

# DEPLOYING ARTIFICIAL INTELLIGENCE IN TAX COMPLIANCES– A STRATEGIC PERSPECTIVE AND THE WAY FORWARD

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## Abstract

The wave of Artificial intelligence (AI) and its deployment in tax compliances is increasing and nations world over are looking at options to deploy AI in tax compliances. The usage of AI in the Indian context is getting increased day by day. This study explores the importance and current status of AI in tax compliances, opportunities and challenges in the context of AI applications, the possible areas and processes in tax compliances where it can be deployed, the likely risks arising in the process. Using an exploratory framework it proposes framework using Agentic -AI that can deployed to monitor compliances and control effectively. With the growth of AI tools, start up eco-system and a vibrant community of AI practitioners in India, it is time to adopt AI based models into compliances that can greatly assist the Govt, increase the efficiency and effectiveness of functioning of tax system.

**Keywords:** Artificial intelligences, Agentic AI, Context, Tax compliances, Small language models

## Introduction

The Role of AI in tax compliances is crucial in the context of India's economic development and in light of the transition to digital transformation taking place in the industry. The Indian Courts are heavily burdened with pending cases. In order to understand how AI can apply to be applied to judiciary ,and technology can be better utilised it is important to examine the steps involved in AI application for legal domain, it is necessary to look at the volume of disputes under direct taxes as an example and, though big data has enabled usage to apply AI there are limitations in the form of context , relevance, as well as content in the subject matter of the case, arising mainly due to language semantics and decisions when training cases on data sets is fed to AI systems. These can complicate the matter further making the decision making nebulous and out of context. The e-filing of cases helps a large volume and mass of data is available as also the mine of case-laws in data base helps in application of the AI algorithm to apply. The CAG report mentions a sum of Rs 13.91crs as dues detailed per table below:-

Financial year	Disputed Demand		Undisputed Demand		Total Outstanding Demand (₹ in crore)
	Amount (₹ in crore)	Percentage of Total Outstanding Demand	Amount (₹ in crore)	Percentage of Total Outstanding Demand	
2019-20	8,83,875	79	2,39,806	21	11,23,681
2020-21	10,57,639	73	3,83,616	27	14,41,255
2021-22	10,36,346	75	3,54,305	25	13,90,651

Source: Receipt Budget of the GoI for the years 2017-18 to 2023-24.

Considering the volumes and amounts involved it is desirable to go for AI assisted resolution of pending cases, which can help to a great extent in resolving pending cases and increase effectiveness of tax administration , reduce strain, pain and efforts , accelerate collections for the Govt, and increase trust level of tax payer, on the Govt. Trust among stakeholders, becomes crucial in the scheme of things to deploy AI tools in tax compliance.

### Objectives of Study

1. To understand the Role played by AI in the areas of Tax compliance
2. To understand the challenges and opportunities in the context of application of AI in Tax compliances in the Indian scenario.
3. To identify the areas where the applications of AI in Tax compliance can and are likely to be the candidates for automation.
4. To understand the likely risks involved in the context of increasing dependence on technologies, and its implications for regulators, tax man .
5. To create a framework for deployment of Agentic -AI in Tax compliances and how it helps the Govt and the regulators as well as the Assessee.

### Review of Literature

Tyagi, N., Jha, R. S., & Srinivasan, S. (2025).explore the viability of AI in Indian trial courts and investigate its application in adjudication. An overview of artificial intelligence and adjudication is given at the beginning of the paper. The interaction between the two is then examined. AI-Adjudication and AI-Assisted Adjudication have been distinguished clearly. There are others who contend that AI-assisted adjudication is superior to AI-adjudication. AI has been found to be effective in a few areas for adjudication in Indian Trial Courts. After addressing the problems and difficulties of integrating AI into the system, proposals and ideas were made. It is ultimately determined that in order for trial courts to adjudicate cases effectively and promptly, AI-assisted adjudication must be used. Salah, A. S., & Awwad, B. S. (2024). This study focuses on 25 current, previously completed studies on the topic and gives a thematic theoretical assessment on the advantages and disadvantages of using artificial intelligence and how to use it to increase tax compliance. As one reads the numerous works, it becomes clear that while AI may enhance compliance, paperwork, and revenue collection, there are still ethical and privacy concerns, as well as prejudice in the employment of algorithms to make managerial choices. These findings imply that the moral conundrum of how to employ technological innovations without violating taxpayer rights confronts policymakers. To make sure that code development does not conflict with fairness, it is also crucial that future policymaking adopt an interdisciplinary perspective. Thus, in order to optimize AI's benefits and minimize its hazards, a proactive approach is necessary. Belahouaoui, R., & Attak, E. H. (2024).examine how tax digitalization has improved tax compliance behavior in several circumstances, with an emphasis on different tools in AI. It aims to evaluate the efficacy of these new tools in lowering taxes how they affect compliance. According to the review, digitalization greatly improves operational efficiency and tax compliance, especially when done with blockchain and artificial intelligence.It adds to the

