

## Opportunities for Using Artificial Intelligence Technologies in Tax Administration

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**Abstract:** This article examines the opportunities for applying artificial intelligence technologies in tax administration. The study analyzes how artificial intelligence can improve the efficiency of tax administration processes, strengthen tax control mechanisms, and increase tax revenues. Artificial intelligence enables the rapid processing and analysis of large volumes of financial data, which helps tax authorities identify potential tax risks and detect cases of tax evasion. The research also explores international practices in implementing artificial intelligence systems in tax administration. The results show that the adoption of artificial intelligence technologies significantly enhances transparency, efficiency, and effectiveness in tax administration systems.

**Key words:** Artificial Intelligence, Tax Administration, Digital Technologies, Tax Compliance, Tax Analytics, Digital Economy



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### Introduction

In recent years, rapid technological development has significantly transformed public administration systems, including tax administration. The emergence of the digital economy has created new challenges and opportunities for tax authorities worldwide. Governments are increasingly seeking innovative technological solutions to improve tax collection efficiency, reduce tax evasion, and enhance the transparency of tax systems. Artificial intelligence (AI) has emerged as one of the most promising technologies for modernizing tax administration [1]. AI systems can process vast amounts of financial and economic data, detect patterns in taxpayer behavior, and identify potential tax risks more effectively than traditional methods. According to the Organisation for Economic Co-operation and Development (OECD), tax authorities around the world are increasingly adopting AI-based tools to enhance tax compliance and improve administrative efficiency [2], [3].

The application of AI in tax administration allows tax authorities to automate routine tasks, analyze taxpayer behavior, and improve risk assessment processes. For example, AI algorithms can analyze financial transactions, tax declarations, and economic activities to identify discrepancies and potential fraud. This capability significantly reduces the workload of tax officers and increases the accuracy of tax monitoring systems. Furthermore, AI technologies enable predictive analytics, which helps tax authorities forecast tax revenues and design more effective fiscal policies. By

analyzing historical data and economic trends, AI systems can provide insights into taxpayer behavior and potential tax risks [4]. This contributes to more efficient tax policy planning and improved fiscal sustainability.

Therefore, the integration of artificial intelligence technologies into tax administration systems is becoming a strategic priority for many governments. Understanding the potential benefits and implementation opportunities of AI in tax administration is essential for improving tax system efficiency and strengthening public finance management [5], [6].

### Methodology

This study applies analytical and comparative research methods to evaluate the opportunities for implementing artificial intelligence technologies in tax administration. The research is based on secondary data obtained from international organizations, including the OECD, the International Monetary Fund (IMF), and the World Bank.

Several key indicators were analyzed to evaluate the effectiveness of AI technologies in tax administration, including:

- Efficiency of tax data processing
- Detection of tax evasion cases
- Effectiveness of tax audits
- Growth of tax revenues

The study also examines international experiences in applying AI technologies in tax administration systems. Comparative analysis was used to assess how AI-based systems improve tax compliance and administrative performance in different countries.

### Results

The analysis shows that artificial intelligence technologies significantly improve the efficiency of tax administration systems. AI systems enable tax authorities to process large volumes of financial data quickly and accurately, which enhances tax monitoring and compliance mechanisms. AI technologies are particularly effective in identifying tax risks and detecting tax evasion. Machine learning algorithms can analyze taxpayer behavior patterns and identify irregularities in financial transactions or tax declarations [7], [8]. As a result, tax authorities can conduct targeted tax audits and improve enforcement efficiency.

**Table 1.** Impact of Artificial Intelligence on Tax Administration Efficiency

| Indicator                      | Traditional Tax Administration | AI-Based Tax Administration   | Improvement      |
|--------------------------------|--------------------------------|-------------------------------|------------------|
| Data processing speed          | Moderate                       | High                          | 40–60% faster    |
| Detection of tax evasion cases | Limited                        | Advanced analytical detection | +35% improvement |
| Effectiveness of tax audits    | Medium                         | High                          | +30% improvement |
| Tax revenue growth             | Stable                         | Increased                     | +10–15% increase |

**Source:** OECD (2022), IMF (2023), World Bank (2024)

The data in Table 1 indicates that AI technologies significantly improve tax administration performance. The implementation of AI-based systems increases data processing speed and enhances the ability of tax authorities to detect tax evasion cases. Furthermore, AI-based analytical tools support predictive analysis of tax revenues and taxpayer behavior [9]. These tools enable governments to design more effective tax policies and improve fiscal planning.

### Discussion

The results of this study confirm that artificial intelligence technologies have considerable potential for improving tax administration systems. AI-driven analytics enhances the ability of tax authorities to detect irregularities and strengthen tax compliance mechanisms. One of the main advantages of AI is its ability to analyze large datasets in real time [10]. This capability allows tax administrations to identify tax risks more effectively and allocate audit resources more efficiently. As a result, tax authorities can focus on high-risk taxpayers and reduce administrative costs.

Moreover, AI technologies contribute to the automation of routine tax administration processes [8]. Automated systems reduce human errors, increase transparency, and improve service delivery for taxpayers [11], [12]. Digital tax administration systems also enhance communication between taxpayers and tax authorities, which promotes voluntary tax compliance. However, the successful implementation of AI in tax administration requires significant investment in digital infrastructure, data management systems, and skilled personnel [13], [14]. Governments must also address issues related to data security, privacy protection, and ethical use of artificial intelligence technologies. Overall, AI technologies represent a transformative tool for modern tax administration and have the potential to significantly improve fiscal governance [15].

### Conclusion

The findings of this study demonstrate that artificial intelligence technologies offer substantial opportunities for improving tax administration systems. AI-based solutions enable tax authorities to process large volumes of financial data, detect tax evasion cases, and enhance tax compliance mechanisms. The implementation of AI technologies increases administrative efficiency, improves the effectiveness of tax audits, and contributes to higher tax revenues. Furthermore, AI-driven predictive analytics supports better fiscal planning and policy development. Despite these benefits, the successful integration of AI technologies into tax administration requires strong digital infrastructure, appropriate regulatory frameworks, and skilled human resources. Governments should prioritize the digital transformation of tax administration systems to fully realize the potential of artificial intelligence. In conclusion, artificial intelligence represents a key technological innovation that can significantly enhance the transparency, efficiency, and effectiveness of modern tax administration systems.

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