

Empowering Accounting with Artificial Intelligence

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Abstract

AI is entering the accounting profession. What should accountants do to get the most out of Artificial Intelligence (AI) in their daily jobs? The Tilburg Winter Symposium and Research Camp, themed “Empowering Accounting with Artificial Intelligence,” brought practitioners and researchers together in a two-day event on this important topic. While the tasks and opportunities for AI are numerous, the conference’s overarching conversation suggests that the core of the accountant’s profession is likely to evolve rather than disappear. This evolution requires accountants to redefine their roles by focusing more on how AI can assist in strategic decision-making. Furthermore, participating experts recommend that accountants set up operational and organizational structures and manage stakeholder involvement when using AI, so that the right questions can be asked to ensure that AI can *assist* in improving corporate decisions.

Keywords

Artificial Intelligence, stakeholder engagement, strategic decision making, accountants, governance structure

1. Introduction

In a thought-provoking presentation in 2022, AI researcher Pedro Domingos asked the audience, “How will AI change ethics?”. This question aimed to shift the traditional view of ethics influencing AI to a more balanced view where AI also affects ethics, creating a “two-way street” relationship between the two (Domingos 2022). Mirroring this perspective, the Winter Symposium and Research Camp, hosted by the Department of Accountancy at Tilburg University, took a “two-way street” approach to the relationship between AI and Accounting. This year’s event brought together a diverse group of researchers, industry leaders, and practitioners to explore two key questions: (1) “How will AI change Accounting?” and (2) “How will Accounting change AI?”. While the Symposium sparked discussions about the future of the accounting profession in the face of AI’s transformative potential, the Research Camp provided a platform for sharing state-of-the-art research on the interplay between AI and Accounting.

The event highlighted two important main ideas. First, the task of an accountant will change as the task for which AI can be used needs to be carefully selected. Second,

asking the right questions with AI is as paramount now as it ever was to improve the potential of AI for decision-making.

2. AI is changing the tasks of the accountant

According to researchers at OpenAI and the University of Pennsylvania (Eloundou et al. 2023), the job of the accountant and auditor is one of the most affected by AI. The Future of Jobs Report by the World Economic Forum (2023) predicts major job losses in accounting due to digitalization and automation by 2027. Similarly, Frey and Osborne (2017) rank accountants and auditors to be in the top 20% of the most likely jobs susceptible to computerization. From different angles, using their own expertise and their own lens, our conference speakers gradually unpacked the elephant in the room: *Is the accountant replaceable in the age of AI?*

One of the key ways AI is changing the accounting sector is by altering the nature of jobs. Klaus Möller, Professor of Controlling at the University of St. Gallen, shared

recent survey results indicating AI is a top priority for finance professionals, including accountants. This prioritization reflects the growing recognition of AI's potential to reshape the financial management landscape, suggesting transformation rather than elimination. Indeed, recent research highlights that AI leads to the creation of new jobs in the accounting sector while changing the required skill set (Law and Shen 2021).

2.1. The strategic integration of AI in risk assessment and decision-making

AI is giving rise to a “Jagged Technological Frontier” (Dell’Acqua et al. 2023), a sentiment echoed by various speakers at the Tilburg Winter Symposium. According to this concept, deciding which tasks to use AI for is not trivial. Accountants need to think strategically for which task they use AI. AI might perform better for some tasks, such as performing a risk assessment. For other tasks with similar difficulty, like making client recommendations, AI might underperform. David Wood, a leading researcher in audit technology at Brigham Young University, estimates that AI can handle up to 80% of the work, leaving auditors to fine-tune the final 20%. This is also showcased by Maximilian Muhn, Assistant Professor at the University of Chicago, who presented his work entitled “From Transcripts to Insights: Uncovering Corporate Risks Using Generative AI,” which demonstrates the effectiveness of generative AI, especially models like GPT-3.5, in identifying and quantifying corporate risks from earnings call transcripts. The research indicates that AI-generated risk assessments provide more informative and predictive insights into firm-level volatility and investment decisions compared to traditional methods, underscoring the utility of generative AI in detecting corporate risks. Fig. 1 offers an example of a report generated by ChatGPT.

The impact of AI goes beyond changing the task environment of accountants. The study “Machine Readership and Financial Reporting Decisions” by Cao et al. (2023) highlights the impact of AI on reducing financial

misreporting. Their findings suggest that machines’ advanced capabilities in detecting complex patterns in financial data enhance reporting quality and exert a disciplinary effect on managers and their financial misreporting. This paper prompted discussions on how managers adapt their misreporting strategies in response to advanced machine detection capabilities and the subsequent impact on the overall financial reporting environment. Again, AI tools can be used to assess reporting quality, but accountants need to think about when to use them and anticipate how others will react to the use of AI.

2.2. AI’s broader impact and the future of the accounting profession

With large language models (LLMs), the focus shifts from solely analyzing financial data to incorporating textual data, enabling a revolutionary approach of “doing mathematics with words,” as described by Rob Huisman, Quantitative Investment Expert at Robeco. This concept prompts professionals to consider specific textual data for analysis. For instance, this capability is being explored in fund management, where AI algorithms analyze CEO speech patterns to predict stock prices. To be part of the transformation, Huisman encouraged the accounting profession to consider the question: *What words do you want to do mathematics with?*

AI’s impact extends beyond mere number crunching. Many of our speakers gave examples of how LLMs can be co-pilots in accounting tasks, liquidity forecasts, revenue predictions, and drafting audit plans. In a broader sense, AI is bringing about what Huisman called an “AI gold rush.” Companies increasingly rely on AI for daily operational decisions, creating a dynamic environment where AI tools are shared for marketing purposes and, at the same time, guarded as proprietary intellectual property.