conversation on digital taxes by attempting to close the gap in the literature regarding the thorough effects of digital tools. Bajpai, D. A. (2024), examines how AI plays a crucial part in improving these important facets of economic stability and governance. AI-driven solutions in the field of tax compliance present governments offers to reduce tax evasion, identify non-compliance, and expedite tax administration procedures. Large amounts of financial data may be analyzed by machine learning algorithms remarkably quickly and accurately, revealing trends that may point to tax evasion or fraud. Additionally, tax authorities may effectively deploy resources for enforcement reasons and anticipate taxpayer behavior, using AI-powered predictive tax analytics. Governments can increase revenue collection efficiency and reduce taxpayer compliance burdens by utilizing AI. AI systems with natural language processing skills can go through enormous amounts of financial and regulatory data to find possible infractions and evaluate systemic risks. Furthermore, by proactively identifying new risks to financial stability, regulators can take prompt action to avert crises thanks to AI-based risk assessment models. However, there are drawbacks and moral dilemmas to the use of AI in financial regulation and tax compliance. Implementing algorithmic decision-making requires strong governance structures and ethical standards since it raises questions about accountability, transparency, and bias mitigation. Using AI to its fullest potential while preventing unforeseen effects requires cooperation between regulators, legislators, and tech developers. AI has the potential to be a potent instrument for advancing economic resilience, regulatory efficacy, and fiscal transparency with careful application and ongoing development.

Nay, J. J., Karamardian, et al. (2024). Gaining a better grasp of the legal analysis capabilities of Large Language Models (LLMs) can help to manage artificial intelligence, improve the effectiveness of legal services, and use LLMs to find legal contradictions. The application of tax law by LLM is examined in this work. The experiments show developing legal comprehension skills, with each new OpenAI model release exhibiting better performance. Zheng, S., Trott, A., Srinivasa, S. et al. (2020). Developing and evaluating economic policies is necessary to address socioeconomic issues in the real world. In reality, though, this is challenging since there is a dearth of relevant (micro-level) economic data and little room for experimentation. The research prepares social planners to identify tax laws in dynamic economies that can successfully balance productivity and economic equality. It demonstrates that, in comparison to baseline policies, such as the well-known Saez tax framework, AI-driven tax policies enhance the trade-off between equality and productivity by 16%. With a higher top tax rate and more net subsidies for low-income individuals, AI-driven tax policies differ significantly from baselines, and when AI agents develop new tax-gaming techniques, AI-driven tax systems fare well. Finally, trials involving human subjects have shown that AI-driven tax policies are also successful. Zhang, L., Nan, X., Huang, E., & Liu, S. (2020). Tax authorities throughout the world struggle to control social media platforms' hidden economy activity using conventional regulatory methods. A machine learning-based Reg-tech tool for identifying transaction-based tax evasion on social media platforms is presented in this study for use by international tax authorities. It created a multi-modal deep neural network to automatically identify questionable posts based on the

dataset. To generate the final output, the suggested model integrates image modalities, hashtags, and comments. with the combined model beating any single modality models with an F1 score of 0.762 and an AUC of 0.808. With the aid of this instrument, tax authorities may be able to more effectively and efficiently identify audit targets and tackle widespread social e-commerce tax evasion.

