Application of ChatGPT in Improving Customer Sentiment Analysis for Businesses

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Abstract

In the current era of digitalisation, prosperous companies are showing great interest in their customers' feedback and perceptions regarding the products or services they provide. Customer sentiment analysis, which entails understanding and interpreting customer emotions and viewpoints, has emerged as an essential element of business tactics aimed at increasing customer satisfaction and recognising opportunities for improvement. The purpose of this research is to investigate and use ChatGPT in the realm of business customer sentiment analysis. The main focus of this research was largely qualitative in nature. The methodology for acquiring data required a rigorous approach in observing and documenting data, which was then subjected to analysis techniques such as data reduction, visualisation, and inference to extract significant findings. The findings from this study indicate that the utilisation of ChatGPT has significant potential in improving customer sentiment analysis for commercial enterprises. It can help in understanding and addressing customer requirements, tendencies, and satisfaction levels. ChatGPT's proficiency in understanding natural language, detecting customer emotions, and processing vast data instantly, can provide valuable perspectives for companies to improve their decision-making process. However, it is important to understand that ChatGPT should not be the sole source of information and the analysis results need to be interpreted judiciously by humans. This research resulted in suggestions consisting of several important points, namely collect and organise data well, train the model with appropriate data sets, validate results with other approaches, combine human and technological approaches, and use analysis results as a guide.
Keywords: ChatGPT, Business Customer Sentiment, Qualitative

Abstrak

Di era digitalisasi saat ini, perusahaan-perusahaan yang makmur menunjukkan ketertarikan yang besar terhadap umpan balik dan persepsi pelanggan mereka mengenai produk atau layanan yang mereka sediakan. Analisis sentimen pelanggan, yang memerlukan pemahaman dan penafsiran emosi dan sudut pandang pelanggan, telah muncul sebagai elemen penting dari taktik bisnis yang bertujuan untuk meningkatkan kepuasan pelanggan dan mengenali peluang untuk peningkatan. Tujuan dari penelitian ini adalah untuk menyelidiki dan menggunakan ChatGPT dalam ranah analisis sentimen pelanggan bisnis. Fokus utama dari penelitian ini sebagian besar bersifat kualitatif. Metodologi untuk memperoleh data memerlukan pendekatan yang ketat dalam mengamati dan mendokumentasikan data, yang kemudian dilakukan dengan teknik analisis seperti reduksi data, visualisasi, dan kesimpulan untuk mengekstrak temuan-temuan yang signifikan. Temuan dari penelitian ini menunjukkan bahwa pemanfaatan ChatGPT memiliki potensi yang signifikan dalam meningkatkan analisis sentimen pelanggan untuk perusahaan komersial. Hal ini dapat membantu dalam memahami dan menangani persyaratan, kecenderungan, dan tingkat kepuasan pelanggan. Kemahiran ChatGPT dalam memahami bahasa alami, mendeteksi emosi pelanggan, dan memproses data yang luas secara instan, dapat memberikan perspektif yang berharga bagi perusahaan untuk meningkatkan proses pengambilan keputusan mereka. Namun, penting untuk dipahami bahwa ChatGPT tidak boleh menjadi satu-satunya sumber informasi dan hasil analisis perlu diinterpretasikan secara bijaksana oleh manusia. Penelitian ini menghasilkan saran yang terdiri dari beberapa poin penting yaitu kumpulkan dan atur data dengan baik, latih model dengan kumpulan data yang sesuai, validasi hasil dengan pendekatan lain, kombinasikan pendekatan manusia dan teknologi, dan gunakan hasil analisis sebagai panduan.
Keywords: ChatGPT, Sentimen Pelanggan Bisnis, Kualitatif

INTRODUCTION

In the contemporary era of digitalization, prosperous enterprises exhibit a keen interest in the feedback and perceptions of their customers regarding the products or services they provide [1].

