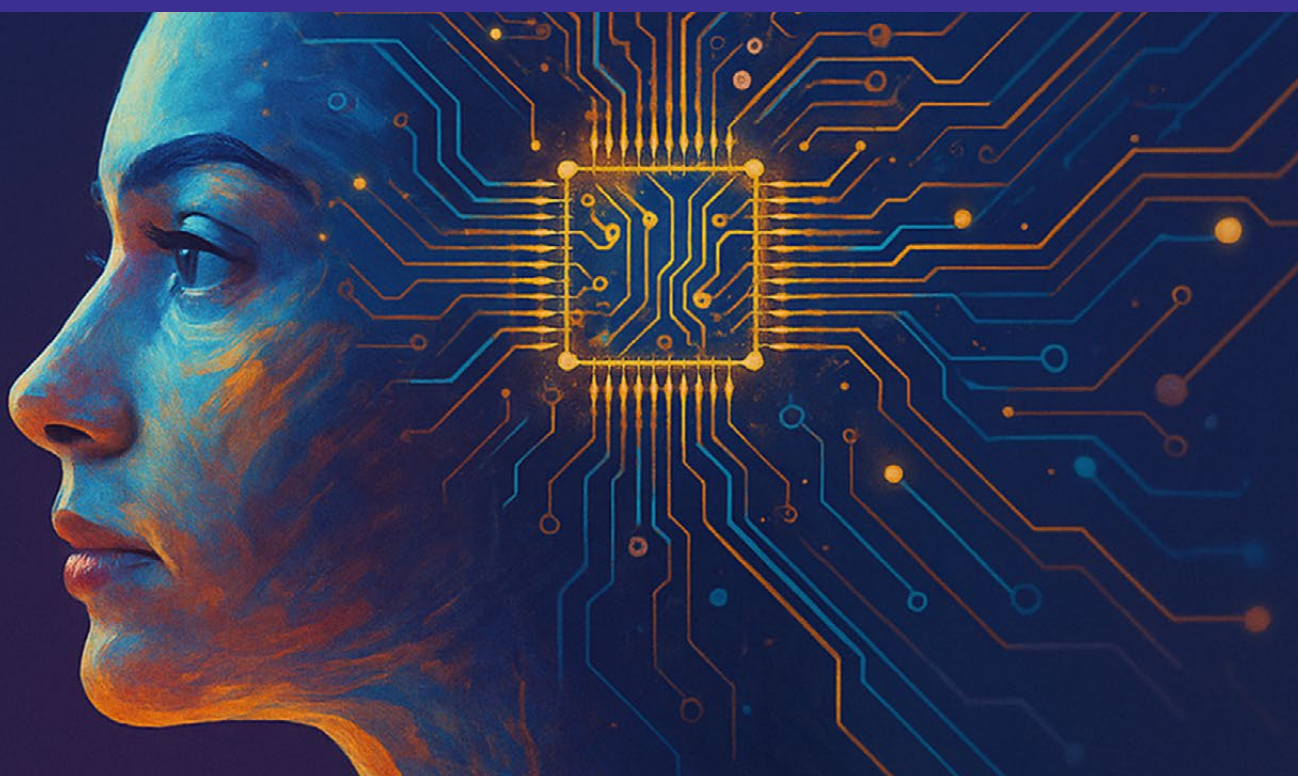




LIGHTS - Technology

CFOs in the age of AI: How artificial intelligence is transforming accounting and audit

ESCP Impact Paper No.2025-35-EN

Jan FRIEDRICH, Christopher HOSSFELD, Anne LE MANH & Francesco VENUTI
ESCP Business School

[CFOs in the age of AI: How artificial intelligence is transforming accounting and audit

Jan Friedrich*
Christopher Hossfeld*
Anne Le Manh*
Francesco Venuti*

ESCP Business School

Abstract

Artificial intelligence is having a significant impact in all business sectors, areas, functions, as well as on work processes, activities, and roles. The field of financial accounting and audit is no exception to this transformation. The landscape of financial accounting and audit is just at the beginning of a reshaping transformation, starting with the further automation of routine tasks and the enhancement of analytical capabilities. The aim of this paper is to discuss the benefits and risks of AI technology in the accounting and audit profession. Specifically, in the first part we map the current situation of the adoption of AI by and the impacts of AI on the role and activities of CFOs, while in the second part we provide a critical reflection on the future trend and evolution.

