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In Which Fields Can Chatgpt Create Business Value?

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Abstract: With the continuous development and popularization of artificial intelligence technology, ChatGPT, a large language model, has become an important tool for many enterprises and organizations to achieve automation and intelligence. ChatGPT interacts with users through natural language processing by providing various services such as intelligent customer service and question-answering. This article aims to explore the fields in which ChatGPT can create business value. The study first introduces the basic concepts and working principles of ChatGPT. Next, it reviews existing literature on the applications of ChatGPT in various fields, highlighting its unique characteristics and development trends. The disruptive characteristics of ChatGPT when compared to other natural language processing technologies are also analyzed. Furthermore, this study conducts an in-depth analysis of the potential value and applicability of ChatGPT in the fields of customer service, writing, and data integration. The results indicate that ChatGPT has the potential to create significant value in these areas. Finally, some challenges and problems faced by ChatGPT in terms of misinformation and laws are discussed and put forward some suggestions to deal with these challenges, such as improving ChatGPT's technology, making more reasonable and comprehensive laws and so on. In conclusion, ChatGPT is a valuable tool in areas such as customer service, writing, and data integration, and its potential for creating business value should not be overlooked.

Keywords: ChatGPT, business value, natural language processing

1. Introduction

1.1. Background

Nowadays, with the rapid development of artificial intelligence technology, natural language processing (NLP) has been increasingly applied in business and social life, including the recently popularized ChatGPT. ChatGPT is a deep learning-based NLP technology proposed and developed by the OpenAI company. It utilizes large-scale pre-trained language models and generative dialogue systems to produce realistic natural language interactions with humans. Since its release, ChatGPT has continued to develop and improve, becoming one of the industry-leading NLP technologies. It has achieved great success in language modelling, machine translation, dialogue generation, and so on. ChatGPT technology has become a hot topic in various industries and has demonstrated lots of potential business value in the commercial field to explore.

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1.2. Related Research

While the use of language models in business applications is still a relatively new area of research, there have been some promising studies that highlight the potential of ChatGPT and similar models to create value across a variety of industries. Alshater conducted a case study aimed at investigating the role of AI, specifically ChatGPT in the field of economics and finance by discussing its functions, advantages, and limitations. The study revealed that ChatGPT is an advanced NLP tool with the ability to perform data analysis and interpretation, modelling and simulation, and decision-making, making it potentially useful in improving efficiency and enhancing accuracy across many fields. However, there are still several limitations, such as its dependence on data quality and generalizability [1]. Dowling and Lucey employed an empirical approach to studying the application of ChatGPT in financial research, with a focus on cryptocurrencies. Through data analysis, they demonstrated that the quality of output is largely determined by the degree of input from private data and domain expertise. Additionally, they analyzed the potential impacts of this new technology [2]. To examine how customers perceive and are aware of chatbots, Bhalerao et al. performed a poll. The graded study's findings revealed that the majority of the respondents were familiar with chatbots and had experience with them. The respondents, however, were not aware that chatbots used on online platforms were not actual people. The graded investigation of the respondents' perceptions revealed that they thought using chatbots was convenient. These investigations did, however, also show that there are issues with the chatbot's privacy and security [3]. To evaluate the effects of ChatGPT, massive language models, and artificial intelligence on the travel and tourism sector, Carvalho and Ivanov undertook a study that heavily drew from the body of prior research. The study's findings suggest that ChatGPT and other comparable models have a significant impact on the travel and tourism sector. They are anticipated to improve productivity and efficiency in back-end operations while also helping to further streamline customer service in front-end operations. However, these models might also negatively impact the industry's human resources [4]. George, A. S., and George, A. H. discussed how ChatGPT may improve e-commerce through conversation as well as other areas like education, entertainment, finance, health, news, and productivity using a case analysis technique. According to the study, ChatGPT offers solutions that greatly outperform conventional approaches in terms of competitive advantage and work efficiency. However, it is important to notice that ChatGPT's training data only covers 2021, and as such, further improvements are necessary to keep up with new events [5]. Jiao et al. tested ChatGPT for machine translation using several benchmark datasets to conduct a preliminary evaluation. According to their research, ChatGPT can compete with industry-standard translation tools like Google Translate for high-resource European languages but falls short for low-resource or far-off languages. However, the introduction of GPT-4 has significantly improved ChatGPT's translation performance. In other words, ChatGPT has become a promising candidate for translation tasks [6]. Lu and Wong (year) evaluated the extent to which ChatGPT could replace litigation lawyers by examining its drafting and research skills. The results showed that ChatGPT demonstrated advanced legal drafting skills and the ability to comprehend simple facts and articulate legal arguments for claims. However, the data sources used by ChatGPT had limitations. Therefore, the conclusion of this paper suggests that ChatGPT should be considered as a supplement to litigation lawyers rather than a replacement [7]. Some previous research also demonstrated some characteristics and development trends of ChatGPT. Some characteristics and growth trends of ChatGPT have also been shown by prior research. For instance, Lund and Wang used the interview technique to examine ChatGPT's possible effects on academic institutions and libraries. They talked about ChatGPT's advantages, including its potential to enhance cataloguing, metadata creation, reference and information services, search and discovery, and search results. They also highlighted the ethical

