



A Review on Financial Surveillance in the Age of Artificial Intelligence: Legal and Ethical Implications

Sailee Naresh Gund^{1*} and Sonali Vaibhav Dhamal²
Niranjan Laxman Wamanacharya³

¹ Research scholar, Department of nanotechnology, Bharati Vidyapeeth Deemed University
College of Engineering, Pune, India, sailee.wamanacharya@gmail.com

² Assistant Professor, Basic Science and Humanities Bharati Vidyapeeth Deemed University
College of Engineering, Pune, India, svdhamal@bvuoep.edu.in

³ Research scholar, Department of Law, Alard School of Law, Pune, India
niranjanw1994@gmail.com

Abstract. In today's world or we can say in this era world is rapidly growing with new inventions and technologies like artificial intelligence or machine learning. With these increasing technologies there is also rise in digital financial crimes which creates a new risk for traditional forensic accounting in financial surveillance. With these emerging technologies computation work which requires huge time and hard work can be solved in less time and in simplified way. There are various ways by which we can have large amount of data which can be sorted and aligned within fewer minutes by use of perfect AI tools. On one side as use of technical systems giving accessibility and utility of large amount of data on other side there is growing risk in financial crimes and fraudulent activities. Digital crimes like complicated ownerships, shell companies, piracy are increasing day by day. In this technological world we are fully depend upon computations and digital transactions. For solving the problems in fraudulent activities in finance and law AI can be effectively utilized to identify abnormal transaction and documentation. Additionally, AI can also be useful for significant and analytical decision making. This paper studies about what are the benefits and as well as limitations of using AI in law and financial surveillance.

Keywords: financial crimes, decision making, AI, Forensic accounting, predictive analysis, shell companies.

1 Introduction

There are larger number of problems are coming over such as fake invoicing, shell companies' formations, tax avoidance and money laundering. By ancient methods it is very difficult to identify and investigate crimes and give proper analysis on it due to large amount of data. There is also a possibility of human errors and accounting mistakes. These traditional methods of accounting set a framework for AI-generated

© The Author(s) 2026

M. Kaushik et al. (eds.), *Proceedings of the International Conference on Responsible, Risk-aware, and Regulated AI (RRRAI 2026)*, Advances in Intelligent Systems Research 210,

https://doi.org/10.2991/978-94-6239-723-1_12

tools for data gathering, pattern analysis and also in transaction monitoring. These systems give more focus on verifications and documentation in law enforcement [1]. Major issues in traditional forensic accounting regulation and its techniques are over exposed by new edge technology and complexity as well as advancement in the technology in financial fraud domain[2]. traditional system mainly depends on manual auditing practice , and traditional act and its system which is majorly compromised so many time. It's used as a to barriers to defend. In recent times there are major spike in shell companies and layered transactions for enveloping external and unethical financial flows due to digitalization in financial transactions and its authentication take a major physical paper work which easily bypass the traditional ways audit practices due to minimal trackabilities of the transactions and it's really hard to evaluate the large number of financial data[3]. due to that the ways to hide the data are increased which leads to window dressing the fraudulent financial data to overcome problems like negligence in verification or mistakes in accounting and missing transactions, artificial intelligence may be a thoughtful solution. In terms of law and finance AI means a computational work system which can learn from previous methods and generate proper analysis based on huge amount of data [4].it will adapt patterns and discovers hidden things that might be immediately not observed by humans.as on date financial surveillance systems are prominently integrating AI for boosting investigation techniques and effective enforcement [5]. Use of AI driven techniques & Natural Language processing are very much useful in checking corporate files, invoices and other data Sources. AI driven tools can be directly used for checking errors as well as wrong information. Use of dates structures like graph Analytics & networks helps in identifying Linkage between shell companies, Complex Transactional data [6]. AI tools enable real time monitoring, pattern Checking and predictions for system. Forensic experts or law organizations can be shift from reactive investigation to precautionary measures. As use of AI-driven models are extremely beneficial in financial surveillance there are major concerns related with it. these concerns are majorly coming about process, Piracy, accountability and transparency. There is a possibility of biased algorithms, excessive checking and incorrect data source [7].