Keywords: financial accounting, auditing, AI, financial reporting

*Professor, ESCP Business School, Department of Financial Reporting and Audit

CFOs in the age of AI:

How artificial intelligence is transforming accounting and audit

Impacts of AI on accounting and audit: the current situation

The aim of this paper is to discuss the benefits and risks of AI technology in the accounting and audit profession. Specifically, in the first part we map the current situation of the adoption of AI by CFOs and the impacts of AI on their role and activities, while in the second part we provide a critical reflection on the future trend and evolution

AI has rapidly and significantly integrated into our daily lives. It is quite common to define this phenomenon as a revolution, probably because of the intensity of its impact but also the fast pace at which it is happening. Within a lot of uncertainty, three general points seem to be quite clear at the moment:

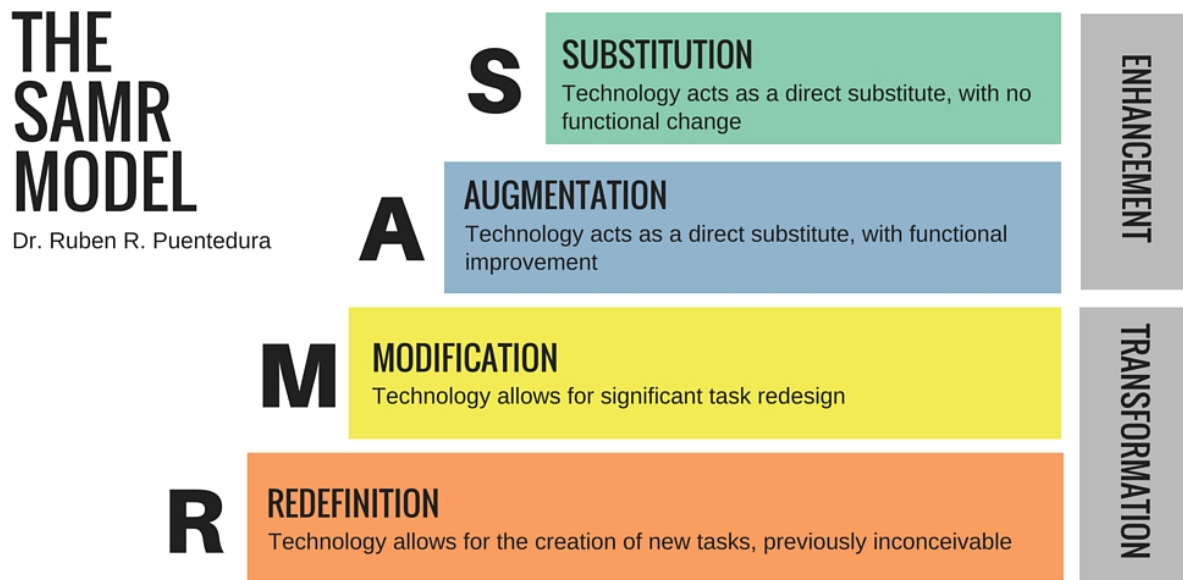
1. AI is here to stay.
2. It will impact significantly and transversally almost all business activities, as well as different areas of ordinary human life.
3. The long-term effects of AI remain largely unknown and unpredictable, yet it presents unprecedented opportunities alongside significant risks.

The financial sector and the field of accounting, auditing, and finance are impacted by these trends and these evolutions, with some effects that are similar to other functions and others that are pretty unique.

A powerful theoretical framework to analyse the different levels and depth of adoption of a new technology is the well-known SAMR model, developed by Ruben Puentedura (2013). It is used to interpret and analyse the integration of a new technology in specific areas, functions, or activities. This model has been largely adopted to describe (and also to guide) the integration of digital technologies, especially in education, since almost two decades ago, when the first personal computers, interactive boards, screens and digital devices entered classrooms. It is also powerful because it can be interpreted not only as a description of the “status quo,” but also as a roadmap for the effective integration and adoption of a new technology in different fields and areas.

