ECONSTOR
Make Your Publications Visible.

A Service of

ZBW Leibniz-Informationszentrum Wirtschaft
Leibniz Information Centre for Economics

Hacker, Bernd

Working Paper

Will ChatGPT revolutionize accounting? The benefits of Artificial Intelligence (AI) in accounting

Rosenheim Papers in Applied Economics and Business Sciences, No. 6/2023

Provided in Cooperation with:
Rosenheim Technical University of Applied Sciences

Suggested Citation: Hacker, Bernd (2023) : Will ChatGPT revolutionize accounting? The benefits of Artificial Intelligence (AI) in accounting, Rosenheim Papers in Applied Economics and Business Sciences, No. 6/2023, Technische Hochschule Rosenheim, Rosenheim, https://nbn-resolving.de/urn:nbn:de:bvb:861-opus4-21340

This Version is available at:
https://hdl.handle.net/10419/273360

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

WWW.ECONSTOR.EU

Mitglied der Leibniz-Gemeinschaft

Technische Hochschule Rosenheim

Will ChatGPT revolutionize accounting?

The Benefits of Artificial Intelligence (AI) in Accounting

Prof. Dr. Bernd Hacker
Technische Hochschule Rosenheim
Fakultät für Betriebswirtschaft
Rosenheim Technical University of Applied Sciences
bernd.hacker@th-rosenheim.de

Rosenheim Papers in Applied Economics and Business Sciences

No. 6/2023

Will ChatGPT revolutionize accounting?

The Benefits of Artificial Intelligence (AI) in Accounting

Keywords:

- ChatGPT
- Artificial intelligence
- Chatbot
- Accounting
- Appendix
- Auditing

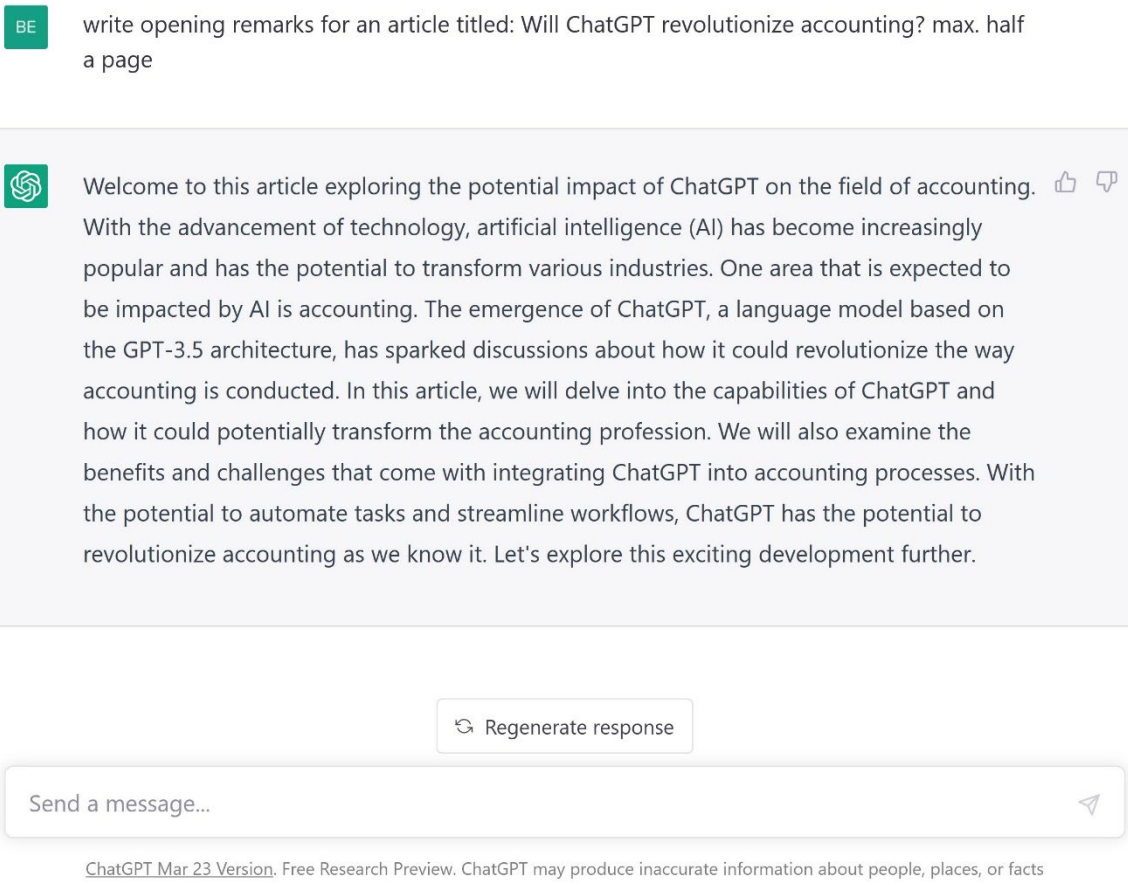
Contents

Abstract 2
1. Introduction 3
2. Possible applications of artificial intelligence (AI) 3
   2.1 Automation of routine tasks 3
   2.2 Improvement of Efficiency 4
   2.3 Insights into the financial data 4
3. Examples of use of ChatGPT in practice 4
   3.1. Notes 4
   3.2 Management Report 6
   3.3 Audit 7
4. Critical appraisal 8

Prof. Dr. **Bernd Hacker**, Rosenheim Technical University of Applied Sciences,

e-mail: bernd.hacker@th-rosenheim.de

Abstract



It's an experiment! This paper explores how ChatGPT can be used in accounting and reporting to automate routine tasks, increase efficiency, and better understand financial data.[1] The creation of the paper itself was done with the help of ChatGPT, i.e., significant parts of this text were created by the AI and then edited and completed by the author in terms of content and language.[2] On the one hand, this is intended to show the potential of the application in practice and to make it clear that dealing with the tools of AI will be indispensable in the future, but on the other hand, the risks and concerns are also addressed

[1] See for a literature review *Hasan, A.*, Artificial Intelligence (AI) in Accounting & Auditing: A Literature Review, in Open Journal of Business and Management 2022, 440-465.

[2] This is an English version of an article published in German in IRZ, Vol. 3/2023, pp. 117. The translation has been made with DeepL Pro.

1. Introduction

"I thought I was on hidden camera, that's how good the text was." That's what an accounting employee said recently when recounting her first experience with ChatGPT, which she used to draft text for her management report. For some time now, ChatGPT has been the talk of many media outlets, with reports that ChatGPT passed a U.S. medical test but not the Bavarian Abitur.[3]

ChatGPT, developed by U.S.-based OpenAI,[4] is an innovative **speech generation model** that uses deep-learning algorithms based on artificial intelligence (AI) to generate human-like response text to posed questions. It was only released on November 30, 2022, and is said to have revolutionized the field of speech processing in a short period of time. The "text robot" offers a wide range of potential applications in various industries, including accounting and reporting. As technology advances and the use of Artificial Intelligence and Machine Learning grows, it is likely that ChatGPT will play a significant role in transforming the accounting industry.

One of the areas where ChatGPT can make an impact is in automating tasks that previously had to be done manually. This includes data entry, invoice review, and report writing. By using ChatGPT, the efficiency and speed of these processes can be increased, resulting in faster and more accurate invoicing.

Another area where ChatGPT can have an impact is in its ability to analyze and understand large amounts of data. Based on machine learning and artificial intelligence, the program can quickly sift through large amounts of data and identify important trends and patterns that might otherwise be missed.

Overall, ChatGPT can improve accounting in many ways, from automating tasks to analyzing data. While ChatGPT can be a great support, it is important to recognize that humans must continue to play an active role in monitoring and reviewing results to ensure that accounting remains accurate and reliable.

2. Possible applications of artificial intelligence (AI)

2.1 Automation of routine tasks

One benefit of using ChatGPT in accounting and reporting is the ability to **automate routine tasks**. This includes tasks such as data entry, report generation, and financial statement reconciliation.

For example, ChatGPT can automate data entry by using natural language processing to extract relevant information from unstructured data sources such as emails and invoices. This not only reduces the time and effort required to manually enter data, but also reduces the risk of errors and increases the accuracy of the data.

Creating reports is another routine task that can be automated with ChatGPT. With its ability to generate human-like text, ChatGPT can generate reports in a clear and concise manner that reduces the time and effort required to write reports manually.