Garcia-Herrera, C. B. (2020).state that taxpayers must benefit from technology, and the values of caution, proportionality, non-discrimination, transparency, and information governance must guide administrative actions in tax application procedures, possibly reducing fraudulent prtices. Hlomendlini, E. A. (2022).Digital tools like artificial intelligence can help tax authorities handle taxes more effectively.This study's primary goal is to comprehend and ascertain how the application of artificial intelligence may affect tax collecting. The analysis of the several publications reveals that the topic of artificial intelligence and how it affects tax systems is wide-ranging and intricate. The authors have come to the conclusion that automation and artificial intelligence could enhance tax compliance, which in turn could affect tax collection. By lowering the expenses associated with the conventional tax process and cutting down on paperwork, artificial intelligence could help tax administrators.AI may be used by tax authorities to help analyze the vast amounts of data that taxpayers submit when submitting tax returns.The degree to which taxpayers embrace and view the use of AI in the tax system will determine how well it is adopted. Alarie,B., Niblett, A.et al (2018). Aspects of the practice of law that have traditionally depended on expert human judgment, such forecasting court outcomes, are starting to be impacted by software tools. Both fresh opportunities and problems are brought about by these new technological technologies. The report anticipates more access to justice, more effective conflict resolution, increased legal transparency, and new challenges to the established structure of private law firms providing legal services on an hourly basis and expand service offerings, using modern technologies .

## Methodology

The author here, uses an exploratory approach, going through past studies in this regard and the way AI has been used in the quest for tax compliances. They also look at possible industry reports of Big 4 entities, and look at how the deployment of AI tools can happen going forward, and assist in compliances, reduce costs of tax administration, increase collections and be beneficial to both the Taxman and Tax-payer. AI and tax compliance is getting increasingly integrated and platforms may be needed for the solutions for industry and taxman.

## Discussion

### a) To understand the Role played by AI in the areas of Tax compliances

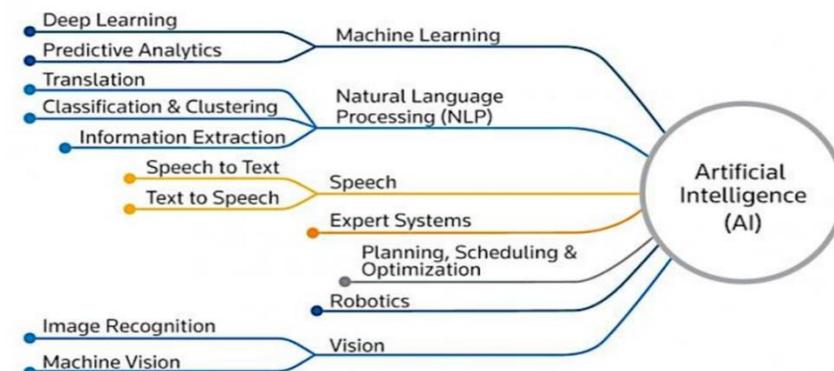
The past studies indicate a range of areas where the applications of AI in tax compliances can improve the existing level of administration in terms of optimising costs, increasing revenues, providing accurate, timely detailed information to the assesses to enable take decision. It also helps the taxman to more efficiently perform his duties and activities, in a

time bound manner. It enables timely completion of assessments, providing timely and show cause notices, with due rationale to assessees to furnish required documents and enable detect income escaping assesments, to file timely returns and report inconsistencies in data filing by assessees and thus increasing chances of detecting possible frauds, increase total collections on revenue account to the tax department. As the regulations by Govt, and taxman leads to high volumes of filings of forms and information requirements increase exponentially forcing govt to use AI tools and techniques in tax compliance. These encompass collection of data from different sources , comparison , validation and confirming the correctness of the assessable figures of turnover, taxes paid, returns furnished etc and possible concealment of turnover or incomes. In the similar manner, the disallowances in the expenses in the current year assessment as compared to records and trends in the earlier years is another area where tax compliance can improve using AI . In the context of indirect taxes, the correctness of invoices raised, under invoicing , fake invoices, fraud registrations can be detected, and this is used by the GST department in India to detect the losses due to fraud, irregular filings etc. This will facilitate better compliances, timely assessments and disposal of more cases, reducing the pendency at courts.