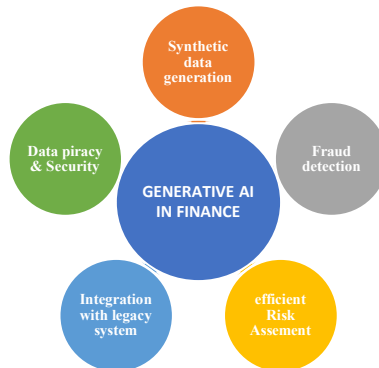


Fig1:AI in Finance

As of now AI can be incorporated with law and financial accounting systems needs to be verified and should be analyzed with ethical governance, technical efficiency, morals and principles. This paper reviews about how growth of financial surveillance is happened due to emerging technologies with AI and major ethical concerns related to use of AI in financial surveillance.

2 Literature reviews

Use of Artificial intelligence's accelerate over a past year in financial institutions and judiciary system. Which lead to new interdisciplinary research on technological promise and its ethical use and regulatory compliances. The literature now in publication generally agrees that AI is changing financial surveillance and fraud detection while also showcasing serious privacy and accounting and grievance related issues. Previously foundational contribution highlighted How AI and advanced technology are transform various sectors including financial services and regulations.

2.1 Advancement in financial surveillance and forensic accounting

In earlier times, financial surveillance has been essential in preventing economic crimes like misconduct in tax filing, financial frauds and money laundering. Regulations imposed by government and organizations ,regular audits and accounting techniques plays important roles in fraud detections. These systems were largely reactive concentrated on spotting anomalies after suspicious financial activity. Investigation of these frauds highly dependent on manual analysis of accounting records and transactional data. Even though these systems offered legal oversight and procedural protections, they frequently found it difficult to keep up with the more sophisticated and technologically advanced financial crimes.

Kamilah, Koeswoyo, and Irawady discussed about scholarly trends in AI driven fraud detection and how it is systematically analyzed through informatics study spanning over two decades, according to their findings, research production has increased considerably after 2020, signifying a paradigm shift from conventional statistical methods predictive AI based approaches. It also signifies increasing focus on data transparency, ethical governance and risk management[12].

2.2 Rise of AI technology in financial crime detection

There is significant rise in financial systems and global transactions with increasing use of online services like UPI payment systems. There are lot of transactions recorded on daily basis.it is very difficult to handle that much amount of data by conventional accounting methods.to overcome these situations advance data analytics and prediction analysis tools are incorporated with surveillance systems more frequently[13]. Authors like Rusell and Peter pointed out that AI systems are capable of handling big data sets

and predict accurate analysis which will be helpful in decision making process[20]. AI tools will provide strong framework for fraud detection and big data analytics. Jafar et.al, highlights how AI tool extend from automated analytics to predicative models are increasingly adapted in financial decision making and risk management[10]. The authors shows that effective AI adoption in finance requires domain specific understanding , strong data governance, and alignment with regulatory objectives. This paper bridges the gap between technical innovation and institutional application concluding the relevance of AI for forensic accounting and financial oversight.

2.3 Applications of AI in financial surveillance

In the article written by Cathy O’Neil there is discussion about increasing importance about AI-driven analytics in enhancing the efficiency of surveillance and compliance in the finance sector. Because of algorithmic patterns of AI tools, it can access and analyze large data sets as well as identify fraudulent activities that are beyond human scope. This paper also concludes even if automated systems may replicate accurate results but there is also scope for biased and less transparency in results[18].

Singh Et al., have focused on AI driven technopoles and highlights the dual nature of these technologies as resources of systemic risk and enablers of efficiency, further authors pointed out unregulated technological adoption may lead to legal uncertainty and ethical risk. Their study showcase that AI is a new emerging tool for complex transforming decisions making process.

Thornton et al. studies on the use of Gen AI in producing highly realistic fake invoices and receipts thereby increasing risk in forensic accounting and financial compliances. They have made a sizable technological contribution with their idea FUSION++ detection and localization pipeline, which shows how AI may be used strategically to tackle fraud enables by AI.

