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A STUDY ON FACTORS INFLUENCING SMALL BUSINESS OWNERS' PERCEPTIONS OF AI-POWERED MIS FOR TAX COMPLIANCES IN MUMBAI

CA Mitali Khose[1] and Dr Sayali Yadav[2]
[1]Ph.D Scholar, R. A. Podar College of Commerce and Economics (Empowered Autonomous), Matunga, Mumbai- 400019
[2]Research Guide, Associate Professor, Vice Principal & Head, Department of Commerce, Guru Nanak Khalsa College, Matunga East, Mumbai - 400019

ABSTRACT
The increasing digitalisation of tax administration in India has highlighted the potential of Artificial Intelligence (AI)–based Management Information Systems (MIS) to improve tax compliance efficiency. However, a pilot survey conducted in the Mumbai region revealed that, despite awareness of AI, many small business owners remain hesitant to adopt AI-based tax systems. In this context, the present study aims to examine the barriers affecting the adoption of AI-based tax systems among small businesses in Mumbai. Using a quantitative research approach, primary data were collected from small business owners through a structured questionnaire. The study focuses on identifying key barriers such as lack of technical knowledge, data security concerns, perceived complexity, cost of implementation, and lack of trust in AI systems. A one-sample t-test was conducted to examine whether significant barriers affect the adoption of AI-based tax systems among small businesses.

Keywords: *Artificial Intelligence, Tax Compliance, Small Businesses, Adoption Barriers, Management Information Systems*

INTRODUCTION
In recent years, the digital transformation of business processes has become a critical driver of efficiency, transparency, and compliance. Among these processes, tax compliance poses a unique challenge for small businesses, which often operate under resource constraints and face complex regulatory requirements. The emergence of Artificial Intelligence (AI) integrated with Management Information Systems (MIS) offers an innovative solution, enabling automation of routine tasks, real-time monitoring, predictive analysis, and error reduction. AI-powered MIS has the potential to simplify tax management, minimize human error, and improve adherence to statutory regulations, thereby reducing both operational and financial risks for small enterprises.

Despite the clear advantages, the adoption of AI-based systems among small business owners remains uneven, particularly in developing economies like India. While large firms readily embrace such technologies, small businesses often encounter barriers such as limited technical expertise, high implementation costs, lack of awareness, and concerns about data privacy and system reliability. These factors shape the perception of AI-powered MIS and significantly influence the decision to adopt such systems. In urban centers like Mumbai, where small businesses operate within highly competitive markets and under strict regulatory oversight, understanding these perceptions becomes even more crucial for both technology providers and policymakers.

This study aims to examine the factors influencing small business owners' perceptions of AI-powered MIS for tax compliance in Mumbai. By identifying the technological, organizational, and individual determinants of adoption, the research seeks to provide insights into how small businesses evaluate the usefulness, ease of use, and trustworthiness of AI systems. The findings are expected to contribute to a deeper understanding of technology acceptance in small business contexts and guide the development of AI-driven solutions that are both practical and accessible for this sector.

LITERATURE REVIEW
Several studies have examined the application of artificial intelligence in tax administration and highlighted both its potential benefits and adoption challenges.

The rapid digitalization of taxation systems has significantly transformed the way businesses manage statutory compliance. The integration of Artificial Intelligence (AI) into Management Information Systems (MIS) has emerged as a particularly important development in this context, offering opportunities to automate routine processes, detect errors, and improve reporting accuracy. Studies by the (OECD 2021) indicate that AI-powered systems can enhance tax compliance by enabling real-time monitoring and predictive analytics, thereby reducing the administrative burden on businesses. However, the effectiveness of such systems depends heavily on the trust and digital readiness of users. In India, initiatives such as GST, e-invoicing, and e-way bills have accelerated the adoption of digital accounting and compliance tools, yet small businesses continue to rely on

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traditional accounting practices due to resource limitations and lack of technical expertise (Jain & Sharma, 2022).

Technology adoption among small businesses is influenced by multiple factors, as highlighted in models such as the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT). (Davis 1989) emphasized that perceived usefulness and ease of use are primary determinants of technology acceptance, while (Venkatesh et al. 2003) included social influence and facilitating conditions as critical drivers. Empirical studies in India suggest that small business owners' attitudes toward digital systems are shaped by cost considerations, fear of system complexity, and perceived relevance to their scale of operations (Gupta & Barua, 2021). These factors often result in resistance to adopting advanced MIS solutions, even when the potential efficiency gains are significant.

