Applying AI in Accounting

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Artificial Intelligence (AI) is transforming accounting processes and, in turn, the work of accountants and auditors, bringing significant benefits to businesses. We can expect this trend to continue and accelerate. AI has the potential to help accounting teams address many of their long-standing challenges and enhance their role within the organization. Knowledge is power, so let's explore the key technologies in accounting AI, their benefits and challenges, and how to leverage them for business and professional success.

What is AI in accounting?

Like most modern AI applications, AI in accounting is powered by a set of closely related technologies: Machine Learning (ML), Deep Learning, Natural Language Processing (NLP), and Generative AI . Together, these technologies represent a professional game-changer for accounting teams and accounting processes. AI tools can analyze large data sets, identify patterns, make predictions, extract and aggregate structured and unstructured data, and can automate tasks such as data entry, transaction reconciliation, and financial reporting. AI is particularly useful in accounting because it can intelligently handle much of the heavy lifting, resulting in increased team productivity, better accuracy, cost savings, and better support for business decision making.

Key Points

1. AI is revolutionizing accounting processes with its ability to automate tasks, analyze massive amounts of data, and predict trends, which is exciting to some and worrying to others.
2. The business benefits of AI include reduced costs and improved efficiency, accuracy, scalability, customer service, fraud and anomaly detection, and decision support.
3. AI allows accounting teams to focus on high-value, advisory activities rather than transactional tasks. This shift is valuable, but may require a change in skills and mindset.
4. Many of the current challenges associated with AI will likely be solved as the technology develops and becomes more widespread.
5. Advanced accounting software with integrated AI functionality using accumulated data.

AI in Accounting Explained

AI is used by accounting teams across industries for a variety of purposes, including bookkeeping, tax preparation, and financial audits. The four largest public accounting firms—Deloitte, EY, PwC, and KPMG—have tapped AI to transform their financial audit processes and internal workflows, such as managing audit reviews and approvals. Accounting and internal audit teams at companies of all sizes are starting to follow suit or will soon.

For example, auditors can eliminate transaction sampling—and the risks associated with that traditional activity—because AI can quickly analyze entire accounting data sets. In another example, accountants are improving the audit process by using AI to identify unusual or unusual transactions as part of the planning and risk assessment stages, rather than detecting them as part of field work. Meanwhile, smaller accounting firms are taking a slower pace, using AI for research, tax preparation, and bookkeeping services, but they are expected to pick up the pace.

Overall, accounting teams at companies of all sizes and industries are implementing AI to make their processes more efficient, improve accuracy, and support decision making. This can be achieved in a number of ways, including using automation to process invoices without touching them, supporting more frequent and comprehensive forecasting, and making data analysis and scenario planning easier and faster. As a result, staff time can be reallocated to tasks that require more thoughtful sophistication, such as strategic planning. This is welcome news for CFOs and financial controllers who have been trying to develop their accounting and finance teams to become consultants and provide valuable insights that drive business growth, rather than focusing solely on reporting.

Key Technologies in Accounting AI

Many technologies are formally or informally referred to as AI. The four closely related technologies mentioned earlier – ML, Deep Learning, NLP, and Generative AI – form the foundation for AI in accounting, as well as most other current AI applications. They are the tools that enable AI to do more with data, faster, and more accurately. Robotic process automation (RPA) and optical character recognition (OCR) are older technologies that do not use AI but are sometimes integrated with AI capabilities or confused with AI. They are included in the following list to help clarify the issue.

1. Machine Learning

ML allows computers to 'learn' without being explicitly programmed. It relies on algorithms developed from experience to make descriptive, predictive, and prescriptive recommendations based on data. ML supports intelligent automation and can identify patterns from massive volumes of data that humans cannot process at the same speed.

For example, ML can generate sales forecasts using historical point-of-sale data down to the SKU level. ML can also analyze transaction patterns and flag anomalies that indicate potential fraud, thereby enhancing internal controls. Additionally, ML supports bookkeeping by automatically assigning general ledger expense codes to invoices.