2.4 Major ethical concerns of using AI in Financial surveillance

On one side there is use of AI tools in the surveillance systems increasing day by day but there are also major concerns associated with it. AI technologies are very helpful for identifying misconducts and detection of frauds but one of the major problems related to it as algorithmic bias[14]. As machine learning models are largely depends upon training data sets, algorithms produced by these data may be discriminative or not justified. Apart from this one of the major concerns is lack of openness which causes lack in public confidence and challenges organizations decision making process[15]. Hoxhaj, Halilaj, and Harazi researched on observations on data protection and human dignity, driving deep into the ethical human right and its aspect to development of AI. This study which is based on the generate data protection and regulations (GDPR) rules, emphasizes lawfulness in justice and transparency as essential standards for AI systems development finally author conclude that if AI enables monitoring is not properly controlled it could violate due process and privacy, overpowering public confidence in law enforcement[11].

Luca's research says that the ethical and governance problems linked to the AI in financial surveillance. The study highlights typical danger including biased algorithms and data exploitation and excessively intrusive monitoring particularly when predictive techniques are employed without the necessary safeguards. The paper is about moving from traditional reactive compliances systems to proactive AI based monitoring but only if there is transparency, regular checks for bias and clear institutional responsibilities. His study shows how law enforcement can be strengthened without compromising individual rights.

2.5 Challenges and Legal implications due to use of AI in Surveillance

Altogether, research shows that AI has become an important part of modern efforts to detect financial discrepancies. It makes it easier to identify shell companies, fake invoices and complicated financial shames that were previously hard to uncover. At the time researchers agree that these systems must be used carefully. Clear rules, ethical oversight and human participation are essential to make sure AI Based enforcement remains fair and trustworthy. While many studies discuss the technology and ethical concerns, few links AI tools with everyday accounting practices basic legal protections, this paper responds to that gap by looking at AI driven financial surveillance in particle people centered way with a focus on forensic accounting law enforcement[8].

Although there is large research is ongoing with technical and ethical concerns of AI integration financial surveillance. However, there is minor attention is given to forensic accounting practices which deals with identifying patterns, use of AI software with legal and constitutional safety[9]. This study particularly focuses on analysis of AI detection techniques with standard evidence, logical proofs and fairness in procedures and enforcement accountability.

3 Real time Applications of AI in Finance

There is massive use of advancement in data analytics and artificial intelligence in financial surveillance prove the importance by encountered real world problems. When almost €200 billion's amounted, suspected transactions went through Danske Bank's Estonian office. The Danske Bank Money laundering Scandal exposed significant flows in conventional monitoring methods. Many financial institutions started implementing AI Based Transaction monitoring systems after scandals, which are able to examine the data and in a large scan and identifying large odd transaction in a given data. Which is alarming and proven the importance of AI in finance and Business.

In addition to the above example there are another significant example which is known as Panama Papers Leak, in which the international Consortium of investigative journalists used data mining and machine-learning techniques to analyses over 11 million recovers from Mossack Fonseca. Where investigators able to find patters in intricate networks of offshore shell companies and convert ownership structure rollout through several jurisdictions. This is one of the important aspects. Interestingly the cost

of identification of these types of financial irregularities are much lower in recent year because of the implementation AI models and AI Agents.

Use of AI is not limited to business; in recent times it implemented heavily in Governance as well. For example, the Financial Crimes Enforcement Network in US processes a lot of financial institutions identified suspicious activity reports using sophisticated and real time data analytics. In a similar vein, institutions like HSBC have deployed AI based monitoring systems created in collaboration with Google Cloud to more Successfully identify questionable financial transactions. In order to detected potential tax evasion and Shell company activities.

In this sector India is also using AI in good governance on our own Tax departments where not only Income Tax Department which is one of the Direct Tax Collection departments, but also Goods and Service Tax Departments as well. this uncovered the financial discrepancies in tax compliance in a real time. In the year 2002 Deloitte Identifies that there are 2.4 million potential non-compliance entity which adding to INR 14000 cores.

These illustrations reveal how AI driven finance surveillance becoming a backbone of the system not by private companies but also by the Governments enforcement capacity to identify complex financial crimes patterns.

4 Objectives

In above chapters we can see there are large discussions are going on impact of incorporation of AI in financial governance systems. it shows how AI-based tools are effective for detection of frauds and risks in financial assessment. Various AI-detection techniques like NLP (Natural Language Processing) and Generative AI are beneficial for the system. one of the major concern starts with understanding and developing logics in AI for detection of frauds. It is tedious tasks of verifying huge amount of data which is used by AI tools for generating results. Main issue with AI Financial surveillance is whether the evidence it produces is reliable and fair. In case of AI-generated decision or action it must be Verifiable and clearly explainable should be acceptable by logic.

