

# The Effects of Artificial Intelligence and Automation on Accounting: A Futuristic Study

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**Abstract:** *There has been a massive change in the field of accounting due to the technological advancement of AI (artificial intelligence) and automation. This research paper aims to assess various ways by which tools using artificial intelligence, such as NLP(natural language processing), RPA(robotic process automation), ML(machine learning), are changing the traditional accounting practices from bookkeeping and data entry to the very advanced level of data analysis. in this study, we have adopted a mix of both quantitative and qualitative data. Quantitative data has been collected from 85 accounting professionals, interview consisting of 10 accounting professional was kept as a foundation of qualitative data. The research paper also contains the element of case studies from various firms. Assessment of results leads to the conclusion that artificial intelligence has actually improved accuracy and efficiency of the firms. Meanwhile, the capacity to detect any error of fraud has seen a great increase. By far this research paper shows the capacity of AI in reporting real time data which leads to better financial decisions. Just like any coin has two sides, AI has some downsides to that includes data, breach, ethical dilemma, job in security and displacement. With every new upgradation, AI is becoming a professional far beyond the human capacity. But this alone cannot undermine the importance of human involvement because AIX, certain ethical consideration where the decisions are of more complex and rigid nature. This research paper suggest inclusion of ethics in AI models and better skill learning for accounting professionals to utilize the technology for betterment.*

**Keywords:** Artificial intelligence, accounting, ethical dilemma, tell detection, ethical, AI, data analysis, futuristic accounting

## I. INTRODUCTION

The branch of accounting has been one of the oldest profession in the world of business, originating from manual bookkeeping, having laborious process and hand written entries to the early onset of computer devices, helping with excel sheet later on with the integration of cloud based system. This profession ensures the transparency of financial reports by keeping them within the boundaries of laws and regulations.

With the rise of 21st century, the field of accounting has seen an emergence of tool called artificial intelligence and automation, which became a game changer in revolutionizing the conventional accounting practices. Artificial intelligence is well versed in data learning and data analysis helping in making decisions of utmost importance without human intervention. When certain artificial intelligence tools are made solely for the accounting purpose, they can perform a month task in few hours. Today, many companies have already installed centralized artificial intelligence tools for most of the accounting work.

The future of accounting largely depends on the technology called large language models, handing over the entire accounting work to AI. inclusion of advanced tech technologies leads to the transformed role of traditional accountant. Today, the profession of accountants is no longer restricted to journal entries, ledgers, preparation of balance sheet etc. but accountants of modern era are upskilling themselves in the field of AI, which helps India growth as strategic advisor of real time problems and a futuristic analysis helping in their business. Implementation of artificial intelligence has brought numerous advantages such as accurate information, efficiency, error detection, real-time information, time, efficient, and so on. But there exist the other side of this implementation which is creating a scary future for those



accountants who are stuck on the traditional accounting practices, leading to job in security and breach of data in this fully digital world, which also raises ethical issues in the name of AI lead accounting.

### **Literature Review**

The accounting sector saw a revolutionary transformation with emergence of artificial intelligence. The field of accounting which was once dominated by manual entry, leisure, manual audit. Today, the digital revolution brought by AI and its technologies such as robotic process automation, the work of finance has been transformed into correct, effective, efficient, predictive activity (Brynjolfsson & McAfee, 2017)

Artificial intelligence tools such as QuickBooks, Xero, SAP can do accounting where human take extra time, this reduces the cost of the company and enhances accuracy, leading to above 70% of giant companies. Implementing AI based tools in the accounting work to refine financial reports and fraud detection. Also, sixty percent of medium businesses now have AI and automated technology in business. The contribution of these technologies is to enhance accuracy, cost reduction, rapid reporting; the fast changing dynamics of business world make such tech technologies of immense importance (kokina& Davenport, 2017)

As estimated more than 50% of accounting process involves AI to do routine task and the other 40% use AI in order to review Complex problem. This modern shift of accounting from manual bookkeeping to software based accounting now results in better efficiency and efficient decision-making (Deloitte, 2023)

But these technological advancements comes with various challenges by which a lot of employees are concerned about layoff, research showing 30% of daily accounting work can be performed by computers by the year 2030, creating a mass number of layoff. Data breach or data security is also one of the concern in this AI lead accounting work. AI is suspicious about its execution in ethical works and the loss of required human judgement which is important for financial decision-making. Innovation might lead to disruption in the name of opportunity and risk (Deloitte, 2023).

