Proceedings of the 2nd International Conference on Financial Technology and Business Analysis
DOI: 10.54254/2754-1169/64/20231490

A Study on the Application of ChatGPT Technology in Corporate Accounting in the New Economic Era

Zhengchao Qian[1,a,*]

[1]*Cooperative School of International Education, Tianjin University of Commerce, Tianjin, 300000, China*
a. qianzhengchao@stumail.tjcu.edu.cn
**corresponding author*

Abstract: In the new economic era, the emergence of ChatGPT has brought great impact to the accounting industry. And as a natural language processing tool, ChatGPT is not only a kind of intelligent chatting software, but also a kind of machine learning system utilizing a large-scale language model with powerful language understanding and text generation capabilities. Although ChatGPT technology still has limitations, and its application in the field of accounting has the defects of misleading data and reliability of information, the application of ChatGPT has become a general trend. The emergence of new technology will prompt business accounting to return to the essence, and expand the field. This paper discusses the prospect of ChatGPT application in the field of enterprise financial accounting and its challenges in the new economic era, and provides ideas on how enterprises can integrate ChatGPT into their financial accounting work to realize successful transformation and break through difficulties.

Keywords: ChatGPT, accounting profession, future thinking

1. Introduction

With the advent of the new economic era, traditional enterprises are facing unprecedented challenges and opportunities in the area of accounting and finance. However, traditional accounting and finance methods are no longer able to meet the information processing and decision support required by the rapidly changing business environment. Therefore, with the rapid development of artificial intelligence technology, natural language processing models such as ChatGPT are gradually becoming popular tools and key technologies in the field of corporate accounting and finance. In the new generation of industrial revolution, AI technology is the core driving force of change, which will help traditional industry transformation and upgrading, and promote the national economy to improve quality and efficiency [1]. This is because traditional business models and growth logics are facing bottlenecks for sustainable development [2]. In order to adapt to the changes in this digital economy, enterprises are in urgent need of new financial tools and business models while the rapid development of information technology and artificial intelligence has brought opportunities for enterprises to be efficient and high-end, accelerating the process of enterprise digital development [3].

DOI: 10.54254/2754-1169/64/20231490

2. Basic Overview of ChatGPT-Related Technologies

2.1. Overview of the Technology

In December 2022, OpenAI released a new model of conversational AI, ChatGPT, which triggered huge attention from the tech community upon its release. ChatGPT is a large-scale language model based on deep learning, a conversational AI model developed based on the GPT-3.5 architecture, and more human supervision was added for fine-tuning, and the underlying principle of its GPT model can be simply summarized as the following:

Transformer Architecture: the GPT model structure is the basis of ChatGPT, which utilizes the transformer architecture, which consists of multiple encoder and decoder layers. The encoder is responsible for feature extraction of the input text and the decoder is used to generate the output text. The advantage of the transformer architecture is that it can handle sequential data of arbitrary length, which makes it suitable for natural language processing.

Unsupervised pre-training technology: unsupervised pre-training technology is the key technology for ChatGPT to achieve conversation generation, which can automatically learn the laws and features of the language from a large amount of unlabeled data, to improve the model's generalization ability and expressiveness.

Fine-tuning technology: fine-tuning technology is one of the key techniques for ChatGPT to achieve dialog generation, which allows the model to adapt to specific tasks and scenarios by performing supervised training on labeled data. In the fine-tuning phase, the model improves its performance capability by performing supervised learning on task-specific data, such as dialog generation. After the fine-tuning is completed, the model can respond and answer the user's questions correctly. The complete workflow of ChatGPT is shown in Figure 1.