2. Deep Learning

Deep Learning is a type of ML built on neural network architectures — multilayer networks of artificial neurons encoded in software. While AI systems that predate Deep Learning have enjoyed success over the years in areas such as image recognition, NLP, and predictive analytics, newer AI systems based on Deep Learning consistently outperform them. Deep Learning technologies improve the performance of all the accounting functions mentioned in the previous ML discussion.

3. Natural language processing

NLP reads and interprets words rather than numbers. Older NLP technologies are still useful, but newer NLP capabilities are almost always built on Deep Learning. NLP can summarize large volumes of text, such as financial news or customer feedback, into structured data that enriches accounting functions. For example, NLP's ability to aggregate tens of thousands of customer reviews can inform inventory estimates for future product returns or warn of potential stockouts. Contract analysis is another application of NLP in accounting. It involves reviewing and extracting key points from contracts and legal documents to ensure compliance with financial agreements and highlight risks. NLP can also support accounting compliance by examining regulatory documents from governments, industries, tax authorities, and accountants.

4. Generative AI

Generative AI is the incredible ability of some Deep Learning AI models to rapidly generate content in response to text prompts. Generative AI models represent a significant advance in AI because they can not only understand natural language but also generate it. Generative AI tools can synthesize knowledge from multiple sources and contribute to problem solving across multiple areas of expertise. For example, in accounting, Generative AI can generate the first draft of financial statements. It can also assist accountants and auditors in exploring a company's financial data to identify opportunities to improve financial performance.

5. Robotic process automation

RPA software is not an AI technology, but it is sometimes thought of as such, as it can be coded to perform some tasks that previously required human intervention. But RPA only works with structured data and is best suited to rule-based transactions — although this is rapidly changing as RPA continues to be integrated with ML. But since RPA's primary benefits are speed and consistency, even without ML, it still has many applications in accounting. For example, RPA supports automated accounts payable (AP) systems, which can be used to match supplier invoices with purchase orders, compare travel expense items with company policies, and reconcile accounts. On the receivables side, RPA can validate customer invoices by ensuring authorizations, pricing, and product/service descriptions match, then automatically post them to revenue accounts in the accounting system. RPA bots in collaboration with ML-based AI technologies are much more capable for accounting applications like intelligent invoice processing, fraud detection, and automated compliance checks.

6. Optical character recognition

OCR is a non-AI technology that converts text from scanned or digital documents into machine-readable text. Newer ML-based NLP systems easily perform the same function, and are sometimes still referred to as OCR because business people understand what those terms mean. Both the old and new versions of OCR functionality eliminate manual data entry, saving time and reducing the possibility of human error. They also improve document storage by digitizing documents and making them searchable. This capability is often incorporated

into better accounting software, especially for processing invoices as part of automated AP.

Benefits of AI in Accounting

The benefits of AI hit all the important notes for accounting: Accuracy, efficiency, and scalability. What's more, AI increases speed like no other. Here are some of the key advantages of AI in accounting.

1. **Increased Efficiency** : When AI is used to handle routine workloads, accounting teams can spend more time on value-added work. This balance increases overall productivity and makes better use of the expertise and experience of accounting staff.
2. **Improved Accuracy** : Automation, such as encoding general ledger transactions, helps reduce manual errors, improve accuracy, and reduce rework, such as correcting misclassifications.
3. **Improved decision-making** : AI helps put better information into the hands of decision makers quickly. AI-powered analytics can also be more comprehensive, drawing on data from across the entire organization to provide deeper insights into the business.
4. **Advanced Fraud Detection** : Data analytics that identify anomalies and outliers are a key way to detect potentially fraudulent transactions. AI's ability to quickly examine large data sets dramatically expands those efforts. As a result, the use of AI in anti-fraud programs is expected to triple in the next two years, according to a 2024 survey by the Association of Certified Fraud Examiners.
5. **Cost savings** : Automating routine tasks helps companies save money by reducing the amount of time employees spend on mechanical tasks, as well as through process improvements, such as reducing or eliminating late payments, and doing the same for associated fees and penalties.
6. **Scalability** : Since AI automation handles many of the machine tasks such as calculations, cross-checking, and data entry, it helps accounting processes scale as businesses grow. This is especially beneficial given the ongoing shortage of accountants, largely due to burnout.
7. **Better Compliance** : The challenge of compliance in accounting is to put in place processes to ensure that transactions are processed correctly (according to laws/regulations/standards) and then identify errors – data errors, GAAP interpretation errors, reporting errors. AI-based predictive analytics provides accountants with a wider and more granular net to catch those errors and thus, mitigate potential compliance risks. Early detection of anomalies in accounting data is the best defense against compliance issues. Additionally, AI can monitor relevant external sources for changes in regulations.
8. **Improved customer service** : AI tools help accounting teams provide better and more consistent service to internal departments as well as external customers and partners. Communications, such as emails, can become more professional through the use of Generative AI. And more accurate information paves the way for better customer service and avoids embarrassing interactions, such as sending collection notices to customers who have already paid their bills.