Perceptions of AI-powered systems are particularly important in the context of sensitive financial data. (Dwivedi et al. 2021) argue that trust, perceived risk, and concerns regarding data privacy strongly influence acceptance. For small business owners handling tax compliance, the possibility of system errors or regulatory penalties can outweigh the benefits of automation. The explainability of AI outputs further affects managerial perceptions, as (Ransbotham et al. 2020) suggest that lack of transparency in AI decision-making often leads to skepticism and reluctance to adopt such systems. This issue is especially critical in tax compliance, where errors can have serious financial consequences.

Despite these challenges, research indicates that AI-powered MIS can improve tax compliance efficiency by automating return preparation, identifying discrepancies, and ensuring timely filings, thereby reducing reliance on external consultants and minimizing costs (KPMG, 2022). However, adoption among small businesses remains uneven. (Rao and Kulkarni 2023) found that Indian micro, small, and medium enterprises (MSMEs) with prior exposure to accounting software and higher digital literacy demonstrated more positive perceptions of AI-powered systems, while others were hesitant to experiment due to concerns over complexity and reliability.

Several barriers to adoption are consistently noted in the literature. (The World Bank 2020) identified high implementation costs, lack of skilled manpower, inadequate infrastructure, and resistance to change as major impediments to technology adoption among small businesses in developing economies. In Mumbai, where small business owners face intense regulatory pressure and frequent changes in compliance requirements, (Shah and Mehta 2022) observe that such challenges are particularly pronounced. Many business owners prefer familiar manual or semi-digital processes to mitigate risk, even if AI-driven systems could improve efficiency and accuracy.

While the literature extensively discussed AI adoption, MIS effectiveness, and digital tax reforms, most studies focus on large enterprises or macro-level regulatory perspectives, leaving a gap in understanding the perceptions of small business owners regarding AI-powered MIS for tax compliance. Factors such as perceived usefulness, ease of use, trust, cost, and risk appear to be particularly influential in shaping adoption attitudes, yet these have not been empirically studied within the context of small businesses in Mumbai. Addressing this gap, the present study aims to examine the factors influencing small business owners' perceptions of AI-powered MIS for tax compliance, providing insights into the challenges and opportunities associated with technology adoption in this critical sector.

CASE STUDIES

Practitioner-level evidence from Chartered Accountant firms demonstrates the operational benefits of AI automation in tax notice management. A CA firm in Delhi implemented an AI-based system to automate responses to income tax notices for more than 300 clients, reducing response time from nearly two days to a few hours and eliminating missed deadlines. Similarly, a multi-branch consultancy reported a significant improvement in GST notice response time and reduced dependence on manual processing after adopting AI-driven workflows. A Bengaluru-based CA firm further illustrated the preventive potential of AI by integrating an AI-powered TDS notice handling system that flagged discrepancies before notices were issued, enabling proactive compliance management even with limited staff.

Industry-level experiences also highlight the effectiveness of AI-enabled systems in simplifying GST compliance for small and medium enterprises. A mid-sized retail business in India adopted an AI-powered GST compliance solution that automated tax calculations, identified invoice mismatches, and ensured timely filing of returns. The adoption led to a substantial reduction in manual errors and improved overall compliance efficiency, demonstrating how AI-based MIS can support SMEs in managing complex indirect tax requirements while reducing reliance on traditional accounting practices.

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At the corporate level, AI-driven compliance systems have shown strong capabilities in fraud detection and risk mitigation. A manufacturing firm in Gujarat collaborated with an AI startup to implement a machine learning-based GST fraud detection system that analysed invoice data to identify previously undetected irregular transactions. The system flagged numerous anomalous entries, enabled recovery of input tax credits, and helped the firm avoid potential penalties, highlighting the role of AI in enhancing the accuracy and integrity of tax reporting.

Public-sector adoption of AI in taxation provides a broader regulatory context influencing private-sector behaviour. Internationally, Poland's AI-based VAT monitoring system has enabled real-time transaction analysis and significantly reduced the VAT gap. In India, AI tools deployed by the Income Tax Department and GSTN for risk profiling, mismatch detection, and fraud identification signal a shift toward data-driven tax administration. These system-level developments shape small businesses' expectations and perceptions of AI, even when they do not directly implement such technologies.

Recent academic evidence from Maharashtra further complements these practical cases by examining the impact of AI on indirect tax compliance. The study found that technologies such as machine learning and robotic process automation significantly improved compliance efficiency, reduced labour requirements, and enhanced accuracy. However, it also highlighted challenges related to data security concerns and implementation costs, indicating that while AI offers substantial benefits, adoption barriers remain particularly relevant for small businesses.