The SAMR model (see figure 1) identifies 4 steps or levels of integration/adoption of a new technology: substitution, augmentation, modification, and redefinition. In the following paragraphs, we highlight some examples of AI adoption and impacts on the accounting and audit area, classified by each step of the model.

Figure 1 - The SAMR model



SUBSTITUTION

The first and most basic level involves technology simply replacing activities previously performed by humans in the same way (maybe faster or with more precision, but the task and the outcome remain exactly the same).

In accounting and audit, we find examples of “substitutions” related to AI adoption in the following contexts:

1. *The automation of routine and repetitive tasks*

Today, basic accounting functions such as bookkeeping (e.g., journal entry testing), accounting for supplier or client invoices can already be highly automated. AI enables the automation of additional routine tasks such as data extraction, integration of data from different sources for consolidation purposes, expense tracking, document review, preparation of periodic reports, or more general financial reporting (for example, using XBRL). The automation of these tasks will free time for CFOs and auditors to focus more on high-value-added or high-risk activities (Dennis 2024). For example, JP Morgan developed COiN (Contract Intelligence), an AI tool to automate the review and extraction of data from complex credit agreements. Previously, this task was performed by humans and it took them approx. 360,000 hours; it takes COiN several seconds, and the results contain fewer errors (Nguyen 2025). Another example comes from Deloitte, which introduced Argos and the use of NLP and machine learning to scan contracts (leases, derivatives, sales) and extract key data from PDFs into structured tables for risk sensing, anomaly detection, and trend analysis.

2. *Enhanced data analysis and anomaly detection*

AI algorithms can analyse large datasets in almost real time, quickly and accurately identifying emerging trends, highlighting potential anomalies, and potential fraud that might be more difficult to detect in manual reviews (or, at least, in earlier stages). In the audit field, for example, instead of auditors manually sampling transactions to test controls, AI algorithms could review all transactions (100%) to identify exceptions or anomalies. The task of testing remains, but the execution method is substituted by AI. This could therefore allow both CFOs and auditors, but also regulators and public authorities, to be faster in data processing, and in anomaly and fraud prevention and detection. PayPal uses AI to screen billions of transactions for potential fraud; this has

led to a 20% decrease in fraud losses and generally improved detection accuracy (Nguyen 2025). Similarly, Citibank uses AI for its credit risk assessment and, consequently, has significantly increased the accuracy of those assessments (Chu 2025).

3. *Streamlined compliance*

AI ensures compliance with regulatory standards like local GAAP, IFRS, and SOX by cross-checking transactions automatically. This reduces the burden of regulatory reporting while enhancing transparency. It also allows CFOs, auditors, and regulators to focus only on the high-risk aspects of transactions. EY (US) uses AI to ensure compliance with reporting rules; this has led to a 40% lower audit completion time and increased accuracy (Chu 2025). Deutsche Bank uses AI in a different area of compliance. It automated trade settlement processes and developed a chatbot “Debbie” that provides immediate answers to clients’ enquiries regarding their trades (Nguyen 2025).

AUGMENTATION

The second level is characterized by an increase in the outcomes and performance. The tasks, processes, and products remain mostly the same, but their quality and functionality are significantly improved and/or a higher quality level.

Examples of augmentation effects in the accounting and auditing area are the following:

1. *The adaptation of financial reporting*

The financial reports of companies, which represent the end-product of the whole financial reporting process, will be increasingly automatically “read,” analysed, and interpreted by AI-based tools. Analysts use (more and more) AI tools also to perform (traditional) financial statement analysis, analysing the numbers of the company, and also interpreting them by comparing and integrating aggregated data, benchmarks, industry comparisons, etc. But AI tools (e.g., Large Language Models such as BERT) are also increasingly used to “read between the lines,” analysing reporting (positive or negative) tone or sentiment with textual analysis or during analyst conferences, including pictures and graphs or other visual information. That means analysts have access not only to the numbers, but also to a larger set of reports, analysis, information, and insights derived from financial reports. It will be interesting to observe how the presentation of data and information in financial reports will evolve in the future. It may lead to changes better suited to AI interpretation than human understanding. Here, AI can also be used directly to prepare the financial reports, for example to write texts in a way that could be perceived with a more positive tone by another AI tool. KCAT (KPMG Content Abstraction Tool) is an AI tool integrated with IBM Watson and trained via Watson Knowledge Studio, that rapidly analyzes contracts to extract IFRS 16 data and other key financial attributes, employing OCR, NLP, and process automation, providing companies a huge support especially for their leasing contracts and the related data.