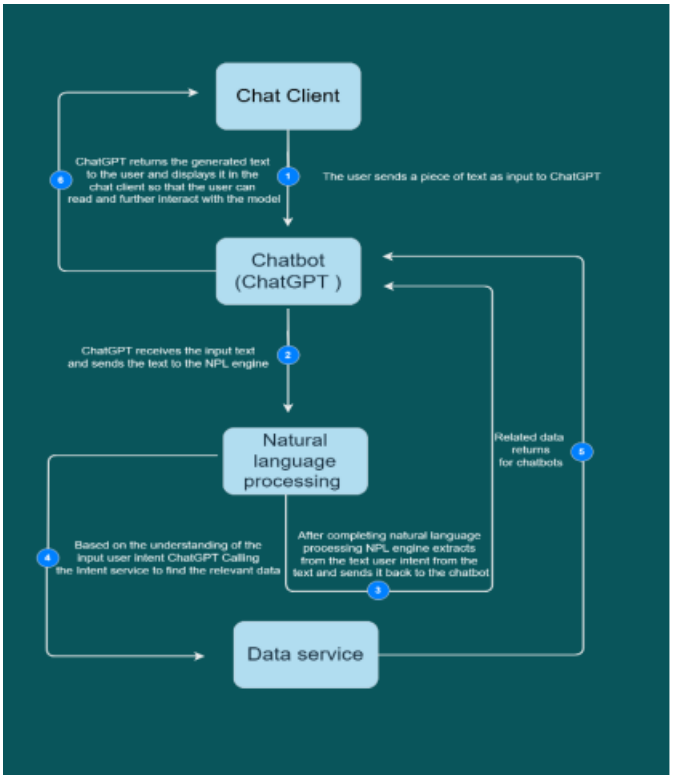

Figure 1: ChatGPT workflow diagram.

DOI: 10.54254/2754-1169/64/20231490

Specifically, ChatGPT is a natural language processing model for interactive dialog. It is based on the GPT architecture by massively collecting textual data on the web and trained at scale to understand the knowledge and syntactic rules, which in turn generates dialog results that match human habits.

2.2. Characteristics and Shortcomings

Like most existing AI systems, ChatGPT's development history is still very short, and its core technology originated from the GPT series of natural language processing models born in 2018, and in less than 5 years, the amount of data for pre-training has rapidly developed from about 5GB at the very beginning to the current scale of nearly one hundred terabytes. The powerful ability has proved to the world its strength as a new benchmark for artificial intelligence, but the rapid iterative development has also revealed that the model itself still has a lot of defects.

First of all, compared with traditional NLP, ChatGPT has a strong contextual understanding capability, the core of which is the transformer model architecture, which is based on Self-Attention mechanism, providing a powerful modeling capability. It is based on the self-attention mechanism, which provides a powerful modeling capability for the model. ChatGPT is able to realize the multi-layer self-attention mechanism and forward neural network, which is able to capture long-distance dependency relationships and has strong language comprehension capability, which can accelerate the training process. Therefore, its dialog results can cover functions such as responding to user questions, writing research reports, preparing development plans, drafting emails, creating video scripts, and writing program code.

Secondly, there is large-scale corpus training. ChatGPT is trained by supervised learning on large-scale corpora, which utilizes the rich textual data on the Internet for pre-training, from which rich linguistic knowledge and textual data are obtained. This allows ChatGPT to acquire a wide and varied background knowledge so that it can answer various types of questions and handle conversations in different domains. And the training of a large-scale corpus can expose ChatGPT to a large amount of knowledge and information, which ChatGPT can utilize to provide users with more accurate and comprehensive answers and explanations.

However ChatGPT has some flaws that should not be ignored:

2.2.1. Inability to Think

Because ChatGPT learns not from the real world, but from the reward model, it appears confident that if the user asks for something, ChatGPT's response will usually list accurate presuppositions and correct statements, but then be wrong in practice. Essentially, it doesn't reason, it can only make statements about data.

2.2.2. What Is Said Is Not True

ChatGPT generates answers based on trained information and user instructions without guaranteeing the correctness of the content. ChatGPT answers are based on a large amount of data that the pre-trained model has been exposed to. The current version has limited responsiveness to several industries due to the limitations of the training data. The main manifestation of this is that the answers are overly simplistic and have a poor level of accuracy.