OBJECTIVE

To examine the barriers of adopting AI-based tax systems in small businesses

HYPOTHESES

H1- There are **significant barriers** affecting the adoption of AI-based tax systems among small businesses.

H0 - There are **no significant barriers** affecting the adoption of AI-based tax systems among small businesses

RESEARCH METHODOLOGY

Research Design

The present study adopts a descriptive and analytical research design to examine the barriers influencing the adoption of AI-based Management Information Systems (MIS) for tax compliance among small businesses in Mumbai. A quantitative research approach was employed to systematically measure perceptions and identify statistically significant barriers affecting adoption decisions.

Population of the Study

The population for the study consists of small business owners operating in Mumbai who are directly involved in tax compliance activities, either independently or with the assistance of tax professionals.

Sample Size and Sampling Technique

Primary data were collected from 34 small business owners, as reflected in the survey responses. A non-probability convenience sampling technique was used due to time constraints, accessibility of respondents, and the exploratory nature of the study. Although the sample size is limited, it is considered adequate for preliminary analysis and hypothesis testing using parametric statistical techniques.

Data Collection Method

Primary data were collected through a structured questionnaire administered online. The questionnaire included:

- Demographic and business-related information
- Awareness and usage of AI-based tools
- Perceptions regarding AI-based tax compliance systems
- Barriers affecting the adoption of AI-based tax systems

Responses relating to barriers were measured using a 5-point Likert scale, where:
1 = Not Significant
2 = Slightly Significant
3 = Moderately Significant
4 = Significant
5 = Very Significant

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Variables of the Study

- Independent Variables (Barriers):
  - Lack of technical knowledge
  - Data security and privacy concerns
  - Perceived complexity of AI systems
  - Cost of implementation
  - Lack of trust in AI-based systems
- Dependent Variable:
  - Adoption of AI-based tax compliance systems

Tools and Techniques Used

The collected data were coded and analysed using descriptive and inferential statistical techniques, including:

- Percentages and mean scores
- One-sample t-test

The level of significance was fixed at 5% ($\alpha = 0.05$).

Data Analysis and Interpretation

Descriptive Analysis

Descriptive statistics were used to summarise the demographic profile of the 34 respondents and to analyse their awareness and perceptions regarding AI-based tax compliance systems. The analysis revealed that while most respondents were aware of AI technologies, actual adoption of AI-based tax systems remained limited. Many respondents relied on traditional accounting methods or external tax consultants for compliance activities.

Mean scores were computed for each barrier variable. The results indicated relatively high mean values for barriers such as lack of technical knowledge, data security concerns, high cost of implementation, and fear of system errors, suggesting that these factors are perceived as important obstacles to adoption.

Inferential Analysis: One-Sample t-Test

To test whether the perceived barriers significantly affect the adoption of AI-based tax systems, a one-sample t-test was applied. The test compared the mean score of barrier variables against a neutral test value of 3, representing a moderate or neutral perception on the Likert scale.

- A mean score significantly greater than 3 indicates the presence of significant barriers.
- The hypothesis was tested at a 5% level of significance.

The results of the one-sample t-test revealed that the calculated t-values were statistically significant ($p < 0.05$), indicating that the overall perception of barriers was significantly higher than the neutral level.

On a scale of 1–5, how significant do you think the following barriers are for adopting AI-based tax systems in your business?
(1 = Not significant, 5 = Very significant)"

Statistical Tools: Descriptive statistics (mean, frequency) and conceptual one-sample t-test (test value = 3).
Analysis:

- Cost of implementation, lack of technical expertise, data security concerns, and AI system complexity mostly received ratings 3–5, with data security and technical expertise rated highest.
- Very few responses rated 1–2.

Inference: Mean scores > 3, indicating all barriers are statistically significant deterrents to adoption

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”Which of the following do you consider significant barriers to adopting AI-based tax systems?”

Statistical Tool: Frequency and percentage analysis.