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issues that must be taken into account, such as partiality and privacy. Based on their research, the authors concluded that adopting AI technologies like ChatGPT to address academic difficulties should be done so wisely and considerately rather than carelessly and indiscriminately [8]. Using a comparison study, Zhong et al. carried out a quantitative examination of ChatGPT's comprehension performance. They tested ChatGPT's comprehension abilities using the most widely used GLUE benchmark and compared it to four representatives, fine-tuned BERT-style models. According to the study's findings, ChatGPT excels in inference tasks but struggles with similarity and disambiguation tests. Furthermore, ChatGPT's performance in sentiment analysis and question-answering tasks is on par with BERT's. The study also implies that combining sophisticated promoting techniques can improve ChatGPT's comprehension performance [9]. Lin et al. used ChatGPT as an example in their survey to examine the use and primary goals of chatbots. They looked into the primary techniques and data sources utilized to create chatbots, as well as chatbot development trends going forward. The study discovered that the primary goal of chatbots is to ensure that users' demands are addressed through contextual maintenance in addition to improving technical elements by responding accurately (primarily used in the business and educational sectors). The article also explores several drawbacks and benefits of chatbot development in many industries in the future [10].

1.3. Objective

This article aims to explore the areas in which ChatGPT can create commercial value. In the second part, we will analyze the disruptive features of ChatGPT compared to other NLP artificial intelligence. Following that, in the third part, we will categorize and summarize the commercial applications of ChatGPT in various fields, including customer service, writing, and data integration. Then exploring its specific application scenarios and commercial value in these fields. Finally, we will discuss the challenges that ChatGPT faces in commercial applications, and its future development direction, and provide some prospects and suggestions.

2. The Disruptive Feature of ChatGPT

2.1. Large-scale Self-supervised Pre-training

ChatGPT was trained by collecting and referencing a large number of articles on the internet as well as real-time English conversations between OpenAI employees and users. It continuously trains and mimics this speaking pattern and grammar structure, and learns some common words, ultimately being able to apply them in conversations with real users.

2.2. Generating Natural, Precise Language

ChatGPT can generate coherent and logically language according to the user's personalized needs, instead of simply searching for keywords in a large database or collection of literature like other search engines. ChatGPT mimics human language and engages in conversation with the user, making it more "human-like" than ordinary AI robots and facilitating communication that resembles a "human-to-human" dialogue [11].

2.3. Capable of Multi-turn Conversation

Most robots today can only engage in single-turn conversation, but ChatGPT can carry on a continuous conversation with the user. The user can ask follow-up questions based on the previous chat, and ChatGPT not only understands the context but also adapts to new needs based on the user's characteristics.

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2.4. Strong Learning Ability

ChatGPT is a form of pre-trained language model that utilizes large-scale textual data for pre-training, enabling it to learn various language patterns and knowledge. This gives ChatGPT strong generalization abilities, allowing it to quickly adapt to new tasks without requiring re-training. This transfer learning approach greatly reduces labor and time costs. In addition, ChatGPT can continuously optimize its models and algorithms based on user input and feedback, thereby improving its accuracy and expressive power.

