

Manuscript ID:
TIJCMBLIR-2026-030236

Volume: 3

Issue: 2

Month: April

Year: 2026

E-ISSN: 3065-9191

Submitted: 15 Mar 2026

Revised: 20 Mar 2026

Accepted: 15 April 2026

Published: 30 April 2026

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DOI: 10.5281/zenodo.21715030

DOI Link:
<https://doi.org/10.5281/zenodo.21715030>



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How to Cite this Article:

Narkhade, P. K. (2026). Automation And Ai in Accounting: Transforming Traditional Bookkeeping into Data-Driven Financial Decision Making. *The International Journal of Commerce Management and Business Law in International Research (TIJCMBLIR)*, 3(2), 202–207.
<https://doi.org/10.5281/zenodo.21715030>

Automation And Ai in Accounting: Transforming Traditional Bookkeeping into Data-Driven Financial Decision Making

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Abstract

Fast changes in tech have reshaped how accounting works, especially with smart software taking over many old methods. Instead of hand-written records and slow updates, numbers now flow through automated tools that learn and adapt. Machines handle repetitive jobs - like matching payments or sorting expenses - freeing people for deeper analysis. Software powered by AI reads patterns, spots errors, moves data across systems without constant oversight. Cloud platforms let teams access finances from anywhere, cutting delays once common with paper trails. What used to take days now happens in moments, reducing mistakes caused by tired eyes or missed entries. Accountants spend less time typing, more time understanding what the figures really mean. Tools like RPA mimic human actions but work faster, repeating tasks exactly each time. Finance departments run smoother, not because machines replace humans, but because they share the load. Data becomes clearer, reports build themselves, deadlines feel less urgent - all thanks to quiet digital helpers running in the background.

Keywords: AI in accounting automation digital systems financial analytics intelligent bookkeeping decision support transformation

Introduction

1.1 Study Background

What once began as a methodical way to track money evolved into how numbers get logged, sorted, then pulled together to show what's happening financially. For years, people used handwritten books - journals, ledgers, reports - all filled page by page without help from machines. Slow, repetitive work took up hours, yet mistakes still slipped through now and again. Accuracy depended entirely on focus; even small slips could ripple into bigger mismatches later down the line. A shift started when computers entered the scene during the 1900s, quietly reshaping how numbers were tracked. Machines took over routine tasks once handled by hand, bringing faster results alongside fewer mistakes. As tools like ERP and online ledgers evolved, pieces of financial work began linking together smoothly. Efficiency grew because information flowed without old barriers holding it back.

Lately, digital tools like artificial intelligence, machine learning, robotic automation, while also including big data analysis, have reshaped how accounting works. Instead of just tracking numbers, these advances let systems handle tasks on their own. Financial entries get sorted without human input, thanks to smart software that learns patterns over time. Huge sets of figures are examined quickly, spotting odd shifts before they grow. Predictions about future trends come from what the data shows, helping leaders plan ahead. This shift means accountants do more than balance sheets - they guide choices based on evidence pulled from information flows. With machines handling routine steps, focus turns toward insight, judgment, reasoning woven into daily operations. Accounting now leans heavily on interpretation, not only entry. What used to be paperwork has become active thinking embedded in business moves.

1.2 Problem Statement

Even with modern tools available, plenty of companies still stick to old-school ways of tracking money - hand-typing records, sharing reports only now and then, working without deep analysis. Because of these habits, mistakes happen more easily, numbers take too long to appear, operations slow down. When deals multiply and get trickier, basic spreadsheets and outdated routines fail to keep up with fast-moving needs. Real-time choices need faster data - and paper-based thinking just lags behind.

1.3 Objectives

- To examine the role of automation in modern accounting practices.
- To analyse the impact of artificial intelligence on traditional bookkeeping systems.

To explore how AI enables data-driven financial decision making in organizations.