**b) To understand the challenges and opportunities in the context of application of AI in Tax compliances in the Indian scenario.**

This can be done using effective approaches which helps to identify issues find out gaps in tax returns, incomes as reported in financial and corroborative evidences that can make increase the assessing officer’s effectiveness, output and lower the strain on Govt machinery. A suitable approach could be applied using the below diagrammatic presentation as to what different AI tools can be applied. Additionally, according to recent studies based on data from the Supreme Court of India, case management is utilising AI and ML-based techniques like machine learning. They are employed in the transcription of oral arguments in cases heard by the Constitution Bench. The Supreme Court of India's e-SCR webpage provides access to the rulings.

**The AI tools used are as follows :-**



Source: Neota Logic

The Integrated Case Management & Information System (ICMIS), a case management program, and the electronic file module will be integrated with an AI and ML-based application, was developed in collaboration with an institute of technology based out of Chennai (IIT-M). All of these indicate that the use of AI in case areas is still in its infancy and that much work remains. Perhaps the current wave of agentic AI will be very beneficial in resolving the shortcomings in case backlog reduction and compliance.

**c) To identify the areas where the applications of AI in Tax compliance can and are likely to be the candidates for automation**

Based on the current trends AI and applications that are possible to be applied in tax compliances can be listed in a few broad categories – For Income tax compliances – filings related to Tax deducted at source, ii) Tax Collected at source, correctness of returns, consistency of tax audit reports vs Annual accounts for the year, iii) disallowances that are to be given effect to, iv) the applicable delays in payment of advance income tax, interest, penalty thereon, v) linking the cash flows as per bank accounts to the figures as per IT returns and correctness of show cause notices getting issued, vi) Form -15CA, 15CB correctness, validation, quarterly, annual TDS returns filing validation vii) Linkage of network of funds flows into and out of related party transactions viii) validation of TDS deducted on payments to non-residents ix) validation of data and information contain in tax audit reports vis -a- vis audited financial statements, etc could be some areas where AI can safely deployed and tighten compliances. The deployment of AI in these areas can promise huge pay-offs to the taxman and the Govt is actively considering applications in this regard, by deployment of more AI tools, reports and using data mining approaches in assessee database. For Indirect taxes – GST filings, correctness therefor, inconsistency in reporting of turnover figures, matching and responses with vendor invoices, delays in payments, penalty interest calculations, fake and fraudulent invoices, input credits claimed improperly, and artificial turnover generation, can all reduce by using suitable AI programs or scripts that can be deployed with some amount assistance from developers and startups, using the small language models and tiny language models. This is expected to radically alter and change the landscape for tax payers and taxman in the future. It can also help in detecting arising of permanent establishments, in large contracts, EPC contracts as well as issues involving potential structuring of contracts, practised by MNCs, that can reduce tax outgo. Typically large contracts and EPC contracts involve off-shore and on-site parts separately being executed, outside the country and inside the country and effective deployment of AI tools can help in detecting tax evasion, avoidance practices, relate the same to past case laws and bring the un-disclosed income to taxes, and shore up revenue, enable effective collection of taxes.

**d) To understand the likely risks involved in the context of increasing dependence on technologies, and its implications for regulators, tax man.**