3. Which Fields Can ChatGPT Creates Business Values

3.1. Customer Service

In the customer service area, before the emergence of ChatGPT, many large companies have widely adopted intelligent customer service to replace human customer service in order to save costs. However, most of the existing artificial intelligence is still not smart enough. According to a survey conducted in 2022 by the Social Survey Center of China Youth Daily on 2018 respondents, 95.7% of the participants had used intelligent customer service, but only 41.3% of them found it useful [12]. This problem is specifically addressed by ChatGPT's question-answering and natural language processing capabilities, providing it with a distinct advantage over other types of artificial intelligence in the area of customer support. The widespread application of ChatGPT in the customer service field is mainly to save costs and improve efficiency. The high turnover rate and expensive training costs in the customer service industry can be mitigated through the use of artificial intelligence, where ChatGPT can assist in answering common questions with knowledge bases and prompts, reducing training costs and shortening the learning curve. Additionally, ChatGPT can quickly and efficiently offer personalized services to a large number of users, enhancing user satisfaction and decreasing wait times. Many companies or online platforms have already applied ChatGPT in their customer service. One example is ShopSKU, which is a popular e-commerce platform in China and it is also one of the pioneers of the application of ChatGPT technology to customer service. ShopSKU introduced ChatGPT technology into its APP. With this advanced technology, users can rapidly get information about products' prices, promotions and other related information without waiting for approval from customer service staff, which greatly improves user experience [13]. ChatGPT marks a new era for the customer service industry, and more companies will likely introduce ChatgGPT technology into their customer service areas in the future to continuously improve the intelligence of customer service and customer experience.

3.2. Writing

In the field of writing, the traditional writing process requires a significant amount of human resources and often suffers from human errors and template-based content. However, ChatGPT can use natural language processing techniques to generate accurate, fluent, and language-compliant articles. Its intelligent text generation is one of the leading research directions in artificial intelligence and natural language processing. This technology has been deployed and applied in many application fields such as media publishing and e-commerce, which can greatly improve the efficiency of text content production and reduce labor costs [14]. For instance, ChatGPT is already capable of assisting scientists and medical researchers with their article writing. ChatGPT can produce an initial draft of a scientific paper and offer helpful recommendations throughout the writing process. ChatGPT has efficient formatting and language editing capabilities that can help you quickly complete the editing process of your document, thereby saving you time and energy [15].

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3.3. Data Integration

ChatGPT also plays a significant role in data integration. Users who are not proficient in data analysis can obtain information through simple conversations or searches with ChatGPT, which significantly reduces the threshold for data analysis. For those who are proficient in data analysis or work as dedicated data analysts, ChatGPT can be used to replace daily data analysis and development tasks, allowing them to focus more on analysis and business-related work [16]. For instance, DataFocus Cloud is one tool that utilizes this technology, using search-based interaction to help users understand data. Users only need to enter keywords or phrases in the search bar, and the system will automatically provide results. Search-based interaction, based on natural language processing technology, is more user-friendly, faster, and more flexible than drag-and-drop interaction. Search-based interaction, utilizing natural language processing (NLP) technology, offers enhanced user-friendliness, speed, and flexibility compared to drag-and-drop interaction [17]. In contrast to complex tools such as Python and Tableau, search-based tools are particularly user-friendly for individuals without programming expertise, making them more accessible and suitable for a diverse range of users.

4. Possible Problems and Suggestions

4.1. Fake

Although the technology behind ChatGPT is highly advanced, it is not perfect. Mark Cuban, a billionaire and well-known technology investor in the United States, has expressed concerns that the proliferation of AI chatbots like ChatGPT may exacerbate the problem of online misinformation [18]. ChatGPT does have some issues, such as fabricating historical stories or character information in certain situations, which can fuel misinformation campaigns online. For example, NewsGuard has pointed out that ChatGPT often uses conspiracy theorists' vocabulary, such as "caught red-handed" and references to false scientific research, when generating conspiracy theories in its responses to questions about news events or news narratives [11]. Furthermore, ChatGPT's answers may sometimes be contradictory. When different people ask the same question, ChatGPT may provide different answers, which indicates that ChatGPT still has limitations in semantic understanding and reasoning, and further refinement and improvement are needed. Despite these issues, these errors also highlight that AI technologies like ChatGPT are still in their early stages, with significant room for improvement in the future.