Financial statement reconciliations are critical accounting and reporting processes, and ChatGPT can help automate this task as well. Due to its ability to analyze large amounts of data, ChatGPT is able to

[3] Cf. https://www.geo.de/wissen/chatgpt-besteht-us-medizinpruefungen-33183952.html (accessed Feb. 15, 2023).

[4] OpenAI (2023). ChatGPT: Optimizing Language Modelsfor Dialogue . https://openai.com/blog/chatgpt/ (retrieved Feb. 15, 2023).

quickly identify and reconcile differences between reports, reducing the time and effort required for manual reconciliation.

2.2 Improvement of Efficiency

In addition to automating routine tasks, AI can also help improve efficiency in accounting and reporting. For example, AI can be used to **answer routine questions from stakeholders** such as customers and investors, freeing up finance teams to spend more time on more complex tasks.

AI can also be used to provide **real-time financial information and insights** so stakeholders can make informed decisions faster. For example, AI can be used to create custom financial reports on demand so stakeholders have access to the information they need, when they need it.

2.3 Insights into the financial data

One of the main benefits of using AI in accounting and reporting is the ability to gain better insight into financial data. With its ability to analyze large amounts of data and generate human-like text, AI can help accounting departments better understand financial data and **identify trends and patterns** that might otherwise be overlooked.

AI can be used to create financial reports that highlight key trends and insights, such as changes in revenue, expenses, and profitability. AI can also be used to create reports that highlight areas for improvement, such as areas where costs can be reduced or revenue can be increased.

One of the key ways AI can provide insight into financial data is through the use of natural language *processing* (NLP) and machine learning **algorithms.** [5] These technologies enable AI to analyze large volumes of financial data, identify trends, and generate reports and visualizations that provide valuable insights into a company's financial performance. Such patterns and trends can include seasonal fluctuations in revenue or expenses. In addition, reports on financial performance can be generated in real time, including key performance indicators (KPIs), cash flow and profitability.

Another way AI can provide insights into financial data is through the use of ***predictive analytics***. By analyzing past financial data and using machine learning algorithms[6] , AI can make predictions about future financial performance, such as future revenue or expenses. This allows companies to plan for the future and make informed decisions about their financial strategy.

3. Examples of use of ChatGPT in practice

3.1. Notes

One way ChatGPT can be used for the notes and management report is to **provide explanations for financial information**. This allows financial professionals to easily understand and communicate the information contained in financial reports to stakeholders such as investors, regulators, and auditors. ChatGPT can use NLP and machine learning algorithms to analyze financial data and provide an explanation of the information contained in financial reports, including accounting policies, significant transactions and events, and other important information.

[5] For possibilities of text analysis by AI, see *Roeske/Hannen*, IRZ 2019, 363 ff.
[6] See also *Gierbl/Schreyer/Borth/Leibfried*, Deep Learning für die Wirtschaftsprüfung, IRZ 2021, 349 ff.

Fig. 1 shows an example of what ChatGPT proposes as a note on associates in the accounting policies.