### **Emergence of technological era in accounting**

Looking at the history of evolution of AI in accounting, use of AI goes back, its emergence can be traced from the birth of computer based accounting system during late 20th century. Prior systems like SAP and QuickBooks supported financial record & automation of bookkeeping. In the recent emergence of AI tech technologies, such as large language, models and machine learning, have multiplied the performance of accounting software by enabling real time, data analysis, error detection and future prediction (Brynjolfsson & McAfee, 2017).

### **Financial reporting with AI tools**

The very significant task undertaken by AI is fraud detection and irregular financial pattern in accountancy. Artificial intelligence tools can easily go through big data to identify a regular pattern and detecting signs of fraud and abnormality in financial recording. There are various tools which can analyze data with up to 90% currency compare to traditional method of manual audit (PwC, 2022).

Artificial intelligence improves financial reporting as it automate the structuring of financial reports. Last language models based applications find information from sources, convert into reports which are as per the regulations. Meanwhile, saving time, offering real time, data for monitoring and tracking such valuable financial information caters companies to respond in more efficient and timely manner (Smith & Johnson, 2021).

### **Ethical code and implementation of AI**

Apart from advantages of AI and automation, accounting records based on AI tools raises many ethical concerns, like algorithm, bias, data breach, following mandatory financial revelation, these are major issues needed to be taken now. Moreover, privacy of data is of utmost importance. The powerhouse of AI system comes from the giant databases which has very personal and sensitive information regarding a person, company, government. Monitoring of AI. Under this regulation like GDPR and SOX is mandatory to sustain privacy and confidential data under control (Brown, 2022).

### Scope of AI in accounting work

The integration of AI with tech like Blockchain and big data make room for prediction of increased efficiency of the manual accounting process because the new Blockchain technology confirms financial data are transparent. Although AI helps in estimation and provide support with automated analysis of risk. The report states that by the end of this ticket, artificial intelligence will be handling major routine accounting work (Gartner, 2024).

In brief, AI has changed the picture of accounting profession with improved efficiency, accuracy, error detection. Still the main concern of ethics, regulation, mass layoff must be addressed in order to include AI to the fullest in accounting profession.

### Problem statement

AI and automation has already taken over most of the manual work of human accountants, but this also post a serious threat to the conventional system of accounting work done by professional professionals. Now the problem here is will AI replace these professional accountants or will it upskill them?

This research paper evaluates how new technologies are transforming accounting task. It also tests to what limit those technologies are been included and how they would affect accuracy, cost, reduction and efficiency. Growing use of AI now result in problem of data privacy and other potential risk. There are many regulatory issues such as software handling sensitive financial information. At last, it also examine how accounting professional can stay up-to-date with these changes by upgrading with the knowledge of data analysis, AI, learning, and strategic financial planner.

### Significance of human beings : An Accountant

AI is best with handling big data, finding patterns, adhering to rule box, but it falls behind in areas of context based analysis, ethics, analysis, decision making while keeping personal background in mine which is possible by a human being. There comes avoid, which is irreplaceable When it comes to final decision of Complex, nature, ethical dilemma in financial planning, or having a perception of socio-economic substance.

Thus, this research paper helps and supports the shift of conventional accounting to AI based accounting treating it as necessity for advancement in the area of accounting. In the context of this research study, it is safe to say AI is going to enable the accountants in a better way. This new technology will transform accountants from telling numbers to strategic financial advisor, expanding the horizon in which these accountants can actually work by giving them insight with the factually correct data. This aspect of technology is going to enable the sustainable growth of accountants in this transforming era.

### Objectives of the study

The initial objective of this study is to analyze the changes brought by AI and automation in the field of accountancy. However, this study will also serve the following objective:

- Exploring rise of artificial intelligence in today's accounting field.
- Estimating the effect of artificial intelligence on job profile, required skills, employment patterns in the concerned field.
- Assessing the ethical and regulatory angle of AI in finance.
- Analyzing the advantages and disadvantages of AI enabled accounting practices.
- Providing suggestion for organization and professionals to determine impactful use of AI.