The analysis of customer sentiment, which entails the comprehension and interpretation of customer emotions and viewpoints, has emerged as a critical component of business tactics aimed at enhancing

customer contentment and pinpointing avenues for improvement [2].

Nevertheless, the manual analysis of customer sentiment can prove to be a complex and laborious undertaking [3]. The responsible team is tasked with the arduous process of sifting through and scrutinising copious quantities of customer data, encompassing reviews, feedback, and other forms of customer engagement. Time and human resource constraints may hinder companies from capturing crucial insights and identifying opportunities for improvement in certain instances [4].

In order to tackle these obstacles, the utilisation of artificial intelligence (AI) has gained significant traction in the realm of customer sentiment analysis [5]. An AI technology that shows promise is ChatGPT (Generative Pre-trained Transformer), which has been developed by OpenAI. ChatGPT is a natural language processing model that has undergone advanced machine learning techniques to enable it to produce suitable and realistic replies to user input [6].

The objective of this study is to investigate and implement the utilisation of ChatGPT within the framework of customer sentiment analysis for commercial enterprises. The utilisation of ChatGPT's text comprehension and processing capabilities is anticipated to enhance the effectiveness and precision of customer sentiment analysis. By incorporating ChatGPT into their customer sentiment analysis processes, enterprises can efficiently examine and decipher customer information on a broader scope and with reduced time consumption.

The present study will take into account various crucial aspects, including natural language processing, text processing, and pertinent sentiment analysis. Furthermore, ethical and privacy concerns will arise with regards to the utilisation of consumer information. By combining AI technologies such as ChatGPT with good business practices, it is hoped that businesses can utilise deeper insights into customer sentiment to make better decisions and improve customer experience.

This study aims to enhance comprehension regarding the capabilities and constraints of utilising ChatGPT for the purpose of analysing customer sentiment. The findings of this study have the potential to provide valuable insights for business practitioners and decision-makers seeking to enhance customer service, optimise marketing tactics, and improve product quality.

RESEARCH METHOD

The research did not require the acquisition of primary data through comprehensive field research. The researchers chose to use secondary sources and conduct laboratory analyses. The researchers consulted a variety of sources to properly conduct the investigation. The research utilised a methodical approach to obtain information by conducting comprehensive searches in digital media and scientific databases, using keywords relevant to the topic presented. The topic covered relates to the application of ChatGPT in improving customer sentiment analysis for businesses. The researchers utilised a versatile search methodology, which allowed them to draw on a wider range of physical and electronic sources to acquire the required data. The time savings that occurred were very beneficial to our organisation. The statements put forward are supported by scholarly sources and databases, such as ResearchGate, Elsevier, and Emerald Insight, among others. The main objective of this study is to investigate the applicability of ChatGPT in improving customer sentiment analysis for businesses. The author uses keyword emphasis as a means to limit the scope of the discussion and ensure coherence in the arguments presented. To achieve this goal, qualifying terms are used. The focus of this research mainly revolves around academic literature, including journal articles and essays published after 2015. During the search process, different keywords were used to explore various online databases. It is noteworthy that the scope of this study is limited to articles, journals, and publications that are considered relevant to the topic of applying ChatGPT in improving customer sentiment analysis for businesses. This analysis did not include papers, journals, and magazines that did not have direct relevance to the subject matter. In general, the incorporation of the 28 works cited in this article provides a broad and thorough examination of the topic discussed.