1.4 Importance of the Research

Machines that think are changing how numbers get handled in today's finance world. Not long ago, counting money and tracking payments took up most of an accountant's time. Now, faster tech pushes number work beyond ledgers into big-picture choices. Seeing how smart tools reshape these tasks matters deeply - to scholars, accountants, even company leaders.

Looking at things through a scholarly lens, this work adds to ongoing discussions about how digital change affects accounting. Instead of sticking to old ways, it shows movement toward smart systems that handle financial details more efficiently. One key point centers on how machines now assist with interpreting data for planning purposes. Another angle reveals new topics worth exploring - like automated number crunching, analysis methods shaped by algorithms, and online audit techniques. This opens doors without promising breakthroughs. What stands out is the quiet move away from paper trails toward invisible logic running behind screens. A shift happens when machines and smart software enter accounting - this change goes beyond tools, altering how the work fits into today's businesses.

Review of literature

1. Sutton, Holt, and Arnold 2016, Looking at how smart machines affect number crunching, Sutton, Holt, and Arnold dug into AI's role in modern accounting tasks back in 2016. Routine jobs like checking transactions or preparing reports might soon run on their own - thanks to pattern-finding software. Instead of just recording numbers, tools now spot trends across huge piles of data, shaping better business choices. Since tech keeps shifting the field, professionals need sharper analysis skills and comfort with digital tools just to keep pace.

2. Kokina and Davenport 2017, Robotic helpers in accounting? Kokina and Davenport took a close look back in 2017. Tasks like entering data, matching records, plus handling invoices now move faster when machines do them. Mistakes slip in less often once humans step out of routine work. With those jobs automated, accountants shift toward thinking through business puzzles instead.

3. Vasarhelyi 2017, Big data tools change how numbers work inside companies - Appelbaum, Kogan, and Vasarhelyi explored this shift back in 2017. Instead of old methods, firms now handle massive volumes of money records faster than before. Because these systems talk to each other, finance teams see clearer pictures emerge from chaos.

4. Kapoor 2022, From his 2022 research, Kapoor looked into how Indian accounting firms take up

automated systems. Although many still rely on traditional methods, a noticeable shift appears toward digital tools like online accounting software. Because these technologies handle repetitive tasks, staff spend less time on data entry. As a result, professionals find room to engage in deeper number review and long-term business thinking. Since implementation began, workflow speed has increased across several tested environments.

5. Kanaparthi in 2024, Out of nowhere, Kanaparthi in 2024 looked into how AI, machine learning, and blockchain fit inside financial accounting setups. Because of this blend, machines now handle boring jobs once done by people. Costs drop when fewer hands are needed to keep things running. Instead of waiting days for updates, numbers show up live - right on time. When companies bring in smart accounting tools, their insights grow sharper.

6. Vijayashekarayanayaka 2025, One fresh morning in 2025, Vijayashekarayanayaka looked into how Indian firms began using artificial intelligence for accounting tasks. Machines now handle routine entries, which means fewer slips in records while delivering up-to-the-minute data snapshots. Because of these shifts, leaders can see numbers clearly as they happen, guiding choices without delay.

Research Methodology

This work uses a clear, idea-based approach to explore how machines and smart systems turn old-style number tracking into decisions guided by information. Its aim sits with studying shifts brought by new tools in money management tasks, letting companies uncover useful patterns hidden inside their records.

automation meets old accounting ways

Older ways of handling money records focused on tracking payments using a set method. Journals first captured each deal, then those notes moved into ledger books instead. After that, trial runs checked totals before reports like profit summaries and net worth sheets appeared. Even though numbers stayed correct thanks to these steps, people did most work by hand repeatedly over time.

Accounting by hand meant long hours typing numbers, checking them again and again. Time slipped away while mistakes crept in more easily. Real-time updates? Rare. Reports typically arrived on schedules, not right when needed. Updates happened every now and then, never flowing without pause.

