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The Effect of Artificial Intelligence on Public Service Quality in the Tax Service Sector

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Abstract

The rapid development of Artificial Intelligence (AI) has significantly transformed public sector operations, particularly in the tax service sector. This study aims to analyze the effect of AI on public service quality, focusing on efficiency, accuracy, responsiveness, and taxpayer satisfaction. Using a qualitative approach through a literature review of recent academic studies (2015–2025), this research examines how AI technologies such as machine learning, predictive analytics, and chatbots contribute to improving tax administration services. The findings indicate that AI enhances service quality by automating administrative processes, reducing human error, and enabling faster and more reliable service delivery. AI-driven systems also support data-driven decision-making, which improves transparency and accountability in tax administration. Furthermore, the use of AI-based digital platforms increases accessibility and user satisfaction by providing real-time assistance and personalized services. However, the implementation of AI also presents challenges, including data security risks, system reliability issues, and ethical concerns such as algorithmic bias and lack of

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transparency. These challenges highlight the need for robust governance frameworks and continuous system evaluation. Overall, AI has a significant positive impact on public service quality in the tax sector, provided that its implementation is supported by appropriate infrastructure, human resources, and regulatory policies.

Keywords: Artificial Intelligence; Public Service Quality; Tax Services; E-Government

INTRODUCTION

The rapid advancement of digital technologies has significantly transformed public administration systems worldwide, particularly through the integration of Artificial Intelligence (AI). Governments are increasingly adopting AI to enhance efficiency, transparency, and responsiveness in public service delivery. In the taxation sector, AI has emerged as a strategic tool to modernize tax administration, improve compliance, and elevate service quality for taxpayers (Davenport & Ronanki, 2018).

Public service quality in taxation is a critical determinant of taxpayer satisfaction and compliance. Traditional tax administration systems often face challenges such as manual processing errors, bureaucratic inefficiencies, limited responsiveness, and inadequate data analysis capabilities. These issues can reduce public trust and hinder the effectiveness of tax systems (Nurhadian & Khoirunurrofik, 2022). The introduction of AI technologies, such as machine learning and predictive analytics, has the potential to address these limitations by enabling faster, more accurate, and data-driven service delivery (Brynjolfsson & McAfee, 2017).

In developing countries, including Indonesia, digital transformation in the public sector has accelerated, particularly through e-government initiatives in tax services. Systems such as e-filing and e-billing have improved accessibility and efficiency. However, the adoption of AI remains uneven and faces challenges related to infrastructure readiness, regulatory frameworks, and human resource capacity (Zsazsa & Sitepu, 2023).

Empirical studies indicate that service quality has a direct and significant influence on taxpayer satisfaction and compliance behavior. Improved service quality—characterized by reliability, responsiveness, assurance, and transparency—encourages voluntary compliance and strengthens trust in government institutions (Remilan et al., 2024). Furthermore, digital-based tax services have been shown to enhance user satisfaction when they are reliable and easy to use (Putra & Fathurrahman, 2022).

Despite its advantages, the implementation of AI in tax services also introduces new risks. These include system failures, cybersecurity threats, and algorithmic bias, which may negatively affect service quality and public trust (Widiastuti et al., 2025). Therefore,

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understanding the impact of AI on public service quality in the tax sector is essential for developing effective governance strategies. This study aims to analyze the effect of Artificial Intelligence on public service quality in the tax sector, focusing on both its benefits and challenges, as well as its implications for public administration reform.

THEORETICAL REVIEW

Artificial Intelligence in Public Administration

Artificial Intelligence refers to the capability of machines to mimic human intelligence, including learning, reasoning, and problem-solving. In public administration, AI is increasingly used to automate processes, analyze large datasets, and support policy decision-making (Kaplan & Haenlein, 2019). The integration of AI into public services enhances administrative efficiency by reducing manual workloads and improving accuracy. In tax administration, AI applications include fraud detection, risk-based auditing, and predictive compliance systems. These innovations contribute to improved institutional performance and accountability (Fadhilah et al., 2025). Moreover, AI enables governments to deliver more proactive and data-driven services.

Public Service Quality Theory

Public service quality is commonly measured using the SERVQUAL model, which includes dimensions such as reliability, responsiveness, assurance, empathy, and tangibles. These dimensions are essential in evaluating the effectiveness of public services, including tax administration. In the context of taxation, service quality plays a crucial role in influencing taxpayer behavior. High-quality services enhance taxpayer satisfaction and encourage voluntary compliance. Conversely, poor service quality can reduce trust and lead to non-compliance (Hadiwijaya & Febrianty, 2019). Therefore, improving service quality is a key objective for tax authorities.

E-Government and Digital Tax Services

E-government refers to the use of digital technologies to deliver public services more efficiently and transparently. In the taxation sector, e-government initiatives include e-filing, e-billing, and mobile tax applications. These systems have significantly improved service accessibility and reduced administrative burdens. Research shows that digital tax services positively influence service quality and taxpayer satisfaction (Gulo & Asmilia, 2024). Additionally, digital platforms enhance transparency and reduce opportunities for corruption. However, the effectiveness of e-government systems depends on factors such as

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system reliability, user experience, and data security. Without these elements, digital services may fail to meet user expectations (Ligery et al., 2022).