The present investigation pertains to the domain of qualitative research. During the process of data collection, two methods employed were active listening and comprehensive documentation of all relevant information. The aforementioned methods were employed to ensure a comprehensive investigation, encompassing data reduction, data presentation, and conclusion formulation. The principal aim of this study was to enhance our comprehension of the scrutinized literature. Systematic organization, classification, and refinement of collected data were necessary during the data reduction phase to obtain valuable insights and significant outcomes. Due to the intricate and diverse nature of the data, analysis was necessary during the reduction process. During this phase, our main focus was to optimize the content by identifying its most significant components in anticipation of the ultimate objective. Initially, a total of 50 distinct resources were collected. The initial methodology generated a numeric variable exhibiting a variance of 28 units. Furthermore, the

utilization of visual aids such as graphs and charts will be integrated to facilitate comprehension of the data that is being presented. The subsequent phase of the data reduction procedure entails methodically arranging the data in a structured format to enhance comprehensibility and expedite deduction. Field notes are a form of written communication that is extensively employed for the purpose of conveying information. The utilization of this representation style has the potential to enhance the organization and categorization of data within relational frameworks. During the conclusive phase of an inquiry, researchers derive logical inferences based on the obtainable evidence. The measures mentioned have led to the attainment of a comprehensive methodology for analyzing qualitative data. Following the reduction and presentation of data, a thorough analysis was conducted to ensure alignment with the objectives of the study. The data that has been gathered will undergo analysis to detect patterns, commonalities, and variations that can be leveraged to devise remedies for existing issues. The outcomes derived from these sources are widely considered to be highly reliable. The objective of this undertaking is to accumulate reliable information that can be utilized to enhance comprehension.
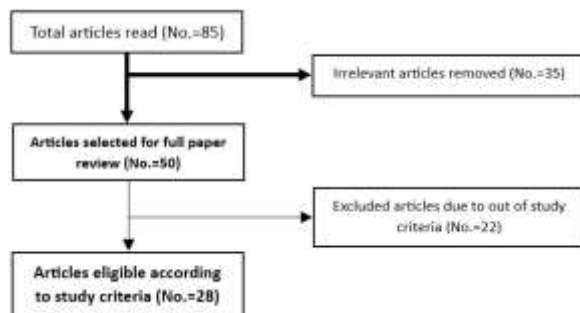

Figure 1. Review process adapted

RESULTS AND DISCUSSION

In contemporary times, businesses are progressively recognising the significance of comprehending and addressing customer sentiment in the constantly developing digital era [7-13]. The analysis of customer sentiment is a crucial aspect in the identification of customer requirements, inclinations, and contentment levels. Through a comprehensive comprehension of customer sentiment, enterprises can implement suitable measures to enhance their offerings, merchandise, and overall customer encounter [14]. Within this particular context, the utilisation of artificial intelligence technologies, such as ChatGPT, is increasingly being recognised as a potent mechanism for enhancing the analysis of customer sentiment within the business sector

[15]. The ChatGPT is a language model that has been created by OpenAI, which exhibits the ability to produce text that is remarkably similar to human language. Furthermore, it can engage in natural interactions with users [16].

The ChatGPT platform exhibits a notable advantage in the domain of customer sentiment analysis owing to its proficiency in comprehending and effectively addressing human language [17]. The model has undergone training with a comprehensive and varied dataset, thereby enabling it to comprehend the contextual, nuanced, and emotional aspects embedded within customer texts. Within the domain of sentiment analysis, ChatGPT has the capability to discern the presence of positive, negative, or neutral sentiments within the textual input provided by a customer [18]. Therefore, enterprises have the potential to discover significant findings from their customer data through the utilisation of ChatGPT as an analytical instrument.

The process of integrating ChatGPT into customer sentiment analysis involves a series of sequential procedures. Initially, enterprises must gather and arrange pertinent consumer information. The data may manifest as product evaluations, customer feedback on social media platforms, surveys gauging customer satisfaction, or records of customer interactions with customer service representatives [19]. Improved sentiment analysis outcomes can be achieved through the collection of increasingly diverse data. After the data has been gathered, the subsequent stage involves the training of the ChatGPT model utilising the suitable training dataset [20]. The process of training entails furnishing the model with instances of customer texts, accompanied by their respective sentiment labels, such as positive, negative, or neutral. The algorithmic model will acquire knowledge of the underlying patterns present in the given dataset and establish a correlation between the textual content and the corresponding sentiment.