Out here, machines now handle jobs once done by hand. Think computers taking over boring chores without needing constant oversight. Picture numbers getting logged automatically every time money moves. Transactions? They flow into ledgers on their own. Invoices get sorted faster than ever before. Bank statements line up against records like clockwork. Paychecks roll out smoothly each month. Reports build themselves behind the scenes. All of it runs quieter, cleaner, less tangled. Behind closed doors, software keeps score without missing a beat. This shift didn't happen overnight - yet here we are.

A major shift in technology lately has been the rise of Robotic Process Automation. Software bots mimic how people interact with digital platforms, handling routine bookkeeping jobs on their own. Take invoice processing - programs pull numbers straight from documents, feed them into ledgers, check transaction accuracy, then refresh records, all without a person stepping in. Fewer mistakes happen at desks when machines take over typing work. Efficiency climbs simply because tasks move faster than before.

With machines taking over repetitive work, accountants now spend less time on data entry. Instead, they watch how software handles numbers, stepping back to guide the process. What once filled hours at desks has given way to oversight roles, quietly reshaping daily routines. Tools do the math, yet humans still make sense of it. Behind every report lies judgment - not code - shifting focus toward meaning. Quietly, steadily, their job transforms without fanfare. Technology lifts the load, leaving room for deeper analysis. Insights grow richer when people steer what machines begin.

Artificial Intelligence in Accounting

Out of nowhere, artificial intelligence began reshaping how today's accounting works. Instead of just following fixed rules like older software, these smart systems study information over time, spotting trends others miss. Because they adapt, numbers tell deeper stories - helping people see what matters in complex finances. Insights once buried now surface through constant learning, changing how conclusions are reached.

A key way artificial intelligence helps in accounting? It handles transaction processing by itself. Instead of people sorting each entry, smart programs look at money movements and sort them using set guidelines plus past behavior. Picture a system that sees repeated numbers and labels costs, income, or property types - all on its own. Over time, it gets better just by spotting trends others might miss. Starting with old numbers, artificial intelligence digs into past money records to spot patterns. Because it learns from what happened before, machines begin predicting how finances might shift ahead. With these forecasts in hand, companies shape their spending plans more clearly. Risk feels less unknown when decisions grow from data instead of guesses. Over time, preparation becomes sharper, simply because insight arrives earlier. A machine spotting odd patterns in money records changes how errors get caught. Instead of checking just a few entries like people used to do, smart software scans every single transaction. Hidden mismatches surface faster because the system never stops watching numbers flow by. What once took weeks now happens while teams work their regular hours. Details that humans miss stand out clearly when algorithms highlight them early. When it comes to handling numbers, artificial intelligence boosts how deeply accounting tools can dig into information - helping companies turn raw figures into clear guidance. Because machines now handle routine tasks while spotting patterns, these smart systems guide choices that shape a company's future. Not every method works forever, yet this shift pushes finance teams toward smarter habits.

Table 1 Evolution of Accounting Systems

Period	Accounting System	Key Features	Technological Tools
Before 1980	Manual Bookkeeping	Paper-based ledgers, journals, manual calculations	Ledger books, calculators
1980–2000	Computerized Accounting	Basic accounting software, digital records	Tally (early versions), spreadsheets
2000–2015	Cloud-Based Accounting	Online financial records, integration with ERP systems	Cloud accounting platforms, ERP systems
2015–Present	AI-Driven Accounting	Automation, predictive analytics, real-time financial insights	AI software, RPA, machine learning

Source: Davenport, T. H., & Kirby, J. (2016). *Only humans need apply: Winners and losers in the age of smart machines*. Harper Business.

