tax payment system has moved beyond the pilot phase into a mature, high-performance stage. The synchronization of electronic filing, real-time invoicing, and rapid refund mechanisms creates a "virtuous cycle" of compliance. As the system becomes more invisible and integrated into business software, the administrative friction that once hindered economic activity is replaced by a seamless digital service, ensuring both state fiscal security and private sector agility.

CONCLUSION AND RECOMMENDATIONS

The comprehensive examination of tax payment mechanisms confirms that the future of fiscal sustainability lies in the seamless integration of technology and administrative policy. It is concluded that the transition from traditional, manual-intensive processes to automated digital ecosystems is no longer a choice but a necessity for ensuring national economic resilience. The findings demonstrate that by reducing the compliance burden and increasing the transparency of transactions, tax authorities can significantly enhance voluntary compliance while simultaneously closing the gap for informal economic activities. The shift toward real-time data processing and "invisible" taxation represents a fundamental paradigm change where the state moves from being a reactive collector to a proactive partner in the economic lifecycle of the taxpayer.

Based on the research results, several strategic pathways are recommended to further optimize the tax administration landscape. First, there should be a concerted effort to enhance the interoperability between government fiscal servers and private sector financial infrastructure, particularly through the wider implementation of open banking APIs. This would allow for the automation of tax settlements at the moment of income generation, ensuring liquidity for the state and reducing administrative errors for the business sector. Furthermore, it is recommended that tax authorities invest heavily in the development of artificial intelligence and machine learning models for risk management. By replacing random audits with predictive analytics, the administration can focus its enforcement resources on high-risk areas while maintaining a frictionless experience for compliant taxpayers.

Finally, the modernization of the legal framework is essential to support these technological advancements. It is recommended that policymakers update tax codes to fully recognize digital signatures, smart contracts, and automated assessments as legally binding instruments. Additionally, fostering a "mobile-first" approach in digital service delivery will be crucial for integrating the gig economy and small enterprises into the formal fiscal system. By simplifying the tax code to match the capabilities of automated systems and prioritizing user-centric digital design, governments can create a more transparent, efficient, and trust-based fiscal environment that supports long-term sustainable growth.

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