3. Prospects of ChatGPT Technology in Corporate Accounting and Its Challenges

3.1. Perspectives on ChatGPT Technology in Corporate Accounting

The emergence of ChatGPT and the future use of ChatGPT-related artificial intelligence technology for enterprises are both a productivity improvement and a change in the internal management system.

DOI: 10.54254/2754-1169/64/20231490

The introduction of ChatGPT has brought a huge impact on the field of corporate accounting and finance, and the emergence of each new technology will drive changes in the field of accounting.

If ChatGPT is applied singularly in the accounting industry, it can be applied more to customer service in financial sharing, generation and analysis of financial reports, generation of internal control evaluation reports, and other linguistic and textual accounting tasks. As Klarity Intelligence does. As a financial and accounting document automation and management platform, it utilizes high technology to provide users with automated document management, review, reporting, and audit trail services. Klarity utilizes GPT-4 as the foundation of its platform to provide customers with more flexible workflows. Klarity uses GPT-4 to extract unstructured documents (PDFs, forms, language, metadata) from the data, normalize it, and match data between documents and systems. Previously, Klarity used its own custom AI models to create document summaries and extract detailed information for finance and accounting teams. Now, Klarity is embedding GPT-4 in its platform. this will enable customers to instantly set up new extraction fields in minutes and provide an intelligent AI-enabled comparison system to match key information such as party names, dates, addresses, etc. [4]. The informed decisions made by Klarity Intelligence have allowed them to scale their business.

At present, ChatGPT can understand the user's commands and needs, but is unable to penetrate the enterprise's application system to carry out actual operation, which makes it difficult for enterprises to use ChatGPT alone, and the combination of ChatGPT and financial robots (RPA), which have already been applied in the field of finance, is more conducive to the utilization of the intersection of the two scenarios and the value of application. The combination of ChatGPT and RPA will enhance the ability of data analysis, not only to assist in analyzing structured and semi-structured data, but more importantly, to analyze historical data and trends to predict the future market trends, the current performance of the enterprise and changes in financial status, which is of greater significance to the enterprise.

Access to ChatGPT has also become a technology trend in the RPA space. Intelligent automation vendor NICE is the first to integrate CXone Expert with OpenAI's ChatGPT technology. CXone expert serves as a solution for customers based on big data, cloud processing, and data analytics. By leveraging this integration, it creates a more immersive and humanized conversational experience for its customers. By combining NICE's deep customer experience industry-specific enlighten AI model with the innovative conversational AI capabilities of OpenAI generative modeling, brands are provided with powerful new capabilities to enhance the customer experience, create more efficient customer interactions, and increase their brand engagement in a natural, friendly, and humanized way [5]. ChatGPT and RPA for combined use ChatGPT and RPA can be used in conjunction to enhance the user experience of the accounting information system by giving more linguistic features to the existing financial robots, so that the financial robots, which are only in the position of automating repetitive operations, can understand the language of these inputs and make simple judgments and decisions just like a human being.

3.2. Advantages of ChatGPT Technology in Corporate Accounting

3.2.1. Automated Processing of Financial Data

In the past, the work of the finance department usually involved a large amount of data entry and processing. Nowadays, these repetitive and tedious tasks can be automated by ChatGPT, thus greatly improving work efficiency. With ChatGPT, the finance department can enter pre-set rules and instructions into the system, allowing it to quickly process complex financial data. The benefits of this automated processing lie not only in saving time and reducing tedious work, but also in reducing the possibility of human error. Since ChatGPT operates based on preset rules and instructions, it can avoid some common errors and omissions, thus improving the accuracy of data processing.

DOI: 10.54254/2754-1169/64/20231490

3.2.2. Analysis of Financial Data

With ChatGPT, companies can analyze and forecast a large amount of financial data, providing powerful support for corporate financial decision-making. By learning and understanding financial data, ChatGPT can reveal hidden patterns and trends, and provide corresponding forecasts based on these data. PA can combine these data with other financial data within the enterprise, so as to produce more comprehensive and accurate market data analysis and risk report, and provide it to the business department to assist in its business decision-making. This helps companies to better understand market opportunities and risks, and maximize their financial objectives.