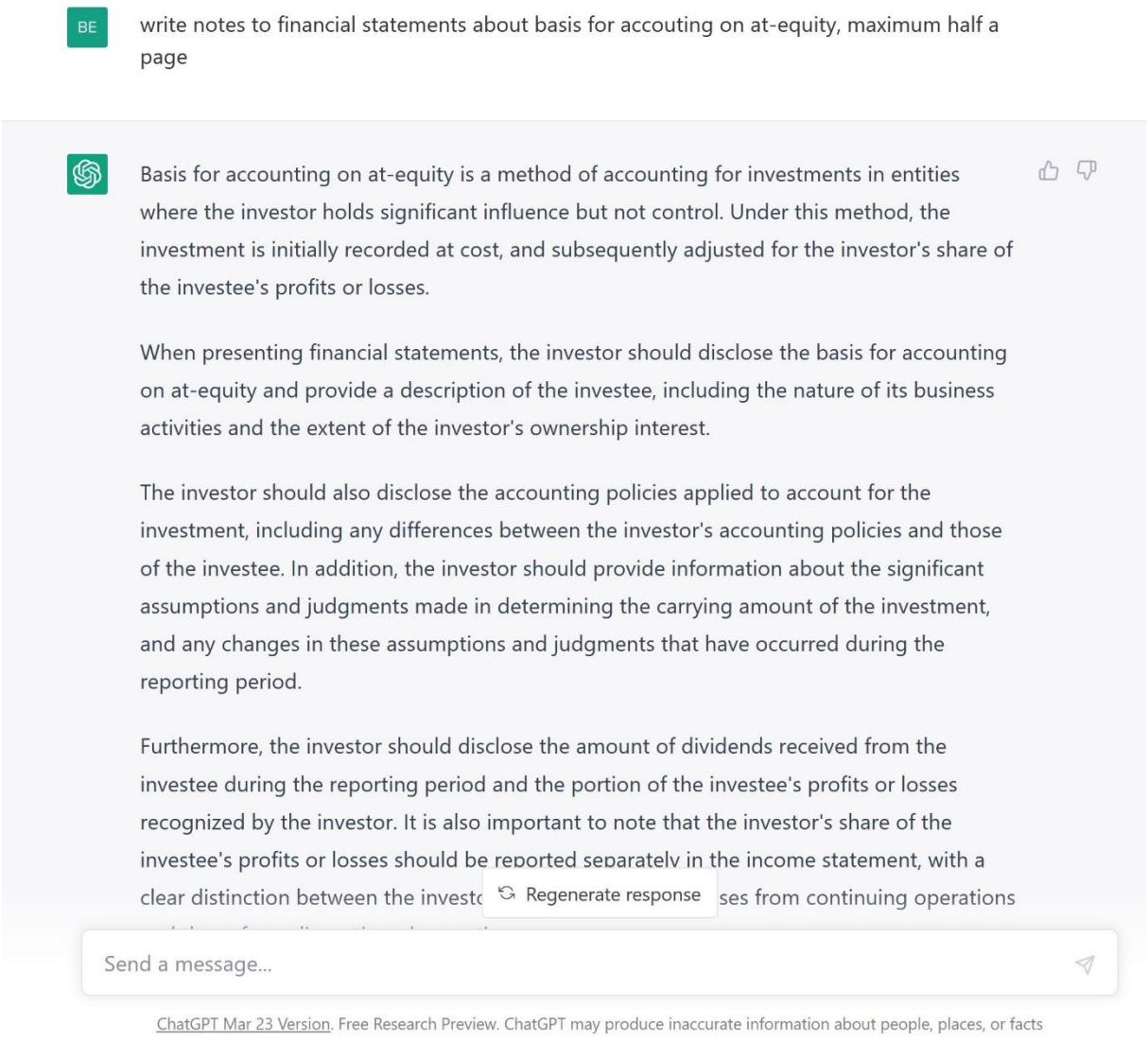


Fig. 1: Example of notes information from Chat GPT

This initially very generic text can provide the basis for the accounting staff to enter the company-specific facts in the next step.

Another example of revenue recognition is shown in Fig. 2.