A rapidly improving landscape is ahead of us, signaling a future where AI is an integral and indispensable part of the accounting profession. It requires, however, careful thinking on where we can rely on machines (AI) and where professional judgement is still required.

Figure 1. A climate risk report generated via Chat GPT from an earnings call transcript.

Climate Change Risk Assessment

It is worth noting that the company’s use of leading-edge technologies in wafers, silicon wafers, substrates, and packaging may have implications for their environmental footprint. These technologies often require significant energy and resource consumption during production and may generate electronic waste at the end of their lifecycle. Additionally, as the company’s networking products are being used in the creation of Ethernet fabric for AI clusters, there may be indirect environmental risks associated with the energy consumption and carbon footprint of these clusters. It is important for the company to consider the sustainability of their networking products and ensure they are aligned with environmental regulations and standards.

Source: Kim et al. (2023)

3. Accountants can improve the use of AI by asking the right questions

Implementing AI in accounting requires a thoughtful approach, as highlighted by speakers at the Tilburg Winter Symposium. As explained by Merel Noorman, Assistant Professor at Tilburg Law School, a key initial step is asking questions: “Are we framing the problem correctly?” and “Should AI be used to address the problem?”. Related to the idea of when to trust AI results, Benjamin Commerford presented “Reliance On Algorithmic Estimates: The Joint Influence of Algorithm Adaptability and Measurement Uncertainty.” The study reveals that auditors increasingly rely on algorithmic advice in measurement uncertainty, particularly if algorithms are adaptable and have learning capabilities. The broader implications of this study imply that reliance on algorithmic advice is contextually dependent. It is influenced by an algorithm’s features and capabilities, and it is important to understand the features of the AI to help auditors and accountants make better use of them. This raised questions among the audience about the broader implications of this reliance on audit and regulatory practices and whether such increased reliance is desirable.

3.1. Engaging stakeholders

Explainability, or the question “How does this work?” is a key factor in AI use, according to Huisman. It is vital to articulate the purpose of AI usage and have robust safety measures. Noorman stressed the importance of engaging stakeholders in the conversation, including those indirectly affected by AI. She argued that involving stakeholders early in the process and in asking questions is key to gaining acceptance for AI solutions. When doing so, the focus should be on how AI can enhance the business case rather than on technical details (Xivuri and Twinomurizi 2023). Huisman agreed and further explained that the issue is no longer with computation (power); the important issue is the ability to explain to stakeholders what the algorithm is performing and what parameters influence the outcome. Put it differently: to fully benefit from the improvements in task accuracy and efficiency, there is still a need to upskill to explain and articulate the work of AI. While upskilling is necessary to stay ahead of the competition, skills such as asking the right questions, negotiating outcomes, and being sceptical are and will remain relevant.

3.2. Towards a successful accountant-machine interaction

Möller emphasized the pivotal role of human accountants in incorporating AI’s power. He noted that while AI can automate many tasks, critical insights and final decisions should ideally be overseen by skilled professionals, placing the human accountant at the center of AI integration. The synergy of human-machine interactions lays the groundwork for

tasks like automated data preparation and initial forecasts. However, the critical phase is the accountant’s intervention for validation and adjustment. This involves scrutinizing the reasonableness of forecasts and, if necessary, altering parameters—decisions that rest with human professionals, as Möller explained. He also suggested that implementing frameworks governing AI use in accounting is highly dependent on individual firm characteristics, with management control emerging as a key area for such implementations. Moreover, organizational structures often play a critical role in how companies adapt and integrate AI. While companies may not struggle with data, adapting leadership and accountability across different business units is essential. He envisions that the challenge for many established companies is not just in adopting new technologies, like LLMs, but in effectively integrating them into their existing structures, often leading to complex management control challenges.

In that regard, Maurice Op Het Veld, Global Lead Technology & Digital Audit Partner at KPMG, shared five success criteria for AI implementation that were identified from surveys of AI implementation leaders and laggards:

- establishing a data strategy within the organization;
- measuring AI’s performance and value;
- securing full executive commitment;
- combining internal data with external sources for broader insights; and
- demonstrating algorithm fairness to build trust in algorithms.

These criteria provide a framework for successfully implementing and leveraging AI in accounting, ensuring its beneficial integration into the field.

4. Conclusion

AI is changing how accountants will perform their jobs. Careful thinking on how AI can be strategically used in decision-making is a key challenge. Also, accountants should think about how they can change the role of AI. If accountants simply introduce AI without asking the right questions, disregarding its users, its governance structures, and its success criteria, strategic AI adoption may be doomed to fail. The good news is that the job of an accountant will not disappear. More than ever, accountants are in the driver’s seat to decide when to use AI and set up appropriate structures for the effective use of AI.

Disclaimer

This article synthesizes the collective conversation at a conference without attributing specific speakers. It employs Artificial Intelligence tools, including ChatGPT 4.0, for processing conference notes and assisting in the article’s writing.

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