2. *Real-time monitoring*

AI tools could provide immediate insights into key financial drivers, operational bottlenecks, and cash flow forecasts. AI enables processes of continuous monitoring in almost real time of all financial transactions, shifting control and auditing activities from periodic reviews to ongoing assurance. This helps detect and address issues promptly and improve the effectiveness of the role of CFOs and auditors. For instance, Aletryx is already offering continuous audit solutions.

3. *The enhancement of decision making*

AI-based tools can effectively be used for advanced analytics and as predictive tools for better forecasting, scenario planning, and decision-making based on a vast set of real-

time data. Since AI can analyse structured and unstructured data to uncover hidden trends or drivers, strategic planning can be significantly improved because of better scenario simulation.

4. *The improvement of risk management*

The advanced analytics capacities of AI can also improve risk management by analysing large datasets for anomalies and vulnerabilities. For example, the analysis of vast datasets of general ledger entries, sub-ledgers, as well as external data (such as social media sentiment, news articles, analysts' reports, etc.) could help identify patterns, trends, and potential risks that humans might miss. This augments the analytical capabilities of all the people involved in risk-management activities (from CFOs to auditors, from regulators to consultants), allowing for more comprehensive risk assessments and targeted testing. Risk management can change from a reactive to a more proactive approach. This impact could be significant in all the sectors and industries where risk management is particularly relevant (such as banking and insurance). We mentioned above the examples of PayPal and Citibank that use AI for their fraud detection and credit risk assessment.

5. *Improved accuracy and speed of traditional financial reporting processes*

AI-powered tools (such as natural language processing - NLP) could improve the speed and accuracy of all financial reporting processes, for example by quickly reviewing contracts and identifying relevant clauses for revenue recognition. These tools could therefore augment their "manual capacities" by providing faster, more accurate and more consistent insights, quickly flagging potential issues that might otherwise be missed by humans. On the auditing side, Deloitte has released its own chatbot for its workforce across the UK, Europe, and the Middle East, designed to help improve workplace efficiencies in the auditing activities. It is estimated that the introduction of AI-related tools has reduced document review time by 20–90%, enabling auditors to focus on interpretation and strategy.

MODIFICATION

At the third level, processes are transformed, and individuals begin to "do things differently" due to the introduction of the new technology. Tasks and processes are redesigned accordingly.

1. *Shifts of the process of financial analysis and forecasting from static to dynamic*

AI predictive analytics tools could continuously update forecasts based on real-time operational data, market trends, and external factors. This could modify the traditional approach to forecasting and financial analysis, moving from traditional static periodic (monthly or quarterly) reports and forecasts based on standard spreadsheet models to dynamic reports, self-updating in real-time. This would therefore shift forecasting towards dynamic scenario planning and sensitivity analysis that would be impossible with traditional static manual methods, significantly modifying how financial planning is done.

2. *Change in the approach and the process of materiality assessment*

Materiality is a key concept in financial reporting as it is at the basis of the identification of the elements that are "relevant," "significant" and therefore should be included in the reports. AI tools could shift from periodic, judgment-based analysis and assessments to a real-time data-driven, continuously updated mapping, thereby modifying the entire process.

3. *The transformation of skills*

Accounting professionals in general, and CFOs and auditors in particular, have to upgrade their knowledge, in order to train, implement, and manage effectively AI-based tools, but also to critically interpret their output (for example, dealing with the well-known problems of hallucinations), and to predict future evolutions based on the adoption of AI tools. In addition, new specific skills (for example, prompting accurate and correct “instructions” for AI tools), which were not previously required in the accounting and auditing professions (but rather related more to coding and computer sciences), are now becoming critical and strategic ones.

