Study on the impact of ChatGPT on Accounting Revolution

Ziqing Wang *

School of Economics and Management, Nanjing University of Science and Technology, Nanjing, China

* Corresponding Author Email: 3326954406@qq.com

Abstract. In recent years, artificial intelligence technology has been widely used in all walks of life. Digitization of Accounting is a new concept in the field of accounting, which aims to apply artificial intelligence technology to the collection, processing and analysis of accounting information. ChatGPT, a large-scale language model released in 2022, is the most advanced artificial intelligence technology at present and is predicted to be widely used in the field of accounting digitalization in the future. This article will explore the relevance of ChatGPT to the accounting revolution, including the rationale of ChatGPT, analysis of the application of ChatGPT in the accounting field, possible negative impacts, how to deal with such challenges, and the future direction of ChatGPT.

Keywords: ChatGPT; artificial intelligence; accounting reform.

1. Introduction

ChatGPT (Chat Generative Pre-Trained Transformer) is an artificial intelligence conversation robot created based on machine learning algorithms released by OpenAI in November 2022. ChatGPT is a large language model and machine learning system that can quickly collect, store and process massive amounts of data, autonomously learn and train based on the data, and generate complex, intelligent text. Compared with other artificial intelligence, it has stronger natural language generation ability and stronger adaptive ability. Unlike systems such as Alpha and Watson, which covered only a few industries in the short term, ChatGPT quickly affected many industries after its release, with a particularly significant impact on industries or segments such as education, consulting, data analytics, and search engines.

For the accounting industry, accounting work often requires huge data processing, and traditional manual processing is costly and inefficient, while artificial intelligence technology uses robots to carry out complex and repetitive data processing work, which can well solve the above problems. Traditional digitalization of accounting relies on automation to streamline the accounting process, but cannot provide intelligent analytical capabilities, so companies need to explore more advanced intelligent technologies. Although the impact of ChatGPT system on accounting, auditing and other industries has not yet been fully revealed, the subversive ability and promising application prospects of such systems are bound to have an important impact on the reform of the accounting industry in the future.

2. The technical principle and application characteristics of ChatGPT

2.1. The technical principle of ChatGPT

ChatGPT is a large language model based on deep learning, an application of artificial neural networks, trained by a neural network architecture called "Transformer". This network can learn language patterns and patterns from incoming text and use those patterns to predict the next word or character. The technical principles and application scenarios of ChatGPT are shown in Figure 1.

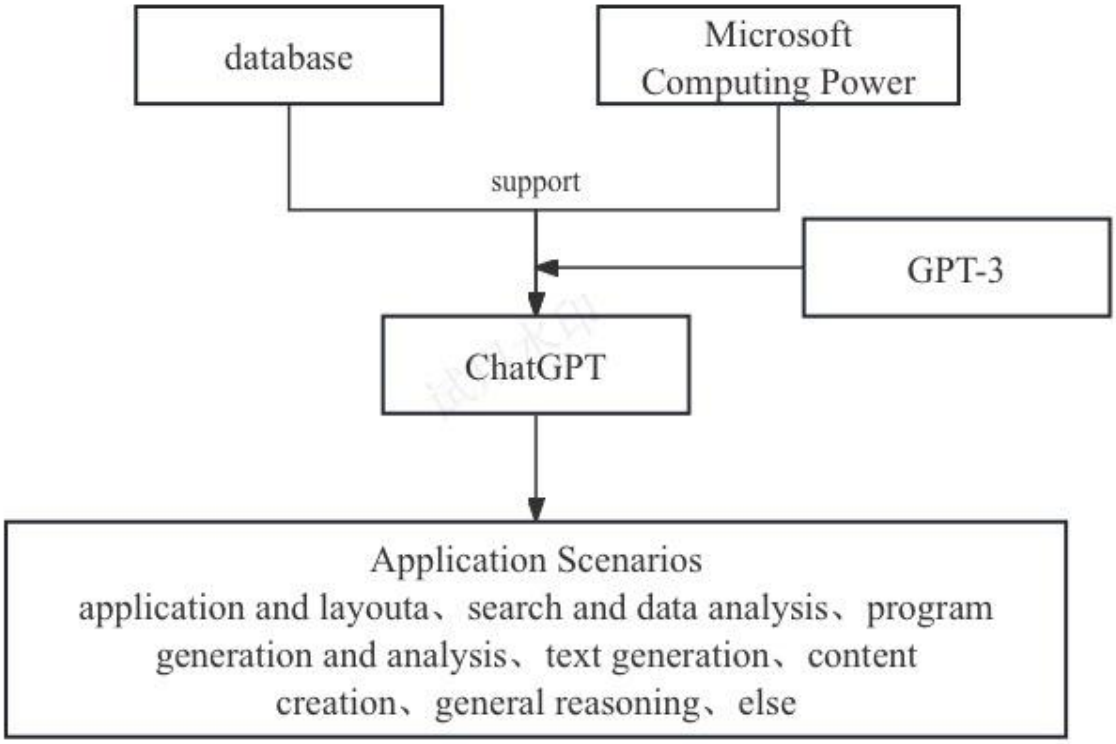


Fig. 1 ChatGPT technical principles and application scenarios.