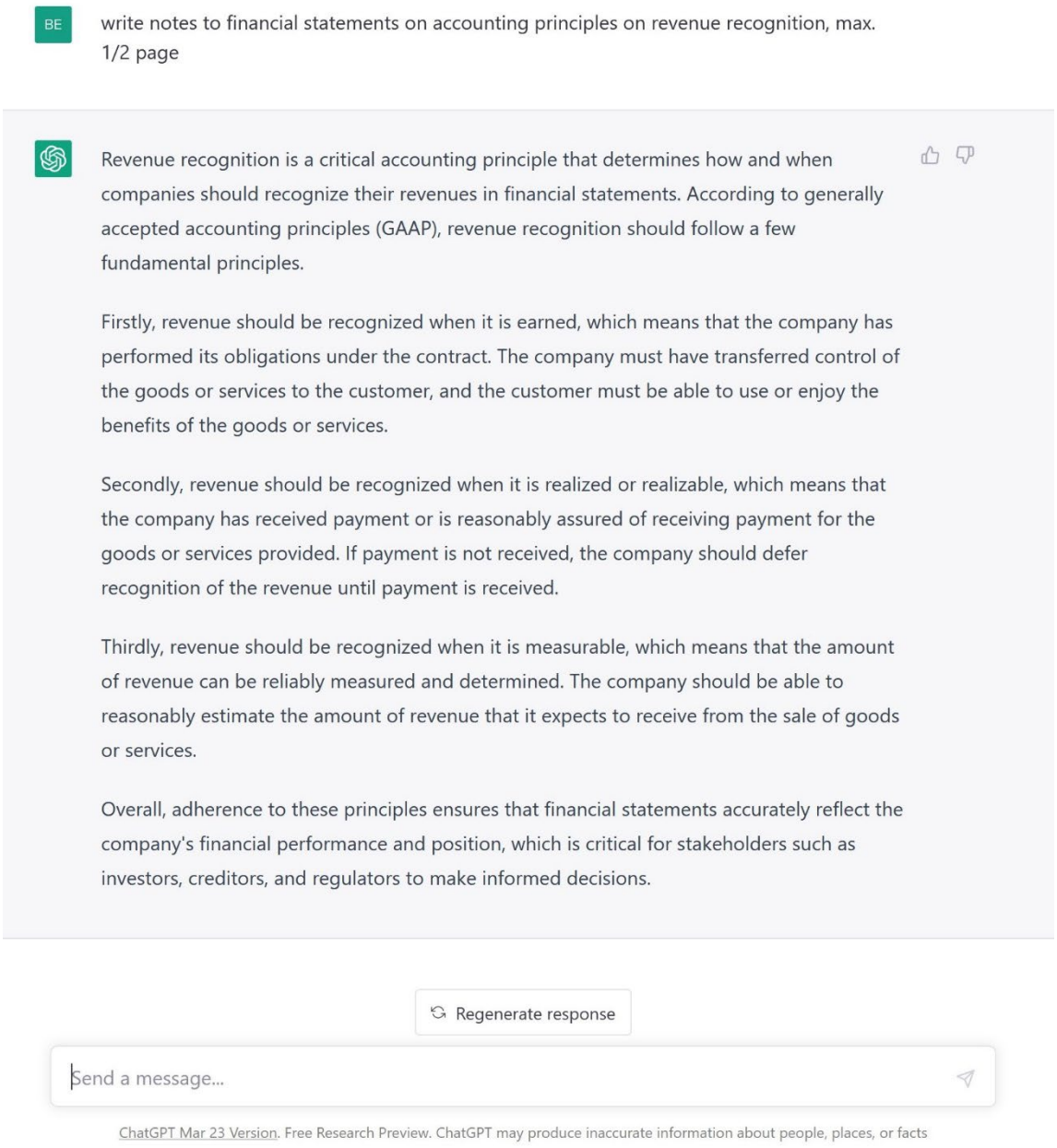


Fig. 2: Example of note disclosure on revenue recognition

This example also shows that the answer, which initially sounds surprisingly correct, definitely requires further clarification.

3.2 Management Report

ChatGPT can be used in the following ways when preparing the management report of a corporation:

1. Automated data entry: ChatGPT can collect data from various sources such as and automatically insert it into the situation report. This speeds up the process and minimizes errors caused by manual entry. Routine tasks such as data entry, reconciliation and report generation can thus be automated.
2. Data analysis and interpretation: ChatGPT can use NLP and machine learning algorithms to analyze large volumes of data, identify trends and patterns, and provide valuable insights

into a company's financial performance and position. This information can support management reporting by highlighting relevant information.
3. Report generation: ChatGPT can automatically generate a report based on the collected data and analysis. This can speed up the report generation process and minimize errors that can occur with manual generation.
4. Presentation of data: ChatGPT can visually prepare data to make it easy to understand and present. This can help readers of the management report better understand the information and identify important trends and patterns.
5. Provide clear and concise explanations: ChatGPT can use NLP to provide clear and concise explanations of financial information that make it easier for stakeholders to understand the information contained in the management report.
6. Predictive Analytics: ChatGPT can use predictive analytics to make predictions about future financial performance that can be used to support the content of the management report.
7. Consistency and accuracy: ChatGPT can help ensure the consistency and accuracy of information contained in management comments by reducing the risk of manual errors and ensuring that all information is up-to-date.

Overall, using ChatGPT when preparing a corporation's management report can save time, minimize errors, and speed up the process by collecting data, analyzing it, and automatically generating reports. ChatGPT can be a tool in the preparation of management reports by helping with data analysis and interpretation, automating routine tasks, providing clear and concise explanations, using predictive analytics, and ensuring consistency and accuracy. This can lead to more efficient and effective management report preparation and provide valuable insights into a company's financial performance and position. It is important to note that while ChatGPT can be a great help, it is important that employees continue to play an active role in monitoring and reviewing results to ensure that the management report remains accurate and reliable.