### Limitations of the study

Apart from the detailed approach used in this research paper, their exist, certain limitations and hindrances, which will affect the future scope and relatability of findings:

1. The sample size of this study is 85 and the sample size of interviews is 10 accounting professionals, this may not cover the true picture globally.



2. The changes in AI tech technologies are very rapid and this leads to the demand of updating the findings on a periodic basis.
3. The access to data of accounting professionals of various companies is restricted, which led to the dependency on the secondary sources.
4. Certain secondary data are drawn to personal bias, which are published by firms that creates AI tools. these biases leads to overestimation of AI advantage and hiding the various challenges.

### Research Methodology

This research paper has a descriptive, exploratory research design, which analyses the ways how AI is transforming financial practice. Here the descriptive part has been used to evaluate the current AI implementation and the other method of exploratory research is helpful in discovering the potential threat and Future scope in this technological era. For the more, this research study consist of a mixed method framework of both quantitative and qualitative methods to analyze AI effect on financial performance.

### Methods of Data Collection

Primary data: the primary data for this research has been collected by survey, interview with the respective accounting professionals, financial advisor, AI expert etc.

#### 1. Survey Method

Sample size is of 85 respondent.

Survey format consist of objective questions scale

Questionnaire was filled via Google form. Next the profession of participant was accountant, AI, expert, financial analyst, CA.

#### 2. Interview Method

10 respondents were selected for in-depth interview.

The focus of interview was on efficiency of AI, ethical problems, employees, skill gap.

More than 80% respondent confirm that AI has increased operational efficiency, but required upgradation of skill. 50% of respondent show their concern Regarding job taken by AI. As per 68% of respondent, skill of data science is an essential requirement in today's accounting field.

They respondent were asked how AI impacts the final decision making, ethical concern, privacy, breach, and other threats.

### Secondary Data

For the understanding of secondary data, the use of journals, financial reports, rules, and regulation of corporate governance, Were made in order to authenticate the primary data.

**1. Academic journals :** more than 20 peer reviewed journals were taken into consideration from following sources of Google scholar, research gate, Harvard business review etc. The secondary data also included research pertaining to machine learning and large language models.

**2. Company reports :** although this segment of secondary data has been limited as the sensitive information regarding finance does not sit on public platform. Still, white papers of PwC's in accounting (2023) has been taken into consideration.

**3. Government reports :** for legal and ethical part of AI in finance, certain reports of government bodies are used, regulatory bodies where research in the field of AI lead audit has been taken place. There are government reports by international Federation of accountants and by SEBI.

The conclusion from secondary data narrow down to the point that execution of AI in financial forecast has resulted in lowered business risk exposure, the losses have come down by half with the help of AI in error detection. Meanwhile, strict government policies are required to address the threat of Data, privacy and ethical dilemma in the use of AIN automation in accounting area.



### Techniques of data analysis

As mentioned, this research paper comprehends, both qualitative as well as quantitative analysis, technique of data to study AI based effect on financial practices.

#### Qualitative analysis

Thematic study was undertaken on interviews and certain case studies to find the pattern and categories response into various themes of efficiency, skill upgradation, risk exposure. The research paper also evaluated the implementation of automation in accounting of many big companies which uses practical application of AI for accounting. This has resulted in faster audit and speedy results.

The one part of qualitative analysis is SWOT analysis where increase in efficiency, cost reduction, real time monitoring showed as the strength. Whereas high cost of AI tools, data privacy, losing control on financial data were seen as the weakness. Meanwhile, the promising future of AI and demand of AI expert also forecast the opportunities but at the same time, mass unemployment, ethical dilemma, complete dependency on AI are the potential threats of AI in accounting.

#### Quantitative analysis

**Facts and figure from statistics** : statical data regarding AI has been collected from industry report, government report, financial studies to analyse accuracy improvements. AI lead automation helped in a decrease in the field of financial irregularities by 30%(Deloitte, 2020). The rate at which AI is being adopted for accounting practices shows that more than 65% of join for form are taking the support of AI for financial purposes, meanwhile, this percentage drops for mid-size firms and moreover for small firms, but all these firms are planning to use AI in the coming time(Kokina& Davenport, 2017).