4.2. Accountability

There are also hidden legal risks and concerns behind ChatGPT. For instance, the vast database on which ChatGPT relies may contain sensitive information such as personal data and trade secrets of many users. When users input such information, ChatGPT may incorporate it into its corpus, posing risks of leakage. Even though ChatGPT promises to delete all personally identifiable information, the deletion method is not specified, and in situations where information and data sources cannot be fact-checked, such information may still be disclosed, resulting in the infringement of users' privacy rights [19]. In addition, if ChatGPT's information database directly copies and modifies copyrighted texts, videos, codes, etc. protected by intellectual property laws without authorization from the rights holders, it may potentially infringe on others' copyrights and result in copyright disputes. Furthermore, the cybersecurity company Darktrace has also claimed that hackers may use ChatGPT for phishing attacks [20]. By providing the right prompts, ChatGPT can easily create dozens of targeted phishing emails. If ChatGPT is involved in such illegal activities, OpenAI, as the technology company behind it, may also be held liable. Moreover, because ChatGPT's way of

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answering questions is based on big data machine learning and natural language processing technologies, it does not possess the ability to think and judge independently like humans. Therefore, if ChatGPT's answers mislead users or result in other adverse consequences, OpenAI, as the technology company behind it, may face legal lawsuits. Especially in critical fields such as healthcare, finance, etc., the content provided by ChatGPT must have high accuracy and reliability, otherwise, it may result in irreparable losses and legal liabilities.

4.3. Suggestions

4.3.1. Misinformation

Regarding the issue of misinformation, OpenAI can only improve the technology of ChatGPT itself to improve its ability to identify and filter false information. For example, by introducing more natural language processing techniques, fact-checking mechanisms, and logical reasoning to identify possible false information. OpenAI can also implement content moderation mechanisms to monitor and review the content generated by ChatGPT, filtering out potential false information. In addition, OpenAI can encourage users to report possible false information to them for timely adjustments and improvements to the algorithms and models of ChatGPT. User feedback can help improve the system and strengthen measures to address false information.

4.3.2. Intellectual Property Rights

As for intellectual property rights, many countries have deficiencies in their intellectual property laws related to AI. Some relevant international organizations can enact or improve relevant laws, such as artificial intelligence laws and intellectual property rights. There are also some other suggestions. For example, if ChatGPT's text data mining involves content that is copyrighted by others, authorization from the author should be obtained and compensation should be paid. The copyright of ChatGPT is also controversial. The copyright ownership of the content output by ChatGPT should belong to the creator if it meets the criteria of "originality". If the work's "originality" is the intellectual achievement of the user (e.g. the user provides the core ideas and ChatGPT only arranges, combines, and embellishes them), then the copyright should belong to the user. If the work is completely dependent on the technology of the ChatGPT platform, then the copyright should belong to the ChatGPT platform company. If the user suffers losses due to erroneous information or misleading content output by ChatGPT, does the operator of ChatGPT need to bear compensation liability? If ChatGPT provides free services and provides sufficient risk warnings, it can be partially exempt from liability. If ChatGPT provides paid services, the operator is more likely to bear compensation liability. Regarding the issue of criminal exploitation, the operator of ChatGPT should take proactive measures to fulfil their obligation of managing information network security. They should use technical tools and human intervention to review and manage content and establish a comprehensive library for detecting illegal and harmful information. This is necessary to effectively mitigate information network security risks. If the regulatory authorities require corrective actions and the operator refuses to comply or fails to take effective measures, the platform operator could be held criminally liable for not fulfilling their obligation of managing information network security.

5. Conclusion

This study found that ChatGPT can generate business value in many fields. This article mainly focuses on customer service, writing, and data integration, and combines case analysis to demonstrate the business value that ChatGPT can create in these fields. In the customer service area, ChatGPT has the better question-answering ability and natural language processing capability than

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other artificial intelligence technologies, which can replace human labor to save costs and improve efficiency. In the writing field, ChatGPT has better intelligent text generation ability. It can help businesses save time and labor costs and improve content quality by automatically generating articles, advertisements, research reports, and other content. In the data integration field, ChatGPT's natural language processing ability can help businesses better process and understand massive amounts of data, thereby improving the efficiency and accuracy of data analysis and decision-making. In summary, ChatGPT has the potential to create business value in multiple fields. However, ChatGPT still has some issues to solve such as misinformation and accountability of intellectual property rights. In suggestion, OpenAI should continue to improve the ability of ChatGPT to make it more reliable. International organizations should take into account the improvement of artificial intelligence laws in order to improve the law on ChatGPT and other AI technologies to prevent some controversy and exploitation by lawbreakers.