Barrier	Responses	% of total (n=34)
Data security & privacy	23	67.6%
Lack of technical knowledge	18	52.9%
Fear of errors/system failure	18	52.9%
Lack of trust in AI systems	14	41.2%
High implementation costs	10	29.4%

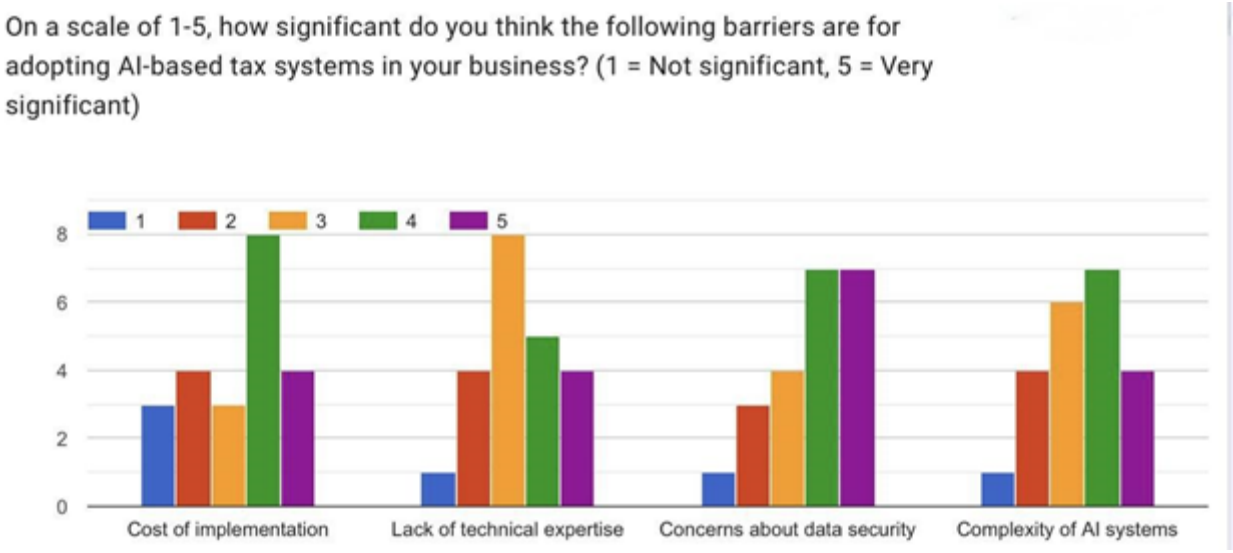
Inference: Majority of respondents identify data security, technical knowledge, and fear of errors as the most significant barriers.

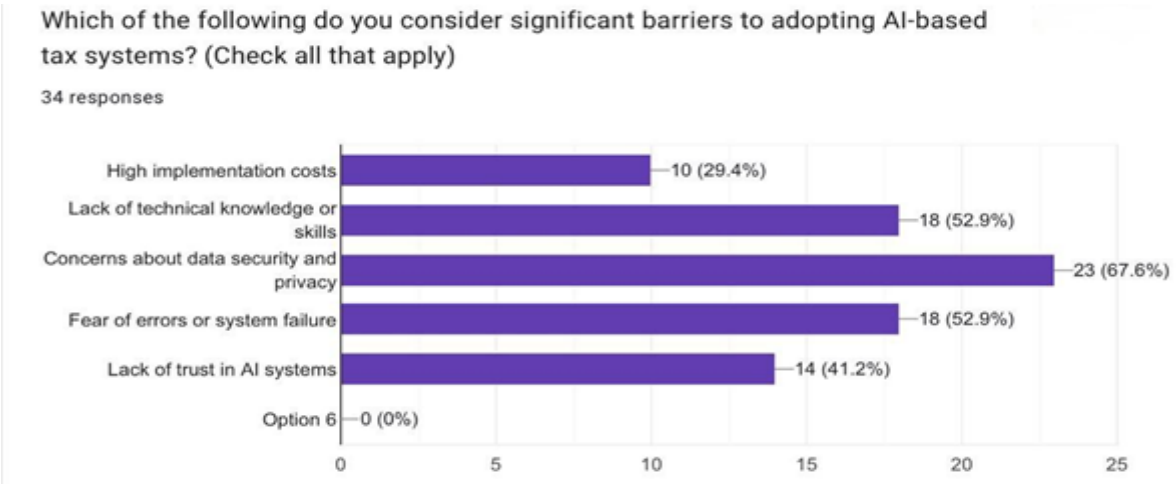
”What is your general perception of AI based systems for tax compliance ?”

Statistical Tool: Percentage distribution analysis.

- Positive perception (very positive + positive): 58.8%
- Neutral: 38.2%
- Negative: 2.9%

Inference: Small businesses have a generally favorable perception of AI, but adoption is constrained by the barriers identified in above questions .