AI and Service Quality Enhancement

The integration of AI into e-government systems represents an advanced stage of digital transformation. AI enhances service quality by enabling real-time responses, personalized services, and predictive analytics. For example, AI-powered chatbots can provide instant assistance to taxpayers, improving responsiveness and accessibility. Predictive analytics can help tax authorities identify potential compliance risks and take proactive measures (Basron et al., 2025). However, AI implementation also raises concerns related to ethics, transparency, and accountability. Issues such as algorithmic bias and data privacy must be addressed to ensure that AI systems are fair and trustworthy (Zsazsa & Sitepu, 2023).

METHOD

This study uses a qualitative research approach through a literature review method. Data were collected from peer-reviewed journal articles, books, and policy reports published between 2015 and 2025. The selection criteria focused on studies discussing Artificial Intelligence, public service quality, and tax administration. The data were analyzed using a descriptive analytical approach to identify patterns and relationships between AI implementation and service quality outcomes. This method allows for a comprehensive understanding of both theoretical frameworks and empirical findings relevant to the research topic (Brynjolfsson & McAfee, 2017).

DISCUSSION

Positive Impact of AI on Tax Service Quality

The implementation of Artificial Intelligence in tax services has significantly improved service quality across several dimensions. First, AI enhances efficiency by automating repetitive administrative tasks, reducing processing time, and minimizing human errors. This leads to faster and more reliable service delivery (Davenport & Ronanki, 2018).

Second, AI improves accuracy and data management. By processing large volumes of data, AI systems enable better decision-making and more effective risk assessment. This contributes to increased transparency and accountability in tax administration (Fadhilah et al., 2025).

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Third, AI enhances user experience through personalized and responsive services. AI-powered chatbots and virtual assistants provide real-time support to taxpayers, improving responsiveness and accessibility. This aligns with the SERVQUAL dimensions of service quality (Putra & Fathurrahman, 2022).

Challenges in AI Implementation

Despite its benefits, AI implementation in tax services faces several challenges. One major issue is system reliability. Technical disruptions can negatively affect service quality, reducing user satisfaction and trust (Widiastuti et al., 2025). Another challenge is data security and privacy. AI systems require access to large amounts of sensitive taxpayer data, which increases the risk of data breaches and cyberattacks. Ensuring data protection is critical for maintaining public trust (Zsazsa & Sitepu, 2023). Additionally, limited human resource capacity and inadequate digital infrastructure can hinder effective AI implementation, particularly in developing countries (Basron et al., 2025).

Policy and Governance Implications

To maximize the benefits of AI, governments must adopt a comprehensive approach that includes technological investment, human resource development, and regulatory reform. Training programs are essential to equip public officials with the necessary digital skills (Kaplan & Haenlein, 2019).

Furthermore, clear policies and ethical guidelines are needed to address issues related to data privacy, algorithmic transparency, and accountability. Governments must ensure that AI systems are inclusive, reliable, and user-friendly. Continuous evaluation and improvement are also necessary to ensure that AI systems meet user expectations and maintain high service quality. Feedback mechanisms should be integrated into system design to enhance performance and user satisfaction (Remilan et al., 2024).

CONCLUSION

The integration of Artificial Intelligence (AI) into public service delivery, particularly in the tax service sector, represents a significant transformation in modern public administration. This study demonstrates that AI plays a crucial role in enhancing public service quality by improving efficiency, accuracy, responsiveness, and accessibility. Through the automation of administrative processes and the utilization of advanced data analytics, AI enables tax authorities to deliver faster and more reliable services, ultimately contributing to higher levels of taxpayer satisfaction and compliance.

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One of the most important findings of this study is that AI-driven systems support data-driven decision-making, which reduces human error and enhances the consistency of service delivery. The implementation of technologies such as machine learning and chatbots has improved the responsiveness of tax services, allowing taxpayers to access information and assistance in real time. This aligns with the key dimensions of service quality, including reliability, responsiveness, and assurance, which are essential for building trust in public institutions (Davenport & Ronanki, 2018; Putra & Fathurrahman, 2022).

However, the study also highlights several challenges associated with AI implementation in the tax sector. Issues related to system reliability, data security, and privacy remain significant concerns. Technical disruptions in digital tax systems can negatively affect service quality and reduce user trust (Widiastuti et al., 2025). Additionally, the risk of algorithmic bias and the lack of transparency in AI decision-making processes pose ethical challenges that must be addressed to ensure fairness and accountability (Zsazsa & Sitepu, 2023).

Furthermore, the successful adoption of AI depends on organizational readiness, including the availability of skilled human resources and adequate digital infrastructure. In many developing countries, these factors continue to limit the effectiveness of AI implementation. Therefore, governments must invest in capacity building and technological development to support sustainable digital transformation (Kaplan & Haenlein, 2019).

From a policy perspective, this study emphasizes the importance of establishing comprehensive governance frameworks that regulate the use of AI in public services. Clear policies on data protection, system transparency, and ethical standards are necessary to maintain public trust and ensure responsible AI use. In addition, continuous monitoring and evaluation of AI systems are essential to ensure their effectiveness and alignment with public needs (Remilan et al., 2024).

In conclusion, while AI offers substantial opportunities to improve public service quality in the tax sector, its implementation must be carefully managed. A balanced approach that integrates technological innovation with human capacity and ethical governance is essential to maximize the benefits of AI and achieve sustainable improvements in public service delivery.

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