**Statistical Regression Analysis** : this observed the coefficient of correlation between AI inclusion and job displacement, finance, improvement, and cost savings. The research also found between the use of AI rises by 9 to 10%, conventional accounting profile drops by half. Meanwhile, AI related finance jobs have increased by a significant percentage in the same time.(Autor,Dorn& Hanson, 2018).

#### ETHICAL VIEW –

The study tries to show fair picture about the topic and for that it follows

- It takes consent of all the participants involved
- The data provided is true.
- The data is being collected with the help of google forms as well as some personal interviews

## II. RESULT AND FINDINGS

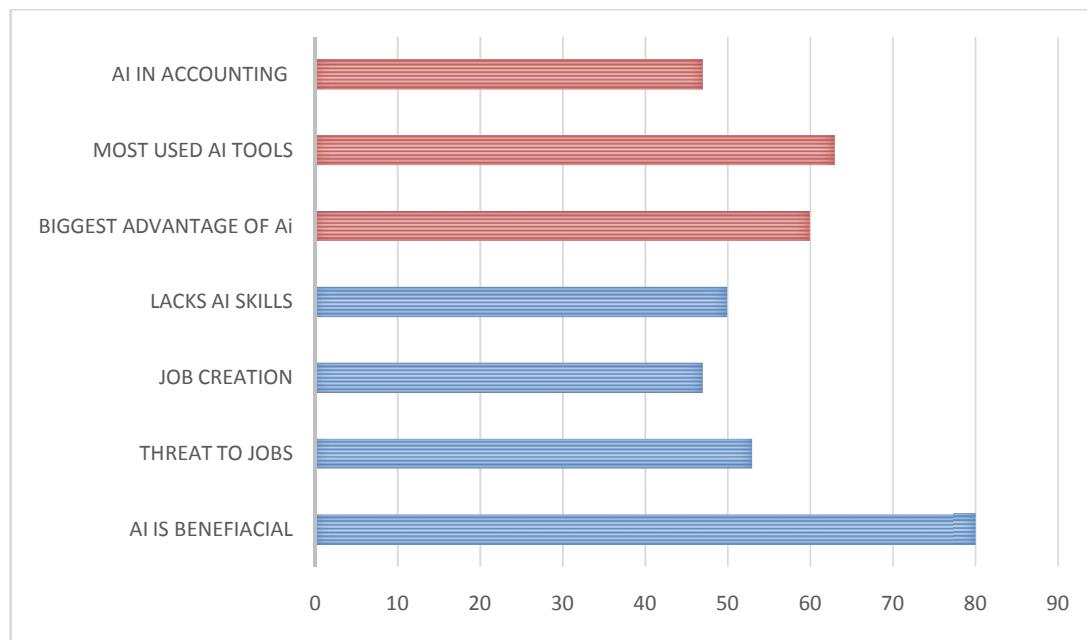
#### DATA ANALYSIS

The study is conducted among the 85 accounting personnel's of various companies and 10 accounting professionals and their views on familiarity with the AI adoption trends. The data illustrates the dependency of firms on artificial intelligence through various means and tools in various tasks such as fraud detection and financial decision making

#### Highlights of the survey

47 % of respondents states that their organization uses AI in accounting operations moderately





53% of respondents feel that AI will result job reductions while 40 argued that AI will create new Roles