The Challenge of AI in Accounting

As with any new tool, AI in accounting is not easy, and its use must be modeled and encouraged from the top down. Only then can meaningful efforts be made to overcome the other challenges listed here.

1. **Initial Costs** : The initial costs of AI can be a barrier to adoption, even when expected to yield savings and long-term benefits. These costs include software licenses, potential integration costs, and training for employees and IT teams. However, AI capabilities are often deployed as an integrated part of business applications that companies already use and therefore have no separate costs. Cloud-based SaaS

applications that offer 'free' built-in AI capabilities can minimize upfront costs and simplify adoption. This approach also allows employees to easily use AI within their familiar workflows, reducing the need for additional training.

2. **Skills Gap** : The skills gap between accounting expertise and AI is another obstacle for companies looking to adopt technology into their finance functions, especially for smaller companies with fewer resources and less technological capabilities. Furthermore, the skills gap can vary significantly between employees of different generations, requiring ongoing and thoughtful training programs.
3. **Regulatory concerns** : Accounting is subject to multiple layers of regulations from various standards-setting bodies. Like any tool, ensuring that AI keeps up with these changes can be challenging. In addition to financial regulations, AI that accesses sensitive information is subject to privacy and data security regulations. Embedding AI into accounting systems that are continually updated to reflect the latest regulatory changes can help address this issue.
4. **Integration issues** : Legacy systems may not be able to integrate with AI software, either at all or only with costly customization. Additionally, incomplete or inaccurate data reduces the quality of AI output, so siloed, unverified, or incomplete data in existing systems needs to be cleaned up to get the full benefits of AI and avoid erroneous results. Using cloud-based enterprise accounting suites with embedded AI capabilities can avoid this problem.

AI Trends in Accounting

It's an exciting time for accounting teams as they become more familiar and comfortable with AI and the technology becomes more prevalent in their day-to-day work. Leading software companies are incorporating AI into their offerings, such as enterprise resource planning (ERP), accounting and finance systems, to enrich functionality. As AI continues to grow in prominence, here are some trends to keep an eye on.

AI as a capable assistant/advisor

AI capabilities are emerging as a kind of advisor for business accountants, enhancing their ability to provide valuable insights and make informed decisions. Because AI allows modern accounting software to analyze much more data than ever before, it can bring new patterns and trends to accountants' attention, helping them provide strategic guidance to their organizations. AI can also suggest ways to increase forecast accuracy, optimize tax strategies, and automate compliance audits. And AI systems are constantly generating new and different financial scenarios to help accountants uncover nuances in their forecasts and recommendations.

AI as a Competitive Differentiator

It's easy to see how AI can be a competitive advantage for business functions like sales and marketing—just think of the 'you might also like' suggestions from online retailers. But what about accounting? Consider the relationship between more accurate forecasts and optimized inventory and labor scheduling. AI can analyze historical data and market trends to help employees develop more accurate demand forecasts, so businesses can stock the right amount of inventory at the right time. This helps reduce obsolescence losses and warehousing costs.