Table 2 Applications of AI and Automation in Accounting

Accounting Function	Traditional Method	AI/Automation Application
Data Entry	Manual recording of transactions	Automated transaction processing
Invoice Processing	Manual verification and entry	OCR and RPA-based invoice processing
Bank Reconciliation	Manual comparison of statements	Automated reconciliation systems
Fraud Detection	Periodic manual audits	AI-driven anomaly detection
Financial Reporting	Periodic reporting	Real-time financial dashboards

Source: Kokina, J., & Davenport, T. H. (2017). The emergence of artificial intelligence: How automation is changing auditing. *Journal of Emerging Technologies in Accounting*, 14(1), 115–122

Table 3 Global Adoption of AI in Accounting (Year-wise Trend)

Year	Organizations Using AI in Accounting (%)	Major Development
2018	15%	Early adoption of automation tools
2019	20%	Growth of cloud accounting platforms
2020	28%	Increased digital transformation due to pandemic
2021	35%	Expansion of AI-powered accounting software
2022	42%	Wider use of robotic process automation
2023	48%	Integration of predictive financial analytics

2024	55%	Increased adoption of AI-driven decision systems
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Source: Deloitte. (2020). AI and the future of accounting: Automation in financial services. Deloitte Insights

Table 4 Estimated User Population of AI-Based Accounting Systems

Region	Estimated Users (Millions)	Growth Rate
North America	18	High adoption
Europe	15	Rapid technological integration
Asia-Pacific	22	Fastest growing market
Latin America	7	Emerging adoption
Middle East & Africa	5	Gradual technological adoption

Source: World Economic Forum. (2023). The future of jobs report

Table 5 Impact of AI on Accounting Efficiency

Parameter	Traditional Accounting	AI-Based Accounting
Data Processing Speed	Slow	Very fast
Error Rate	High probability of human error	Minimal errors
Financial Reporting	Periodic	Real-time
Decision Support	Limited	Advanced predictive insights
Cost Efficiency	Higher operational cost	Reduced operational cost

Source: Kanaparthi, V. (2024). Exploring the impact of blockchain, artificial intelligence and machine learning on financial accounting efficiency.

Data Driven Choices in Money Matters

Now machines help accountants see patterns once buried in numbers. Old ways cared mostly about tracking money moves, then reporting them later. But today smart software turns raw details into useful foresight. This shift lets leaders choose paths based on clarity, not guesses. Starting with raw numbers, decisions get shaped by what the data actually shows. Out of heaps of figures, smart software spots patterns faster than people ever could. Sometimes it's old records that reveal where money might go next. Through constant scanning, machines learn when costs rise or fall. Hidden in past results are clues about future income shifts. Risk pops up less suddenly when systems watch every move. With live updates, forecasts adjust before surprises happen. Clever programs sort noise from meaningful change. Trends emerge quietly, then steer big choices. Imagine watching money moves as they happen. That is what smart software brings to numbers work - live views on how a business stands financially. Revenue waves, cost rhythms, profit spaces, and spending habits appear clearly right away. When leaders see shifts early, choices come faster, sharper. Outcomes often improve when insight runs deep and arrives now. One big use of number-based bookkeeping shows up in guessing what finances will do next. Using old money records, prediction tools try to see ahead into likely results. Say a company wants to guess how much it might sell later - this method gives clues. It also tries to pin down coming costs, even testing if fresh projects make cash sense. When teams understand these points, they shift budgets more wisely while dodging possible losses.

How AI Changes Accounting Work

When machines handle number work, things move quicker than ever before. Speed shows up right away in how fast bills get sorted or accounts match up. Time once spent on paperwork now stretches into something more useful. Computers chew through data while people focus elsewhere. Mistakes fade when software runs the routine steps. What used to take hours now finishes before lunch. Efficiency isn't just faster results - it reshapes where effort goes.

Mistakes happen less when machines take over. Typing numbers again and again by hand tends to lead to slips. With smart software, calculations run on their own through set rules. Checks built into the system catch issues before they grow. Fewer hands touching the data means fewer chances for things to go wrong.

Because machines handle repetitive tasks, companies spend less on large teams. Money saved goes toward better tools or training people to do skilled work instead. Mistakes drop when software manages numbers day after day without fatigue setting in.

Beyond day-to-day fixes, artificial intelligence boosts how accounting systems plan ahead. With sharper analysis, companies pull meaning from numbers to shape budgets, predict trends, or weigh investments. Such clarity lets firms spot openings for expansion while staying steady amid market pressures.