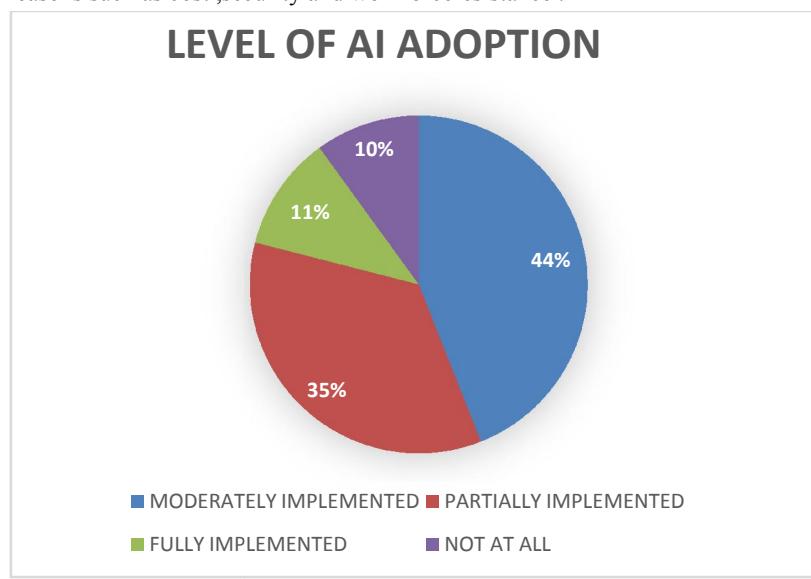
80% of accounting professional are in favor of AI training programs being conducted and feels that it add on to their career growth

Bookkeeping auditing Excel sheet operations and fraud detection are the most among the most automated processes in these firms

50% of respondents admits that they lack AI driven skills

#### **AI adoption in accounting functions**

The findings indicates that About 88% of accounting organisations have applied AI to some degree in their firm for accounting processes ,11% Firms have fully integrated AI driven financial tools while 10% have not adopted AI at all because of various reasons such as cost ,security and workforceresistance .



### Job Reduction Vs Job Evolution

There will be a debate regarding the issue that AI will replace accountants. AI can handle data entry, recording transactions, recording compliance verification, and other important works efficiently. However, the areas where human judgment is like complex decision making, ethical decisions, strategic planning, Accountants will have an edge over it. Jobs involving high risks like bookkeeping, clerks, data entry clerks, payroll personals. Few jobs will evolve with AI like Financial Analyst. Bracket AI enhances forecasting. Call mom but women's supervision is needed (compliance officers bracket AI insurance compliance, compliance but need human interpretation). AI can replace repetitive tasks but not entire professions which indicates, it is job evolution not job reduction. Professionals with upskilled AI driven analyst, cyber security and strategic decision making will continue to be in demand. They need to be competitive with the evolving involvement. The future of accounting is AI versus human actually. It's the combination of AI and humans working together to drive financial excellence.

### Notable improvements

With the emergence of AI in accounting, the manual workload is reduced to a significant extent. The manual workload is reduced by 50%, and accountants can concentrate on key areas such as strategic decision making. About 30% accuracy can be found in AI-driven Tax Automation, which leads to a reduction in compliance errors. Making AI a useful tool for the organizations.

PROCESS	MANUAL PROCESSING TIME	AI DRIVEN PROCESSING TIME
Invoice processing	3-4 days	2-4 hours
Bank reconciliation	6 - 7 days	1- days
Tax calculation	3 – 7 days	1 day
Audit report preparation	3 – 5 weeks	5 – 7 days

### Cost Cutting in Accounting

AI will result in two economies of scale for the accounting procedures, making it a wise decision for funds to invest in AI Enhanced tools and automation.

AI accounting solutions like QuickBooks and zero are saving operational costs up to 25%.

Organizations with AI tax compliance software are getting 20% reduction in penalties on taxes. As it provides better accuracy.

Usage of AI enabled auditing are leading to a reduction of 30% in accounting costs of Off companies.

AI based accounting: Challenges and opportunities

### Challenges

AI in Accounting is the need of the era, but it also has its limitations in its widespread adoption. The major issues being continuous training, high cyber security, unethical usage of AI in the Accounting. AI based accounting system requires specific knowledge of the various disciplines such as data analytics, machine learning, and cyber security. While majority of accountants are not experts in these areas, studies conducted on accountants indicate 50% of accountants do not possess skills to use AI. (ACCA 2023).

A small company will not be able to adopt AI based accounting systems as huge initial investment costs. A study states AI adoption cost is between \$50 to \$5,00,000 for a firm.

Cyber security is also a main issue as AI systems need to access information that are sensitive in nature. Hence increases the threats of cyberattacks and data breaches. A strong cybersecurity system is needed to tackle that. An example can be taken when Deloitte phased 10% increase in data breach when it was using AI based financial accounting (Deloitte 2022).