When communicating with ChatGPT, the input is converted into a vector, which is then fed into the neural network. The network performs a series of calculations and transformations on the input to generate the corresponding output vector. Finally, the output vector is translated into text to answer questions or provide relevant information.

2.2. Application features of ChatGPT

2.2.1. Actively adapt to human commands

By infusing features such as "human preference knowledge," OpenAI LABS enables ChatGPT to understand human intentions and further adapt to human speech. This changes the model of human-computer interaction, from humans trying to get artificial intelligence to understand their own commands, to let the artificial intelligence actively understand human commands. This new human-computer interaction mode improves its "intelligence", makes it have better "simulation", while reducing the difficulty of using the model, and improves the user experience.

2.2.2. Strong independent learning ability

ChatGPT incorporates the artificial Feedback Reinforcement Learning (RLHF) training method, which gives it a powerful autonomous learning ability and constantly revises its answers based on human feedback during multiple interactions with humans. It learns and improves over time, updating itself automatically. At the same time, its massive database and accurate understanding ability provide a broad platform for independent learning, so that it can absorb enough knowledge and accurately understand to respond to human questions.

2.2.3. The ability of reasoning and prediction

The GPT-3 deep learning model used by ChatGPT has a powerful algorithm that makes it acquire the ability to approach natural language expression in iteration. The second-generation model has the ability of context interaction, which further promotes the upgrade of the semantic understanding ability of the model, so that it can automatically contact the above requirements of users, deduce the ideas of users, and generate satisfactory answers for users.

3. Application analysis of ChatGPT in accounting field

3.1. Data Processing

Accounting recognition and measurement is essentially a process of converting financial data into accounting information through a series of processes such as input, processing and output. ChatGPT can help accountants reduce repetitive accounting processes, focus more on accounting supervision, judgment processing, and enhance data processing capabilities.

3.2. business analysis

In addition to accounting data, business operation analysis also needs customer acquisition cost, customer stickiness, industry position, number of users and other related data, which helps to improve the comparability and effectiveness of accounting information.

3.3. Consulting service

In the process of consulting services for internal management accountants and certified public accountants of accounting firms, such as business answers, planning and guidance, artificial intelligence provides convenient tools and methods, which helps to improve work efficiency and quality.

3.4. Performance management

In the process of enterprise performance management, accounting plays a controlling role to help enterprises achieve management objectives. The digitalization and intelligentization of accounting will participate in performance management decision-making more efficiently, precisely and dynamically.

4. Negative impact analysis

4.1. Data privacy and security

Due to the sensitive financial information involved, data privacy and security are key issues in the use of ChatGPT in the accounting field. ChatGPT may have access to sensitive financial information, increasing the risk of data breaches. In addition, ChatGPT's data analysis may also violate users' privacy rights. It may analyze a user's activity on social media to understand the user's interests and views. This data can be used for direct advertising campaigns, or for deeper purposes.

4.2. Availability and reliability

The use of ChatGPT in the accounting field must ensure its availability and reliability, and any technical problems that may arise need to be resolved to ensure its smooth operation. However, ChatGPT is a complex technology that requires constant monitoring and maintenance. Technical issues, such as server downtime or software failures, can disrupt its availability and reliability.

5. Conclusion

In the future, ChatGPT can improve its language understanding by learning and analyzing more complex and detailed financial data and statements. At the same time, ChatGPT can also be combined with other artificial intelligence technologies to further improve the comprehensive ability and application effect of accounting digitalization.

However, the application of ChatGPT in the accounting field still faces challenges in various aspects, and further exploration is needed to turn challenges into opportunities in order to achieve innovation and sustainable development in the accounting field.

References

[1] Vandis E, Bollen J, Vanrooji R. ChatGPT: Five priorities for research [J]. Nature, 2023, 614: 244-226.

[2] Vasarhelyi M A. Artificial intelligence in accounting and auditing: The use of expert systems [M]. The United States of America: Wiener, Markus Publications. 1989.

[3] Shen Y, Heacock L, Elias J, et al. ChatGPT and other large language models are double-edged swords [J]. Radiology, 2023.