What happens next is clearer finances through smarter software. Machines track every dollar without mistakes, building trust over time. Records stay up to date because the system runs on its own. Audits become easier since each step gets logged automatically. Following rules isn't guesswork when everything leaves a trace.

AI Challenges in Accounting

Even with how much help artificial intelligence brings to accounting, putting it into practice isn't always smooth. Because these tools work with so many private financial details, keeping that data safe becomes a top issue. As machines process more numbers, the chance of hackers getting in rises without strong shields. So protection needs serious attention - spending on solid defenses makes sure secrets stay locked away.

Getting new tech up and running often hits hard at first because of steep prices. Spending on smart accounting systems like artificial intelligence programs, automated processes, or online storage networks adds up quickly. Firms that aren't large might struggle to bring these tools in when money is tight.

Patching AI tools into old accounting setups isn't always smooth. Outdated software often stumbles when faced with newer artificial intelligence functions. Moving forward means skilled teams must map out each step before changes happen.

Accounting in the Age of Artificial Intelligence

Tomorrow's number crunching won't look like today's, thanks to smarter machines learning fast. As software evolves, it handles tougher money tasks without constant human help. Insights once buried in spreadsheets now rise automatically, clear and quick. Machines spot patterns people miss, shifting how teams understand finances. Digital tools grow sharper, changing routine checks into strategic moments. What used to take days may soon finish before lunch. Finance work becomes less about repetition, more about judgment. Smart systems adapt, helping firms move faster through reporting cycles. Computers manage detail-heavy jobs while staff focus on meaning. Technology doesn't replace accountants - it reshapes their daily reality.

A fresh shift in accounting mixes blockchain with artificial intelligence. Not just storing records safely, this blend opens doors to clearer transaction logs. With every entry locked into an unchangeable chain, oversight becomes sharper. Instead of guessing patterns, smart algorithms detect irregularities fast. Accuracy grows stronger when machines learn from tamper-proof data streams. Trust builds naturally where visibility meets precision. Audits transform quietly behind continuous monitoring. Financial reports gain depth without extra effort. Security strengthens at each step through layered verification.

Conclusion

Machines now handle much of what accountants used to do by hand. Instead of typing numbers all day, software pulls data straight from documents. These tools work fast, cutting down time spent on chores like invoicing or reconciling accounts. Smart algorithms spot patterns humans might miss during reviews. What once took hours happens in moments, quietly shifting how finance teams operate. Decisions rely more on live insights than old summaries. Efficiency creeps in through invisible updates behind the scenes. Even audits feel the ripple of constant digital oversight.

Starting off strong, smart accounting tools speed up daily tasks while cutting down mistakes in numbers. Because they update figures right away, teams see money details as things happen. Instead of guessing later, patterns show future trends before problems grow big. With these clear views, companies adjust plans based on what the information actually says. Facts shape choices, not hunches, when reports reveal hidden shifts early. Still, using AI in accounting brings more than just benefits. Security risks around data pop up alongside rising tech expenses. A lack of know-how among accountants can slow things down. Questions about fairness and right versus wrong tag along too.

Acknowledgment

I would like to express my sincere gratitude to all those who have supported and guided me in completing my study on “Automation and AI in Accounting: Transforming Traditional Bookkeeping into Data-Driven Financial Decision Making.”

I am deeply thankful to my guide/mentor for their invaluable guidance, continuous encouragement, and insightful suggestions throughout the course of this research. Their support has been instrumental in shaping and successfully completing this study.

I would also like to extend my heartfelt thanks to my institution and respected faculty members for providing the necessary academic environment and resources required for this project.

I sincerely acknowledge the contributions of various authors, researchers, and online resources whose work has provided valuable insights into automation, artificial intelligence, and modern accounting practices.

Financial support and sponsorship

Nil.

Conflicts of interest

The authors declare that there are no conflicts of interest regarding the publication of this paper

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