Upon the completion of training, the ChatGPT model becomes operational for the purpose of conducting customer sentiment analysis. Organisations have the ability to input customer-generated textual data into a computational model, which subsequently generates an output that reflects the sentiment expressed within said data [21]; [22] and [23]. In the event that a patron composes a critique conveying elevated contentment with the merchandise or amenity, the algorithm possesses the ability to discern the affirmative sentiment. Conversely, in the event that a patron conveys discontent, the algorithm will identify the adverse sentiment.

The main advantage of implementing ChatGPT in customer sentiment analysis is its ability to automate this process. Compared to manual sentiment analysis that requires a lot of time and human resources, the use of ChatGPT allows businesses to analyse customer sentiment at scale and in real-time. This allows businesses to proactively identify emerging trends, issues, or opportunities among their customers, so that they can take quick and appropriate action.

Furthermore, ChatGPT has the capability to perform contextual analysis of customer sentiment. The model exhibits proficiency not only in identifying the general sentiment of customer texts, but also in comprehending intricate nuances, paradoxes, and contextual factors. This facilitates a comprehensive comprehension for businesses regarding the true essence of customers' expressions, thereby enabling them to make more precise and well-informed decisions.

The utilisation of ChatGPT for customer sentiment analysis in a commercial setting yields a number of tangible advantages. Firstly, businesses can better identify customer issues or concerns. By analysing customer reviews or responses, businesses can identify common patterns that reveal customer disappointment or dissatisfaction [24]. By being cognizant of these concerns, enterprises can implement requisite corrective measures to enhance the calibre of their offerings.

Furthermore, ChatGPT has the capability to aid enterprises in impartially evaluating the degree of contentment among their clientele. Through the examination of sentiment expressed in customer reviews or responses, enterprises can discern customers who exhibit high levels of satisfaction or dissatisfaction, as well as the underlying causes of such sentiment. The aforementioned data can be utilised for gauging and tracking customer contentment rates across a period, along with detecting prospects for enhancing the overall customer encounter. Moreover, the utilisation of ChatGPT for customer sentiment analysis facilitates enterprises to acquire profound comprehension regarding customer inclinations and requirements. Through the analysis of customer texts, enterprises can discern purchasing trends and patterns, product preferences, and features that are highly valued by their customers. The aforementioned data can be utilised to steer more efficient marketing tactics, enhance product innovation, and tailor personalization endeavours [25] [26].

It should be noted that although ChatGPT exhibits robust proficiency in evaluating customer sentiment, it is imperative to acknowledge that no singular model can be deemed infallible. The model may exhibit limitations, including challenges in comprehending technical or cultural language and potential biases in its generated output. Hence, it is imperative for enterprises to corroborate the analysis outcomes of ChatGPT through alternative methodologies and employ the findings as a reference for making informed decisions, rather than relying solely on them as the exclusive source of information [27].

In general, the utilisation of ChatGPT for analysing customer sentiment presents a noteworthy prospect for enterprises to enhance their comprehension of customer requirements and inclinations, as well as to improve their responsiveness. By utilising ChatGPT technology, enterprises can acquire more profound comprehension regarding the customers' encounters with their offerings, their contentment or discontentment, and the areas that require enhancement to augment their overall experience.

Furthermore, the utilisation of ChatGPT for analysing customer sentiment contributes to expediting the data gathering and processing procedures. In the context of a sizable enterprise, the quantity of customer feedback in the form of reviews, comments, and responses may prove to be an onerous and challenging task to manually manage and analyse. ChatGPT facilitates efficient and automated analysis of customer texts, enabling businesses to discern pertinent data and recognise valuable trends [28]. The implementation of this approach results in efficient utilisation of time and resources, enabling enterprises to promptly address customer requirements and apprehensions. Furthermore, the utilisation of ChatGPT for customer sentiment analysis enables enterprises to perform real-time analyses. In a rapidly changing corporate landscape, obtaining prompt comprehension of customer sentiment can confer a competitive edge. ChatGPT offers a real-time sentiment analysis system that enables businesses to monitor customer reviews, responses, and conversations in real-time. The capability to promptly identify trends, issues, or opportunities enables enterprises to expeditiously respond to arising concerns.