3.2.3. ChatGPT Technology Helps Organisations Identify Risks

Using ChatGPT enterprises can play a vital role in internal control, compliance detection and data anomaly detection. ChatGPT can be integrated with the enterprise financial system, real-time monitoring of the implementation of internal control and financial data to help enterprises to reduce the risk and improve the efficiency of the work of accounting and financial personnel [6].

3.2.4. Assisting in the Training of Corporate Employees

ChatGPT can be applied to enterprise accounting education and training to improve work efficiency. It can simulate accounting scenarios and engage in conversations with employees to help them quickly understand corporate accounting needs, achieve intelligent assisted teaching, objectively assess performance, and help accounting consultants quickly respond to customer needs, improve customer satisfaction, and reduce the workload of manual customer service.

3.3. Real-World Challenges for ChatGPT-Related Technologies

Intelligent financial report generation based on ChatGPT brings many positive impacts, such as increasing efficiency, improving quality and reducing management costs. However, the new technology also has certain risks and vulnerabilities that may lead to project disruption or serious damage [7]. Therefore, ChatGPT-based corporate financial reporting does have some potential risks and vulnerabilities while improving efficiency and quality. The following are the possible risks:

3.3.1. Misleading Data and Information Reliability

Since artificial intelligence such as ChatGPT is trained based on past data, it cannot cover all the accounting knowledge and financial skills required by enterprises, so it cannot accurately reflect the current or the latest financial situation and thus is prone to misleading data. While corporate financial reports are an important channel for companies to disclose their financial information, which is beneficial for investors, creditors and other parties to grasp the financial status of the company, AI models such as GPT are not directly learned from the financial report data of the company and financial institutions, so it is more prudent to use these models with the assistance of additional professional knowledge and experts in the field in order to enhance the reliability of their information.

3.3.2. Enterprise Data Security and Privacy Risks

It is difficult to underestimate the importance of enterprise data to an organization. Especially in some key aspects such as supporting decision making, optimizing business processes, and strengthening market competitiveness. In this data-first AI era, data has become a new "asset" for enterprises. Therefore, it is crucial to properly protect and manage this data to prevent it from being stolen, misused, or rewritten by unscrupulous people or organizations [8]. Companies are also beginning to

DOI: 10.54254/2754-1169/64/20231490

pay more and more attention to data protection; the data handled by the finance department often involves confidential information, and if these data are leaked or misused, it may cause serious damage to the company's competitive position and reputation. Therefore, although large model vendors usually sign data confidentiality agreements with companies, appropriate security and privacy protection measures are still required to ensure that the data will not be used or leaked inappropriately [9]. ChatGPT's data is usually stored in the data centers of enterprises or cloud service providers, which means that ChatGPT is also at risk of being hacked, but the current version of the OpenAI API has little to no anti-misuse measures other than being able to be used by external applications. ChatGPT relies on a large amount of data to generate financial reports, but if the data is not available, it can be misused. ChatGPT relies on a large amount of data in generating financial reports, but if the data source itself is easily tampered with, the reports generated will also contain errors or inaccuracies, leading to a significant reduction in the credibility of the reports, and more likely to lead to data leaks or model attacks.

3.3.3. The Responsibility of Humans and Machines

Thanks to the rapid development of ChatGPT, artificial intelligence has rapidly entered the field of corporate accounting and finance, and the arrival of the era of intelligence has prompted a large number of artificial intelligence robots to flood into the human labour market The frequency of interaction between AI and human beings has also increased exponentially, but the problem of the division of responsibility and attribution has also ensued. On the one hand, despite the rapid development of AI, the relevant laws and regulations have not yet been perfected, which may lead to the existence of some legal vacuums in actual operation, which may bring serious consequences [10]. On the other hand, if ChatGPT causes accidents during operation, the process of pursuing responsibility may become difficult because it is difficult to clarify the specific responsible person.