3.3 Audit

The impact of ChatGPT on auditing can be described as follows:

1. Time saving: ChatGPT can analyze large amounts of data quickly and extract relevant information automatically. This speeds up the review process and saves time for the reviewers. [7]
2. Efficiency: Through automated data analysis, ChatGPT can minimize data entry errors and increase efficiency in performing audits.
3. Accuracy: ChatGPT can minimize human error and help make audit results more accurate and reliable.

In auditing, AI can be a tool, but not a complete replacement solution for experienced auditors. Human analysis and review remain an important part of the audit process.

Trust is good, control is better. It has become clear how important it is to critically reflect on the content of machine-generated texts.

[7] Cf. https://www.ey.com/en_gl/assurance/how-artificial-intelligence-will-transform-the-audit, accessed Feb. 15, 2023.

4. Critical appraisal

AI has the potential to significantly transform the accounting and reporting space and provide benefits to businesses, regulators and other stakeholders. With its ability to automate routine tasks, increase efficiency and provide better insights into financial data, ChatGPT, for example, can help organizations save time, reduce costs and make better-informed decisions.

ChatGPT and other AI technologies will play an increasingly important role in accounting and reporting, providing companies with new and innovative ways to manage their financial data.

Beyond that, however, there are some **critical considerations** that must be taken into account.

1. The use of AI is currently no substitute for human expertise when it comes to the ability to understand complex financial data and make informed decisions. In particular, AI can hardly provide any help in recognizing and analyzing interrelationships that go beyond existing knowledge. In addition, legal innovations and their substantive subtleties can often only be meaningfully implemented through trade-offs and discretionary decisions.
2. In the system of AI there is no check for logical and factual correctness of the generated statements so far. The system can tend to "hallucinate", which can only be uncovered by the control of experts.
3. One of the biggest issues is data privacy and security. With the increasing use of AI in accounting and reporting, it is imperative that companies take steps to ensure that their financial data is protected from unauthorized access or theft. This requires strict security measures such as encryption and access controls.
4. Another critical consideration relates to the potential for errors or inaccuracies in the financial data processed by ChatGPT. While AI technologies can automate many routine tasks, they are still subject to human error, and it is important that organizations have procedures in place to detect and correct any errors or inaccuracies.
5. ChatGPT does not provide sources for the offered statements by default. If sources are requested, they are sometimes outdated and partly wrong or even freely invented. For example, several sources were given for this text, which cannot be found, for example:

   PwC (2021). The future of accounting: How AI and machine learning are changing the game. Retrieved from https://www.pwc.com/us/en/library/future-of-accounting/the-future-of-accounting-how-ai-and-machine-learning-are-changing-the-game.html

There are concerns with regard to the loss of accounting jobs as a result of the increased use of AI technologies. At present, however, this technology seems more likely to mitigate the shortage of skilled workers in accounting-related fields in Germany by relieving skilled personnel of routine work. In addition, new job profiles will emerge that combine the use of AI with accounting expertise.

In conclusion, while ChatGPT and other AI technologies have the potential to bring great benefits to the accounting and reporting field, it is also important to consider the potential risks and challenges associated with their use. Companies need to take steps to ensure that their financial data is protected, that AI systems are free of inaccuracies, and that they are mindful of the potential impact on the labor market. By balancing the benefits of AI with critical considerations, companies can realize the potential of ChatGPT and other AI technologies.

It was an experiment to write this article with the help of ChatGPT and it has shown that it is indeed amazingly possible to create appropriate texts with the help of AI. Nevertheless: The editing required some post-processing from the author with regard to repetitions, promotional passages, source references or linguistic inaccuracies. And: trust is good, control is better. It has become clear how important it is to critically reflect on the content of machine-generated texts.

Whether AI like ChatGPT will be a revolution for accounting cannot be predicted at the moment. What is certain is that the topic will not go away and it makes sense to address it and recognize the potential early on.[8] But it is even more important to keep a watchful, critical eye.

[8] See also https://www2.deloitte.com/us/en/pages/consulting/articles/the-future-of-ai.html, retrieved: 2/15/2023.