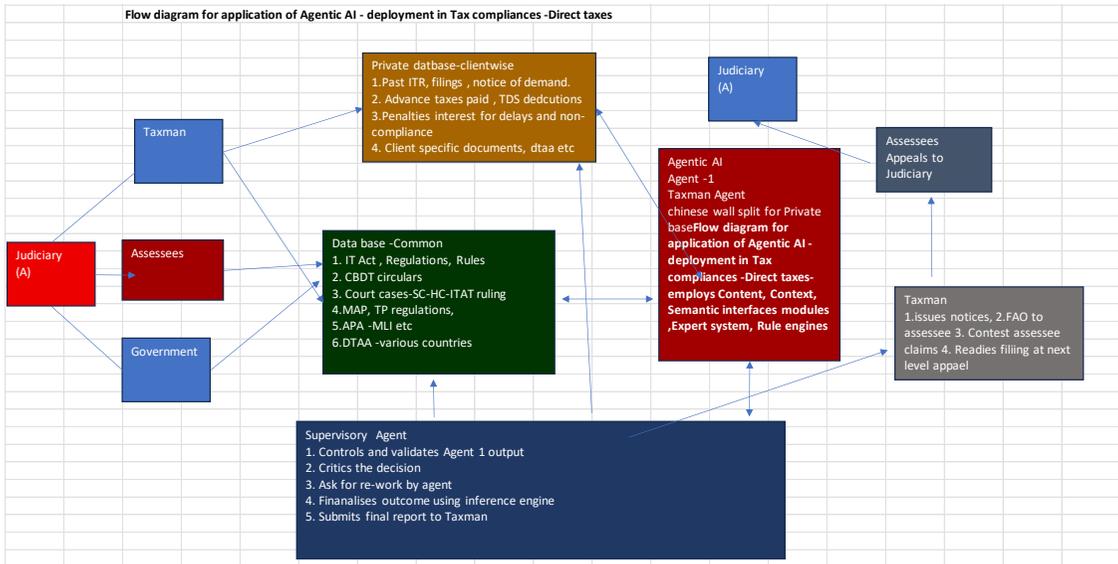
The likely risks involve i) Possible loss of privacy ii) mis-use of training data and technologies not being compatible with confidentiality, integrity requirements iii) difficulty in validating data inputs, iv) lack of suitably skilled AI personnel with required skill sets v) Inappropriate deployment of AI models without understanding their consequences and risks involved vi) Absence of guard rails in the deployment of AI tools especially those related to Chat-GPT and other emerging AI tools like Perplexity, Manus etc which are being increasingly deployed by users in business and industry, being unaware of the consequences of such data sharing with them. Use of such tools may also have an impact on client confidentiality data and agreements particularly for chartered accountants, company secretaries and lawyers, in practice . It would be interesting to see how these institutes come out with their own guidelines for practicing professionals. As of now there are no clear guidelines available for AI deployment in models.

AI can only be used to do the simplest tax returns for compliance purposes because it is uncommon to finish a return without having to look something up and because machines struggle to handle circumstances that are unknown to them or for which they haven't been taught the answer. Although artificial intelligence is by no means a panacea, advisers and clients who take use of analytics and AI will become more insight-driven businesses with better data-driven decision-making.

**e) To create a framework for deployment of Agentic -AI in Tax compliances and how it helps the Govt and the Assessee**

In this part the study proposes to examine the possibility of using an Agentic -AI framework for tax compliances and governance. The typical governance involves areas of revenue leakage in the context of income escaping from tax, both direct tax and indirect taxes. To begin with the Taxman has complete database of assessees in his possession, akin to a Private database, capable of restricted access to both taxman, Govt and Judiciary ( on issue of summons, notices to taxpayer ). The common database contains basic IT act, regulations, treaties with different countries, MAPs, APAs, TP regulations, DTAAAs with various countries. Using an AI agent, and rule based AI algorithms, the relationship between specific client case that can be applied to the general rules, and interpret using context and semantic AI engines, the AI agent, deploying expert systems, rule engines, can interpret and come out with solutions. Subsequently the supervisory Agent looks at the solution and examines it critically offers its views, comments and returns back to the Agent to make suitable changes and modify the same, as needed. The results can be fed to the taxman in the form of report , MIS and data based analytics to resolve the issue, take action by issuing show cause notice, against assessee , revise assessments, reduce refunds and conclude the final assessment order in a cost effective and integrated manner. Based on the response possibly the aggrieved party can file it appeal before the next appellate authority and that helps reduce time, efforts and costs in disposal of pending cases, as arising in complex transactions. On the part of the assessee , corporates can use the agentic AI model effectively,

by suitably designing and customising the model, to come out with plans, strategies, solutions to their tax planning and liability reduction efforts. It is expected that in the future it is likely that both taxman and taxpayer are likely to use Agentic AI models in a next few years. The various elements and components involved in the application of AI in Tax compliances and how industry and the different stakeholders are linked, and how AI application will enable them to exploit the many benefits , in turn translating into low cost, high value added services for tax payer , lessen the cost of administration, while maintaining consistency, rigor and effective control over juridical processes by the judiciary, without any compromise, benefit the common man.



### Limitations of Study

The study is exploratory and does not consider the limitations imposed on the adoption of new collaborative technologies, dependencies that can be forced by Regulators, Govt and the eco-system partners in India who collaborate to provide solutions to deploy AI models in tax compliance and governance in India, and its larger implications for ethics, data privacy, information sharing and trust levels between stakeholders. No empirical validation has been discussed, except for a few in a literature review.