### Opportunities

With the usage PwC's Gl.Ai and Deloitte ARGUS Two widely popular AI audit software which helps in Compliance tracking and fraud detection ,85% of errors and mistakes in the financial reporting can be eliminated.

Financial forecasting is a key all effective decision making AI makes it easy forecast using real time data which ultimately leads to improved decision making I study Emphasizes Decision making is reducing the forecasting by 35% (Mckinsey and Company 2022)

AI can help accountants to generate real time financial reports to aid in decision making as well as for compliance similar study indicates that compliance risk organizations was eliminated by 40% for those who are using AI for real time reporting (KPGM 2023)

Factor	Challenges	Opportunities
Job Displacement	AI is a threat to entry-level accounting roles.	Creates roles in AI auditing and analytics will emerge.
Accuracy and Reliability	Absence of human judgment in complex financial decision-making.	AI boosts efficiency and reduces errors and mistakes.
Ethical Concerns	Chances of AI algorithms being biased in financial analysis.	Ethical AI frameworks ensure compliance and fairness.
Skill Gap	Many accountants lack AI and data analytics knowledge.	Upskilling facilities bridge the gap for future professionals.

### III. CONCLUSION

The accounting profession faces challenges such as job loss, ethical quandaries, and data security, but the usage of AI and automation in the workspace is navigating the changed role of accountants and making their jobs easier by transforming accounting through enhanced efficiency, accuracy, and fraud detection. Accountants need to learn new skills including cybersecurity, data analytics, and artificial intelligence. Additionally, businesses need to train staff, use AI as a helpful tool, and make sure they use it morally. AI must be incorporated into the curriculum at educational institutions as well. Because ethical AI use and continuous learning are crucial to effectively managing this revolution, the best strategy is to use AI while retaining human talents.

This study examined how the adoption of AI-driven technology is transforming the revolution in traditional accounting processes in order to assess how automation and artificial intelligence would impact the accounting profession. Along with analyzing the changing role of accountants in the AI-driven era and offering strategic recommendations to help professionals and organizations effectively adapt to these changes, it also covered how automation and artificial intelligence are transforming financial decision-making, fraud detection, and regulatory compliance. This study found a number of findings regarding how automation and artificial intelligence are changing accounting in the modern era: AI automation has increased productivity by 40% by eliminating manual labor and repetitive processes, and it has increased financial reporting accuracy by 35%.

By employing AI algorithms, it also contributes to a 50% improvement in fraud detection, which lowers financial anomalies and safeguards regulatory standard compliance.

By moving accountants' manual transaction processing or routine responsibilities to advising, strategic, and decision-making roles, it is changing the accounting profession.

In addition to the advantages of AI, its implementation in businesses presents a number of difficulties, including the loss of jobs, data security threats, moral conundrums, and a shortage of experts in the field.

Big Companies like Deloitte, PwC, and KPMG demonstrated how AI is enhancing financial planning, risk assessment, and auditing procedures to increase productivity and save costs.



### Future Implications And Applications

**Accounting Professionals:** To close the skills gap and get ready for the AI-driven environments of the future, accountants should learn data analytics and AI-driven forecasting. AI is transforming traditional accounting roles into advisory, financial analyst, strategic decision-making, etc.

**Regulatory Bodies:** To address the ethical and legal aspects of AI-related issues, regulatory bodies should update their rules. For example, by creating guidelines or providing training on AI ethics, they can help to eliminate financial misconduct and biased decision-making and guarantee accountability and clarity in AI-based financial reporting.

**Educational Institutions:** To help accountants get ready for the AI-driven workplaces of the future, universities and professional accounting associations should adapt their curricula to include instruction in AI, data analytics, cybersecurity, etc.

### Final Thoughts

The findings show how automation and artificial intelligence (AI) are remodeling accounting by improving accuracy, efficiency, and fraud detection; yet, job displacement and skill gaps continue to be a problem. However, to ensure the success of the Automation of the accounting profession, advancements in areas like workforce management, data security, and ethical use of AI will be required. AI won't replace accountants; in fact, if you're prepared to adjust to AI-driven accounting, you would be able to lead the industry's direction because AI is advancing rather than eroding the profession.

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