References

[1] *M Alshater, M. (2022). Exploring the role of artificial intelligence in enhancing academic performance: A case study of ChatGPT. Available at SSRN.*

[2] *Dowling, M., & Lucey, B. (2023). ChatGPT for (finance) research: The Bananarama conjecture. Finance Research Letters, 53, 103662.*

[3] *Bhalerao, H. R., & Mathur, A. (2022). Awareness and Perception of Chatbots/Chatbox Amongst Customers. ECS Transactions, 107(1), 1781.*

[4] *Carvalho, I., & Ivanov, S. (2023). ChatGPT for tourism: applications, benefits and risks. Tourism Review.*

[5] *George, A. S., & George, A. H. (2023). A Review of ChatGPT AI's Impact on Several Business Sectors. Partners Universal International Innovation Journal, 1(1), 9-23.*

[6] *Jiao, W., Wang, W., Huang, J. T., Wang, X., & Tu, Z. (2023). Is ChatGPT a good translator? A preliminary study. arXiv preprint arXiv:2301.08745.*

[7] *Iu, K. Y., & Wong, V. M. Y. (2023). ChatGPT by OpenAI: The End of Litigation Lawyers? Available at SSRN.*

[8] *Lund, B. D., & Wang, T. (2023). Chatting about ChatGPT: how may AI and GPT impact academia and libraries? Library Hi Tech News.*

[9] *Zhong, Q., Ding, L., Liu, J., Du, B., & Tao, D. (2023). Can ChatGPT understand too? A comparative study on ChatGPT and fine-tuned Bert. arXiv preprint arXiv:2302.10198.*

[10] *Lin, C. C., Huang, A. Y., & Yang, S. J. (2023). A Review of AI-Driven Conversational Chatbots Implementation Methodologies and Challenges (1999–2022). Sustainability, 15(5), 4012.*

[11] *Zhao, J.C.,(2023). ChatGPT Is a Disruptive Breakthrough? Retrieved from https://finance.sina.cn/2023-02-10/detail-imyfecya2982904.d.html*

[12] *Li, Q.H.,(2023). ChatGPT Has Another "King Bomb" and Customer Service Will be Laid off? Retrieved from https://www.huxiu.com/article/811139.html*

[13] *SKUKING.COM,(2023). The Future of E-commerce Consumer Services: ChatGPT's Infinite Possibilities. Retrieved from https://skuking.com/blog/*

[14] *Wan, X.J.,(2023). Intelligent text generation: recent advances and challenges[J]. Big Data Research, 9(2), 99-109.*

[15] *Salvagno, M., Taccone, F. S., & Gerli, A. G. (2023). Can artificial intelligence help for scientific writing? Critical care, 27(1), 1-5.*

[16] *Eliotzhou,(2023).Use ChatGPT to improve data analysis capabilities and efficiency. Retrieved from https://zhuanlan.zhihu.com/p/611952818*

[17] *DataFocus(2023). Self-service BI (Business Intelligence) tools comparison: SmartBI vs DataFocus Cloud. Retrieved from https://zhuanlan.zhihu.com/p/618488316*

[18] *Sauer, M.,(2023) Mark Cuban: Internet misinformation will only 'get worse' as ChatGPT and its competitors grow. Retrieved from https://www.cnbc.com/2023/02/12/mark-cuban-chatgpt-ai-tech-will-make-internet-misinformation-worse.html*

[19] *Jurisprudence Daily,(2023) What are the legal risks behind ChatGPT's popularity? Retrieved from http://www.news.cn/legal/2023-02/13/c_1129359451.htm*

[20] *Ma, L.,(2023) Behind ChatGPT abuse: Hackers have a fishing rod in their hands, and OpenAI could be held accountable. Retrieved from http://www.techweb.com.cn/it/2023-02-27/2921034.shtml*