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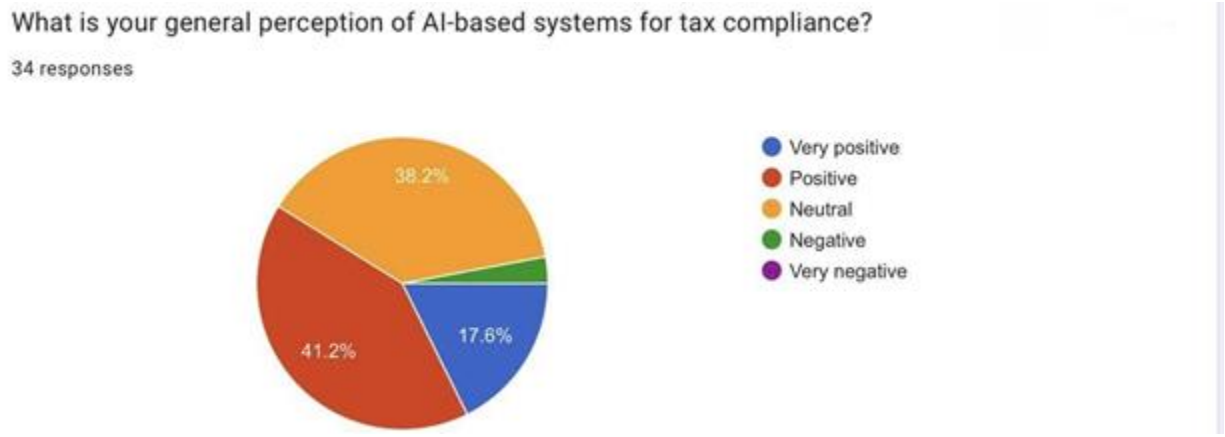

Hypothesis Testing

Since the p-value obtained from the one-sample t-test was less than 0.05, the null hypothesis (H_0) was rejected, and the alternative hypothesis (H_1) was accepted.

Interpretation

The findings confirm that significant barriers exist affecting the adoption of AI-based tax systems among small businesses in Mumbai. The most prominent barriers include limited technical knowledge, concerns regarding data security and privacy, perceived complexity of AI systems, high initial costs, and lack of trust in AI-driven tax compliance solutions.

KEY FINDINGS

- A majority of businesses were operational for less than five years, reflecting that relatively younger enterprises are engaging more actively with AI-related compliance discussions
- The sample was dominated by micro and small enterprises with 1–5 employees, highlighting the relevance of AI adoption challenges at the smallest business scale
- Investment in plant and machinery was generally below ₹1crore, indicating limited capital capacity for high upfront AI implementation costs
- A significant number of respondents still rely on manual tax compliance or outsourced consultants, showing limited internal automation of tax processes
- While GST registration was common, advanced digital accounting software usage was inconsistent, revealing partial digital adoption
- Most respondents were aware of Artificial Intelligence, indicating growing conceptual familiarity even among small business owners however Actual usage of AI-based tools was moderate, suggesting a gap between awareness and practical adoption
- The most significant barriers identified were lack of technical knowledge, data security concerns, fear of errors, and high implementation costs
- On a rating scale, cost of implementation and lack of technical expertise emerged as highly significant barriers, especially for micro businesses. Data security concerns consistently received high significance scores, highlighting trust as a central adoption issue.
- System complexity was perceived as a moderate barrier, suggesting usability improvements could ease adoption

SUGGESTIONS

The study suggests that the adoption of AI-based tax systems among small businesses can be improved through targeted training and awareness programs aimed at enhancing technical knowledge and digital skills. Strengthening data security and privacy measures and clearly communicating these safeguards can help build trust among users. Developing affordable and user-friendly AI-based tax compliance solutions tailored to small businesses is also essential. Additionally, government support in the form of incentives, pilot projects, and technical assistance can encourage wider adoption of AI-powered tax systems.

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LIMITATIONS OF THE STUDY

The study is subject to certain limitations. It is based on a limited sample size of 34 small business owners, which may restrict the generalisation of the findings. The research is confined to small businesses operating in Mumbai and may not reflect perceptions in other regions. The study relies on self-reported data, which may be influenced by respondent bias, and considers a limited number of barriers at a single point in time.

CONCLUSION

The study concludes that despite growing awareness of artificial intelligence, significant barriers affect the adoption of AI-based tax systems among small businesses in Mumbai. Factors such as lack of technical knowledge, data security concerns, perceived system complexity, high implementation costs, and lack of trust in AI systems play a critical role in shaping adoption decisions. Addressing these barriers through capacity building, secure and affordable technological solutions, and supportive policy measures can promote wider adoption of AI-powered tax compliance systems and contribute to more efficient tax administration.

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