In this study we want to analyses the role of Artificial intelligence, in financial Surveillance Systems and How AI tools are effective in generating results regarding Shell companies and fake invoicing. It also explores about ethical concerns like piracy, algorithmic bias and transparency related to AI-based financial surveillance. This paper shows gaps by examining the limits of traditional forensic accounting laws and practices in dealing with complex, technology-driven financial crimes.

5 AI in Financial Surveillance

The legal framework for preventing economic crimes has changed significantly with the introduction of artificial intelligence in financial surveillance. Previously financial monitoring relied mainly on audits m reporting rules and investigation powers exercised by regulators and law enforcement agencies within clear and legal limits. AI

has expanded this system by allowing continuous, automated and predictive analysis for financial data, which increases both the scale and intensity of monitoring[8]. From a legal perspective, this AI shift raised important questions about how far authorities can go and who has the power to use these tools, and what procedural safeguards should apply in this case[9]. Today enforcement agencies increasingly use AI based systems to monitor transaction data from, company records, tax filings and invoices in real time, unlike traditional invoices in real time unlike traditional investigative methods, AI can combine all data from multiple sources at combine helping authorities detect early signs of shell companies and fake invoicing[10]. There is need of meticulous attention for acceptance and legality of AI-based financial surveillance. Legislative organizations must specify proper methods and updates required for accurate output or decision-making[11]. Major differences between conventional methods and AI-driven financial systems are listed below in table 1.

Table 1. Conventional Financial Surveillance vs AI-based Financial Surveillance

Conventional Financial Surveillance	AI-based Financial Surveillance
It Relies on periodic audits, manual investigations, and rule-based checks conducted after suspected financial irregularities arise.	It involves continuous, automated, and data-driven monitoring capable of identifying suspicious patterns in real time.
Operates within clearly established procedural safeguards, with decisions taken by human authorities and subject to conventional judicial review.	Expands surveillance through algorithm-assisted decision-making, raising concerns related to transparency, accountability, and due process.
It has limited datasets examined for defined purposes	It has data from multiple sources (transactions, tax records, corporate registries, invoices)
It has High level of human judgment and decision-making	It reduced direct human involvement, with reliance on automated analysis
Reasonings are generally clear and traceable	Decision-making processes may be opaque due to complex algorithms

The comparison study reveals important distinctions between AI-enabled monitoring frameworks and conventional financial surveillance systems. AI-based solutions enable ongoing analysis of massive datasets, whereas traditional systems mostly rely on manual audits and reactive inquiries. Although this change increases the speed and scope of fraud detection, it also raises questions about accountability, transparency, and procedural fairness.

In law and finance sector use of AI tools are not just a new technology but it is also do new modification about authorities, power and guarantee of governance in decision making. This new AI-based surveillance methods need support with proper authorities, efficient data and fair processes. Without these mentioned things there is possibility

that correctness is more preferred than individual rights which will override rules of law [12]. Therefore, monitoring is necessary and crucial while using or establishing new legal requirements with AI-driven tools.

6 Conclusion

A huge growth in new technologies have developed rise in complex financial frauds which are hard to detect and solve. There is need of some framework which can identify these issues based on fact checking and legal processes with huge amount of data. Artificial Intelligence is emerging as new tool in financial surveillance and law enforcement systems. AI driven tools give proper analysis on large amount of data, fact based checking and early detection. These tools are helpful for scanning fake invoices, faulty schemes and shell companies which helps with forensic accounting. AI tools have potential to improve efficiency of forensic accounting in financial surveillance but total dependency on these tools' challenges traditional legal principles such as accountancy and transparency. Ultimately this shows that AI driven tools should be incorporated with financial and law enforcement systems must be balanced with conventional law rules and saving fundamental rights. AI-based tools should help humans in decision making instead of fully automated system in detection of financial crime. Decisions or Judgement taken by AI tools must be clearly supervised. In future AI-tools will give strong and robust governance structure that will maintain all morals and principles with legal responsibilities. AI based models will be helpful with human tasks in finance and law enforcement with balanced approach.