Advanced predictive analytics

Many companies use predictive analytics to estimate what will happen if certain conditions are met using probabilistic techniques, quantitative analysis, and modeling. This is difficult and complex work. However, now that AI can automatically identify patterns in data and develop predictive models, more businesses can use these models to help forecast outcomes such as revenue and cash flow. Additionally, AI takes business intelligence and predictive analytics to the next level by incorporating unstructured data such as social media posts, customer service calls, videos, images, emails, and external websites. This information improves the quality of predictions by including variables such as customer behavior and market trends. In turn, more business leaders are expected to use AI-enhanced predictive analytics to gain superior insights and make better decisions.

Real-time data analysis

AI-powered systems can automate real-time data analysis, performing it much faster and more accurately than humans. This not only improves the speed and quality of reporting, but also allows for quicker action, which can be a competitive differentiator. Real-time analytics also plays a vital role in improving customer service, detecting fraud, and forecasting. With these significant benefits, real-time data analytics is expected to become a staple of modern accounting software.

Integrating AI with Blockchain

The record-keeping nature of Blockchain technology makes it a natural fit for accounting and auditing. Blockchain organizes records in a way that makes it impossible to alter transaction entries, which is important for overall data governance, reliability, and compliance, and is especially useful for auditing. AI can quickly analyze large amounts of data and examine blockchain transactions to identify any irregularities or changes. For example, when used together, AI and blockchain can increase the efficiency of auditing financial transactions, resulting in faster, less labor-intensive audits.

Examples of AI in Accounting

AI is transforming the way accounting teams work by streamlining and enhancing a variety of functions. Overall, there is evidence that AI is driving improved efficiency and accuracy. Some specific examples of AI in accounting are outlined below.

1. **Forecasting** : AI can be used to analyze large volumes of historical data and identify patterns that help predict future trends and outcomes. This predictive financial analysis helps forecast cash flow, revenue, expenses, and other financial metrics based on insights gained from data analysis. AI-based forecasting models get better with more data, providing more accurate forecasts than traditional statistical forecasting methods.
2. **Scheduling** : AI can help schedule resources, such as staff and inventory, based on predicted busy or slow times. It can also help centrally schedule and monitor tasks, including cash collections, departmental calendars, and monthly accounting closes.
3. **Cash flow management** : By predicting sources and uses of cash using data from multiple systems, including AR and AP, AI can generate more accurate cash flow estimates. This helps businesses better understand their cash position, potentially improving investment returns and reducing unnecessary borrowing costs.
4. **Workflow Automation** : AI can bring a higher level of sophistication to workflow automation. Rather than simply routing tasks, AI can decide what to route versus what can be automatically accepted based on past experience or certain rules. This reduces the workload on employees and the possibility of items being overlooked. Automated processes often include travel and entertainment expense reporting,

invoicing, account reconciliation, and audit review.

5. **Compose emails and manage inboxes** : AI can review and organize received emails by category, subject, or priority, and flag those that need a response. It also helps when users compose email replies, evaluating their grammatical accuracy, tone, and format. Additionally, AI-powered email assistants can automatically pull up relevant information, update customer relationship management (CRM) systems, and draft responses to questions.
6. **Invoice processing and expense management** : AI can automatically identify and capture relevant data from supplier invoices, as well as match purchase orders, shipping documents, and receipts. This increases productivity, improves accuracy, and speeds up payment processing.
7. **Data analysis** : AI excels at aggregating data from different locations and generating reports at a level of depth and speed that humans cannot match. For example, AI can generate an analysis that shows budget variances and comparisons to internal and external benchmarks. Once that work is done, accountants can spend more time understanding issues and planning actions, rather than generating analysis.
8. **Business communications** : Whether communicating with customers, investors, or colleagues, AI can help increase efficiency and strengthen relationships. For example, AI can assess the sentiment in customer emails, route them to the appropriate AR or customer service agent for the right response, and then help craft appropriate email responses.
9. **Project management** : AI can be used for project management at several stages of an accounting project. First, AI can organize all project documents and maintain version control, which is especially useful for repetitive projects, such as capital budgeting. Next, the technology can transcribe and summarize notes from project meetings to keep everyone on the team up to date. Then, using predictive analytics, AI can flag projects that are overshooting their potential before they happen, such as when implementing a new automated billing system. Finally, AI can generate progress reports that keep the CFO and team on track to complete the project.