REDEFINITION

In this last phase new activities, outcomes, processes, and products are created and designed, thanks to the new technology.

1. *Workforce transformation*

The adoption of AI tools certainly requires a transformation in the workforce within the financial accounting and auditing activities. New roles and new activities must be defined, and a whole reorganization and redefinition of processes must take place (for example, the bookkeeping process and the auditing procedures). New skills and abilities are becoming more relevant and should be considered in both the training of the workforce as well as in the recruitment process. CFOs and auditors must actively support this transformation in the workforce, making efforts to upskill their finance teams, while providing adequate support and avoiding strong resistance to change.

2. *Redefinition of roles and responsibilities*

The roles and responsibilities of CFOs, auditors and most of the functions involved in all financial accounting activities will be significantly redesigned. AI will enable a significant shift in focus from more operational tasks to strategic initiatives, supervision activities, correct ability to prompt and to elaborate data with AI tools. This will create a significant change in terms of responsibilities and could transform the finance function into a more value-generating entity.

3. *New values and ethical implications*

As a consequence of the change in responsibilities and activities, the entire system of values and ethical implications of the accounting and auditing profession could also be significantly reshaped. New ethical aspects are emerging regarding many issues, spanning from the adoption and use of AI in everyday work and activities, to the potential influence and power on the market and the societal implications.

4. *Change in data infrastructure, and cybersecurity measures to safeguard AI-driven processes*

The adoption of AI-based tools in accounting and auditing definitely implies a robust change in the broader data infrastructure of companies, with an adequate consideration of the related potential risks (such as cybersecurity, data leakage, data privacy, and data manipulation).

By classifying the impact of AI using the SAMR model, it becomes quite clear that AI is moving much beyond the simple automation of existing tasks. It is truly transforming financial accounting and auditing in general and the CFO profession in particular, creating capabilities that were previously unimaginable - and possibly not yet fully identifiable.

Clearly, the most transformative potential lies in the “Redefinition phase” of the SAMR model, where AI-tools will enable previously inconceivable capabilities, such as fully autonomous auditing or strategic scenario modelling. This fundamentally redefines the roles of finance professionals, but also their skills, training, ethics, and values. Thus, the SAMR model not only describes the current implementation of AI across accounting functions, but also provides a conceptual roadmap for its progressive adoption. Therefore, it is helpful for managers, entrepreneurs, regulators (who are called to set new rules reflecting this evolution) and educational institutions such as universities and business schools, which are called to adapt their programmes, courses, and curricula to adequately prepare the new generations of accountants, CFOs, and auditors. To fully realize AI's transformative impact, organizations must invest in both technology and human capital, ensuring that skillsets evolve in parallel with digital capabilities.

An agent, not a tool? Critical reflections on AI's impacts on accounting and auditing

Given the previously described context of adoption of AI in the financial accounting and auditing field, and in light of the potential future evolution and the role of companies, regulators, and universities, a critical reflection on this process becomes necessary.

“AI isn't a tool – it's an agent. The biggest threat of AI is that we are summoning to Earth countless new powerful agents that are potentially more intelligent and imaginative than us, and that we don't fully understand or control.” (Harari 2024)

Automation processes have already altered the decision-making processes of CFOs. Previous digitalization tools were task-specific, and control was quite often fully in human hands. AI (at least at the current stage) “mimics” these digitalization tools, strengthening our trust in its problem-solving capacities. This mimicking creates the false impression that it is just another application of digital tools. However, AI is fundamentally different. The more AI evolves, the less it will require human intervention. Instead of supporting human decisions by collecting and analysing data, AI can act on information independently from human intervention. In other words, AI is an agent that can potentially replace or even completely do away with human power over decisions.

Importantly, this agent operates beyond human comprehension. AI has an “alien type of intelligence” (Harari 2024). Harari warns that humanity increasingly places trust in this technology without knowing its goals or thought processes. As AI will find its way into all levels of a firm's oversight and governance processes, a shift in the mind-set of CFOs and auditors seems necessary.

As AI evolves, it becomes less artificial (in the sense of depending on human design and control) and more alien (in the sense of being autonomous). AI isn't progressing towards human-level intelligence. It is evolving as an alien type of intelligence.