References

1. .Goyal, I., & Sharma, R., AI in detecting and preventing white-collar crimes: A legal and ethical analysis. *International Journal of Research and Scientific Innovation*, 12(10), 1946–1955. 10.51244/IJRSI.2025.1210000172.(2025)
2. Sathe, A. K., Forensic accounting in the age of AI: Detecting fraud with data anomalies. *International Journal of Social Impact*, 10(3). 10.25215/2455/1003053 (2025)
3. Rani, M., & Dwivedi, S. K., Digital veils of deception: AI-enabled money laundering and the rise of white-collar cyber fraud. *International Journal of Law*, 11(6), 34–39(2025)
4. Lin, L. S. F. ,Organizational challenges in U.S. law enforcement's response to AI driven cybercrime and deepfake fraud. *Laws*, 14(4), 46. <https://doi.org/10.3390/laws14040046>.(2025)
5. Floridi, L., Cowls, J., Beltrametti, M., et al., AI4People—An ethical framework for a good AI society. *Minds and Machines*, 28(4), 689–707. 10.1007/s11023-018-9482-5(2018)
6. Levi, M., & Williams, M. L., Multi-agency partnerships in cybercrime reduction. *Policing and Society*, 23(4), 460–475. 10.1108/IMCS-04-2013-0027 (2013)
7. Sadiq, M., & Govindarajan, V. The rise of forensic accounting in fraud detection. *Journal of Accounting and Auditing*, 5(2), 45–58. <https://doi.org/10.55429/ijabf.v4i1.177>(2019)
8. Bumgarner, J., & Novak, A., Law enforcement and intelligence gathering in cyberspace. *Policing: An International Journal*, 39(3), 465–478(2019)

9. Donovan, A., & Klahr, D., Algorithmic accountability in public administration. *Public Administration Review*, 79(5), 712–723.(2019)
10. Tene, O., & Polonetsky, J., Big data for all: Privacy and user control in the age of analytics. *Northwestern Journal of Technology and Intellectual Property*, 11(5), 239–273. [hΣps://scholarlycommons.law.northwestern.edu/njOp/vol11/iss5/1](https://scholarlycommons.law.northwestern.edu/njOp/vol11/iss5/1) (2013)
11. Hoxhaj, O., Halilaj, B., & Harazi, A., Ethical implications and human rights concerns in the age of artificial intelligence: A GDPR-based analysis. *International Journal of Law and Information Technology*, 30(3), 245–268. <https://doi.org/10.46763/BSSR232222153h>(2022)
12. Kamilah, R. S., Koeswoyo, P. S., & Irawady, C., Mapping the frontier of fraud and artificial intelligence: A bibliometric analysis of scholarly publications. *Journal of Financial Crime*, 30(4), 1121–1140. 10.29406/jmm.v22i1.8514(2023)
13. Ackerman, J. S. ,The new clandestine surveillance. *Michigan Law Review*, 115(2), 211–256. <https://doi.org/10.1016/j.cities.2018.02.021>(2016).
14. Zarsky, T., The trouble with algorithmic decisions. *Science, Technology, & Human Values*, 41(1), 118–132. <https://doi.org/10.1177/0162243915605575>(2016)
15. Ververis, V., & Polatidis, N.,Financial fraud detection using machine learning techniques. *Journal of Financial Crime*, 27(2), 1–17. <https://doi.org/10.1108/JFC-12-2018-0142>(2020).
16. Vasarhelyi, M. A., Kogan, A., & Tuttle, B.,Big data in accounting: An overview. *Accounting Horizons*, 29(2), 381–396. <https://doi.org/10.2308/acch-51071>(2015)
17. Sarker, I. H., Machine learning: Algorithms, real-world applications and research directions. *SN Computer Science*, 2(3), 1–21. [hΣps://doi.org/10.1007/s42979-021-00592-x](https://doi.org/10.1007/s42979-021-00592-x)(2021)
18. O’Neil, C., *Weapons of math destruction: How big data increases inequality and threatens democracy*. Crown Publishing(2016)
19. McKinney, E., Yoos, C., & Snead, K., The need for big data and the big data skills gap in accounting. *Journal of Accounting Education*, 38, 63–74. <https://doi.org/10.1016/j.jaccedu.2016.12.002>(2017)
20. Cockcroft, S., & Russell, M. Big data opportunities for accounting and finance practice and research. *Australian Accounting Review*, 28(3), 323–333 [hΣps://doi.org/10.1111/auar.12218](https://doi.org/10.1111/auar.12218)(2018).

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