4. Conclusion

In the era of digital economy, the emergence of ChatGPT brings great opportunities and challenges for enterprise financial accounting. Modernized enterprises must seize this technological dividend and actively layout in order to guide ChatGPT to better serve economic and social development and create more value. For enterprise financial accounting, the emergence of ChatGPT provides an unprecedented intelligent solution. It can process large amounts of financial data in real time, quickly analyze and summarize information, and provide accurate financial reports and data forecasts. This not only improves the accuracy and efficiency of financial decision-making, but also reduces labor and time costs. It can be seen that in the near future ChatGPT will bring huge economic benefits to enterprises and society.

Enterprises face a number of challenges and risks when utilizing ChatGPT. First, it is necessary to ensure the security of financial data and the protection of information privacy, and to strengthen data management and risk control in order to avoid the leakage of core information. Second, the complexity and specialization of the finance field makes it impossible for ChatGPT to completely replace the role of finance staff in the short term, who remain the core force in corporate finance. Although ChatGPT has been applied in automation and content creation, the finance field still requires deep specialized knowledge and skills.

Therefore, in the new economic era, enterprises need to strengthen digitalization and establish advanced information technology infrastructure and digital platforms in order to promote the sustainable development of enterprises to effectively combine people and machines to achieve collaborative work. By introducing technologies such as artificial intelligence, repetitive and low-value work is handed over to AI for completion, thus releasing human resources and enabling

DOI: 10.54254/2754-1169/64/20231490

accounting and finance staff to better focus on creative and strategic work. Meanwhile, in order to adapt to the needs of digital transformation, companies should invest more in skills training and talent development for their employees. Cultivate employees' digital technology skills, thinking and problem-solving abilities so that they can adapt to new technologies and new work models.

This paper argues that ChatGPT brings great opportunities and challenges for enterprise financial accounting in the era of digital economy. Therefore, the only way for enterprises to be invincible in the new era is to continuously improve their efficiency and effectiveness through forward-looking layout and effective management, to make good use of artificial intelligence like ChatGPT.

References

[1] *Zheng L.M., Pan W.L., Cheng N. (2022) Application of Artificial Intelligence Technology and Its Development Trend. Technology and Innovation, 17, 164-166+169.*

[2] *Huang S.Z. (2020) Study on the Comparability of Financial Analysis in the New Economic Era-Taking Tencent as an Example. Finance and Accounting Monthly, 13, 3-7.*

[3] *Wang S.Y. (2022) Analyzing the Current Situation of China's Digital Economy Development. Marketing, 23, 8-10.*

[4] *Klarity. (2023) Klarity Brings GPT-4 and Large Language Models to Finance, with Upgraded Platform for Validating and Summarizing Order, Contract and Revenue Data. Klarity Brings GPT-4 and Large Language Models to Finance.*

[5] *NICE Integrates ChatGPT Generative Modelling into CXone Expert. (2023) NICE Integrates ChatGPT Generative Modelling into CXone Expert-CX Today.*

[6] *Liu Q. (2023) ChatGPT and Its Impact on Accounting Work to Discuss. Friends of Accounting, 6, 158-161.*

[7] *Cheng P., Fu Y.C., Zhu Z.Y. (2023) Intelligent Financial Reporting Based on ChatGPT. Finance and Accounting Monthly, 44, 64-69.*

[8] *Dong M.X., Xu Y.D. (2022) Data Security and Governance Path in Digital Transformation of State-Owned Enterprises-Based on Information Ecology Perspective. Finance and Accounting Monthly, 13, 132-136.*

[9] *Jin Y., Li C.Z. (2023) The Impact and Response of the Big Model Represented by ChatGPT on the Transformation of Accountants' Functions-an Example Based on a Survey Questionnaire. Finance and Accounting Monthly, 44, 52-59.*

[10] *Shi Y.Q., Li A.H. (2023) The Era of ChatGPT Changes in Accounting, Industry Impacts and Countermeasures. Research on Finance and Accounting, 6, 56-59+75.*