It is noteworthy that the utilisation of ChatGPT for customer sentiment analysis is not solely dependent on technological means. Achieving optimal results requires a fusion of human-centric methodologies and expertise in the business domain. Although ChatGPT can assist in evaluating customer sentiment, it necessitates human interpretation to comprehend the wider context, uphold the analysis's quality, and arrive at judicious conclusions based on the findings.

To conclude, the utilisation of ChatGPT for enhancing customer sentiment analysis in commercial enterprises presents several advantages. ChatGPT possesses the capability to comprehend and effectively react to human language, thereby enabling commercial enterprises to conduct large-scale and instantaneous analysis of customer sentiment. Through the utilisation of ChatGPT's capacity to discern customer sentiment, enterprises can detect concerns, quantify levels of customer contentment, and acquire profound understandings into customer predilections and requirements. It is crucial to integrate both human perspective and expertise in the business domain when analysing ChatGPT data and making well-informed decisions.
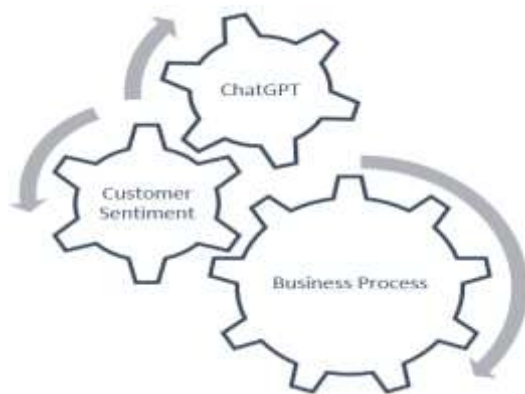

Figure 2. Correlation between ChatGPT, customer sentiment, and business process

CONCLUSION

The application of ChatGPT in improving customer sentiment analysis for businesses offers great potential in understanding and responding to customer needs, preferences and satisfaction levels. With ChatGPT's ability to understand human language well, recognise customer sentiment and analyse data at scale in real-time, businesses can gain valuable insights for better decision-making. However, it is important to understand that ChatGPT should not be the only source of information and the analysis results need to be interpreted sensibly by humans.

Looking at all the above, this research arrives at a suggestion consisting of several important points including:

A. Collect and organise data well: It is important to carefully collect and organise customer data. The more and more diverse the data collected, the better sentiment analysis results can be obtained. Make sure to maintain the sustainability and quality of the data collected.

B. Train the model with the appropriate dataset: Make sure to train the ChatGPT model using an appropriate training dataset, which includes examples of customer texts along with the corresponding sentiment labels. This will help the model learn relevant patterns in the customer data.

C. Validation of results with other approaches: While ChatGPT can provide valuable insights, it is important to validate the analysis results using other approaches. Combine ChatGPT analysis with manual methods or other sentiment analysis tools to ensure the accuracy and sustainability of the results.

D. Combine human and technological approaches: The role of humans remains important in interpreting ChatGPT analysis results and making informed decisions. By combining business domain knowledge and human experience with ChatGPT's capabilities, businesses can maximise the benefits of customer sentiment analysis.

E. Use the analysis results as a guide: The results of customer sentiment analysis using ChatGPT should be used as a guide, not a sole decision. Consider other factors such as context, experience, and business knowledge in making more accurate and informative decisions.

By implementing the above suggestions, businesses can utilise ChatGPT's potential in improving customer sentiment analysis to achieve a better understanding of customer needs and preferences and improve the overall customer experience.

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