A strong reflection about the true essence and nature of AI tools as well as a deep reflection on the related risks and reliability of these tools is therefore imperative.

A key question that every manager, especially CFOs and auditors, should ask themselves is how they approach and consider AI: **is it a tool or an agent?** While this question may seem simple, it is fundamental in shaping the approach, response, and mindset. Most importantly, answering this question will determine the outcomes and consequences of the adoption of AI in every field, including accounting and auditing.

The way AI is defined, whether as a tool or as an agent, has significant implications for how accountants and auditors interpret AI-generated results. Treating AI as an agent induces a higher degree of mistrust. This perspective increases the user's awareness that AI is not passive and does simply accomplish human tasks (like a tool) but has the potential for proactive problem-solving and creative exploration. Our trust in tools is based on past experiences. However, AI as an agent learns and adopts over time, making previous interactions only partially credible. The risk that CFOs and auditors overtrust the outcomes and the results coming from the use of AI is significant, especially because this risk is silent and subtle.

For example, the strong adoption of AI in accounting and finance could lead to overestimation and an overconfidence in the power of AI. AI is based on past data or - better - on real time information. It is a common misconception that AI could predict events with certainty (such as “black swans”), or anticipate regulatory changes, or shifts in market sentiment. AI may easily overfit historical data, leading to false confidence in future projections.

Conclusion

The SAMR model provides a useful lens to classify and understand the evolving impact of AI on financial accounting and auditing, from basic automation to the redefinition of professional roles, practices, and ethics. Yet, as AI tools increasingly assume decision-support and even decision-making functions, it is necessary to reflect further on whether we should regard AI merely as a tool or as an autonomous agent within organizational processes. This distinction raises critical questions around accountability, transparency, and control. Moreover, the risks of overconfidence in AI outputs and mistrust in its opacity highlight the necessity for a deeper understanding of human-AI interaction in the accounting and auditing field, and more broadly in financial decision-making. As adoption accelerates, an immense potential of future research opens for the exploration not only of technological integration but also the ethical, cognitive, and institutional dimensions of AI in accounting. This calls for integrated interdisciplinary approaches that bring together technical insight, professional judgment, and governance frameworks to shape a responsible and effective future for AI in the financial domain.

References

- Chu U. (2025). AI in Finance and Accounting: Top Use Cases You Need to Know. Available at: <https://smartdev.com/ai-use-cases-in-finance-and-accounting> [Last accessed 15 July 2025]
- Dennis A. (2024). What AI can do for auditors, *Journal of Accountancy* [online], 1 February. Available at: <https://www.journalofaccountancy.com/issues/2024/feb/what-ai-can-do-for-auditors/> [Last accessed 30 May 2025].
- Harari Y. (2024). Never summon a power you can't control: Yuval Noah Harari on how AI could threaten democracy and divide the world, *The Guardian*. Available at: www.theguardian.com/technology/article/2024/aug/24/yuval-noah-harari-ai-book-extract-nexus [Last accessed 30 May 2025]
- Nguyen N. (2025). AI in Finance: Top Use Cases and Real-World Applications. Available at: <https://smartdev.com/ai-in-finance-top-use-cases-and-real-world-applications> [Last accessed 15 July 2025]

PuenteDura R.R. (2013), SAMR: Moving from Enhancement to Transformation. [online] Available at: <https://eddl.tru.ca/wp-content/uploads/2018/12/SAMREnhancementToTransformation-PuenteDura-2013.pdf> [Last st accessed 30 May 2025]

Suleyman M. (2023), "The coming wave," Crown Publishing, New York.

Wagner A. F. (2025), Die Rolle der Künstlichen Intelligenz (KI) in der Unternehmensberichterstattung: Chancen, Risiken und Implikationen für die Zukunft des Accounting, *Swiss Journal of Business*, 79/1, 77–83.

For this paper, AI-powered tools were utilized solely for proofreading and language enhancement and improvements. The core ideas, research content, and conclusions are entirely the work and responsibility of the authors. The prompts used in conjunction with these AI tools have been saved and can be provided upon request to ensure full transparency and academic integrity.