### Conclusion

The role of AI in tax compliance is going to increase further with govt already experimenting with the deployment of AI models, using big data, AI tools, and adopting Agentic models may not be far off .India can be pioneer and leader in deployment of AI models and build models for other nations, by sharing it’s experience in implementing such models like in case of successful deployment of UPI .The Indian tax laws are one of most complex legislations in the commercial world. The eco-system of technologists, venture capital, Private equity, and startup founders is accelerating the growth of unicorns by the day, and the time is ripe for the Govt also take a few forward steps in form of providing seed

money assistance , support to startups to gear up the tax compliance systems across judicial domains and acts, deploy the same to the benefit of tax payer, which ultimately will reduce frustration, increase the ease of doing business, reduce costs and enable higher revenue collection, detection of revenue losses, due to frauds and mistaken , untenable legal notices sent to assessees which fall flat at the judiciary, when cases go for appeal at higher levels. A joint cooperation agreement between the Tax department at the central govt with that of state govt, in partner with leading champions of AI in industry can be greatly helpful in deployment of AI models effectively in a calibrated manner in a definite time frame, and this can go a long way in accelerating the growth and adoption of AI models in Tax compliances. Creating a culture of trust, trusting AI outputs, the people working on them, and building trust for stakeholders are going to be crucial if we have to adopt AI in tax compliances.

## References

1. Tyagi, N., Jha, R. S., & Srinivasan, S. (2025). Employing Artificial Intelligence for Adjudication in Indian Courts. In *Intersection of Human Rights and AI in Healthcare* (pp. 409-428). IGI Global Scientific Publishing
2. Salah, A. S., & Awwad, B. S. (2024). A Theoretical Review of Artificial Intelligence and Tax Compliance. *Achieving Sustainable Business Through AI, Technology Education and Computer Science: Volume 3: Business Sustainability and Artificial Intelligence Applications*, 53-64.
3. Belahouaoui, R., & Attak, E. H. (2024). Digital taxation, artificial intelligence and Tax Administration 3.0: improving tax compliance behavior—a systematic literature review using textometry (2016–2023). *Accounting Research Journal*, 37(2), 172-191.
4. Bajpai, D. A. (2024). Evaluating the Impact of Artificial Intelligence on Enhancing Tax Compliance and Financial Regulation. Available at SSRN 4922459
5. Nay, J. J., Karamardian, D., Lawsky, S. B., Tao, W., Bhat, M., Jain, R., ... & Kasai, J. (2024). Large language models as tax attorneys: a case study in legal capabilities emergence. *Philosophical Transactions of the Royal Society A*, 382(2270), 20230159.
6. Zheng, S., Trott, A., Srinivasa, S., Naik, N., Gruesbeck, M., Parkes, D. C., & Socher, R. (2020). The ai economist: Improving equality and productivity with ai-driven tax policies. *arXiv preprint arXiv:2004.13332*.
7. Zhang, L., Nan, X., Huang, E., & Liu, S. (2020). Detecting transaction-based tax evasion activities on social media platforms using multi-modal deep neural networks. *arXiv preprint arXiv:2007.13525*.
8. Garcia-Herrera, C. B. (2020). The use of Artificial Intelligence by tax administrations, a matter of principles. *Centro Interamericano de Administraciones Tributarias*. <https://www.ciat.org/the-use-of-artificial-intelligence-by-tax-administrations-a-matter-ofprinciples>.
9. Hlomendlini, E. A. (2022). Impact of artificial intelligence on tax collection (Master's thesis, University of Pretoria (South Africa)).
10. Alarie, B., Niblett, A., & Yoon, A. H. (2018). How artificial intelligence will affect the practice of law. *University of Toronto Law Journal*, 68(supplement 1), 106-124.

11. <https://pib.gov.in/PressReleaseIframePage.aspx?PRID=2113224>
12. Report of Comptroller and auditor general of India - Union Government - Department of Revenue -Direct Taxes -Report No 14 of 2024.
13. <https://www.pwc.com/gx/en/services/tax/connected-tax-compliance/build-trust-ai-tax-compliance.html>
14. <https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Tax/dttl-tax-artificial-intelligence-in-tax.pdf>