

# Overview of ChatGPT Technology and its Potential in Improving Tourism Information Services

<sup>1</sup>Muhammad Ade Kurnia Harahap, <sup>2</sup>Abu Muna Almaududi Ausat, <sup>3</sup>Andy Rachman, <sup>4</sup>Yasir Riady, <sup>5</sup>Hizbul Khootimah Azzaakiyyah

<sup>1</sup>Department of Urban and Regional Planning, Universitas Simalungun, Indonesia

<sup>2</sup>Department of Business Administration, Faculty of Administrative Science, Universitas Subang, Indonesia

<sup>3</sup>Department of Informatics Engineering, Faculty of Electrical Engineering and Information Technology, Institut Teknologi Adhi Tama Surabaya, Indonesia

<sup>4</sup>Department of Library Science, Faculty of Law, Social and Political Sciences, Universitas Terbuka, Indonesia

<sup>5</sup>Department of Economics, Faculty of Economics and Business, Universitas Diponegoro, Indonesia

<sup>1</sup>[adekur2000@gmail.com](mailto:adekur2000@gmail.com), <sup>2</sup>[abumuna742@gmail.com](mailto:abumuna742@gmail.com), <sup>3</sup>[andy.rach1910@itats.ac.id](mailto:andy.rach1910@itats.ac.id),  
<sup>4</sup>[yasir.riady@gmail.com](mailto:yasir.riady@gmail.com), <sup>5</sup>[azzaakiyyahhizbulk@gmail.com](mailto:azzaakiyyahhizbulk@gmail.com)

## ABSTRACT

Tourism is one of the important economic sectors for many countries, including Indonesia. Along with the development of technology and the internet, the way people seek information about tourism has also changed. This research aims to conduct a review of ChatGPT technology and its potential in improving tourism information services. The focus of this research is qualitative. Methods for gathering information included paying close attention and taking detailed notes, with subsequent analysis including data reduction, visualisation, and inference. The study arrived at the conclusion that the use of AI technology specifically ChatGPT has great potential in improving services and traveller experience in the tourism industry. ChatGPT can assist service providers in providing solutions and answering tourists' questions quickly and efficiently, as well as strengthening the position of the company or organisation amid increasingly fierce competition.

**Kata Kunci:** Technology, ChatGPT, Service, Information, Tourism

## INTRODUCTION

Many nations' economies, like Indonesia's, rely heavily on tourism as a primary source of revenue. Over the course of the past few years, an ever-increasing number of tourists have made their way to Indonesia. On the other hand, as technology and the internet have advanced throughout time, people's methods of researching vacation destinations have also adapted to reflect these developments.

The use of chatbot technology has increased in popularity over the past few years across a variety of businesses, including the tourism industry (Calvaresi, Ibrahim, Calbimonte, Schegg, et al., 2021) and (Um et al., 2020). Chatbots make it possible for visitors to connect with tourism-related websites or apps through the use of text or voice messages to obtain information about a variety of topics, including tourist attractions, lodging options, food options, and more (Calvaresi, Ibrahim, Calbimonte, Fragniere, et al., 2021).

The ChatGPT, also known as the Generative Pre-trained Transformer, is one variety of

chatbot that is gaining in popularity (Sudirjo et al., 2023). The artificial intelligence system known as ChatGPT is educated through the application of machine learning techniques in order to provide automatic responses that are analogous to human answers (Kraugusteeliana et al., 2023) and (Ausat, Azzaakiyyah, et al., 2023). ChatGPT has the ability to comprehend natural language, make predictions about the context, and deliver responses that are pertinent to the user's inquiry or demand (Subagja et al., 2023).

When applied to the tourism industry, ChatGPT can be utilized to enhance information services by delivering answers to inquiries posed by tourists in a manner that is not only prompt but also accurate and interactive. However, despite the enormous potential it possesses, the application of ChatGPT in the travel and tourist business is still in its infancy and has not been the subject of extensive research (Carvalho & Ivanov, 2023) and (Mich & Garigliano, 2023).

As a result, the purpose of this study is to undertake an analysis of ChatGPT technology and its potential application in enhancing tourist information services. This study will analyze the idea of ChatGPT, how it operates, as well as the benefits and drawbacks of using it in the context of the tourism industry. In addition, the scope of this study will be expanded to include the identification of possibilities and problems associated with the adoption of ChatGPT in the tourism business. It is hoped that the findings of this research would be able to contribute to the growth of the tourism industry not only in Indonesia but also in other nations.

## LITERATURE REVIEW

### ChatGPT

ChatGPT is a machine-based natural language model trained by OpenAI using the GPT-3.5 (Generative Pre-trained Transformer 3.5) architecture. This model can be used to build chatbot applications, which can communicate with users in human language, and provide relevant and useful answers to given questions or statements. ChatGPT is trained using deep learning techniques and large corpus data, giving it the ability to recognise and understand complex human language, including vocabulary, grammar, and the context of a sentence or conversation. The model also has the ability to predict the next words in a sentence and generate natural, human-like responses. With its capabilities, ChatGPT can be used for various purposes such as customer service, medical consultation, learning, and many more. In certain contexts, ChatGPT can help facilitate human-machine interaction, thus speeding up and improving the efficiency of various processes that require human-machine interaction.

### Information Services

Information services are any type of service that provides access or provision of information to users or customers, either directly or through information and communication technology (Alotaibi & Federico, 2017). Information services can include various types of information, such as general information, news, business information, academic information, health information, and so on. Examples of common information services are libraries, government information services, news portals, internet search engines, and online platforms that provide information and data in various forms such as text, images, video, and audio. The purpose of information services is to assist users in fulfilling their information needs and expanding their knowledge on a particular topic (Bawden, 2001). Information services can also help users to make better decisions, solve problems, and improve their overall quality of life (Harahap et al., 2023) and (Kamar et al., 2022).

### Tourism

Tourism is an activity that involves travelling, staying, and doing recreational activities outside the usual environment of residence (Camilleri, 2018). Tourism includes all types of travel, be it for business, education, culture, or just recreational purposes. Tourism can include various forms, such as nature tourism, cultural tourism, historical tourism, culinary tourism, and so on. Activities undertaken in tourism can include travelling, camping, hiking, swimming, visiting historical places, shopping, tasting speciality foods, and so on. The main purpose of tourism is to

---

provide an enjoyable and educational experience for tourists, as well as to make a positive economic contribution to the tourist destinations visited (Manzoor et al., 2019). Tourism can also help preserve and promote the natural, cultural, and historical wealth of a region or country, as well as provide opportunities for people from different countries to interact with each other and expand their knowledge of different cultures and customs (Jureniene, 2016).

### RESEARCH METHOD

This research uses a methodology known as library research, where researchers do not collect primary data by conducting direct research in the field. To ensure the smooth running of the research, the researcher consulted various reference materials. Relevant materials for this research were obtained from online media and scientific repositories by searching with keywords related to the topics discussed in the report. These topics include a review of ChatGPT technology and its potential in improving tourism information services. The research approach used by the authors is adaptive, which paves the way for the selection of relevant reference materials without requiring the authors to limit the search to specific journals or digital platforms. The rationale we present is supported by a variety of sources, including journal sites Emerald Insight, ResearchGate, and Elsevier. The main focus of this paper is to review ChatGPT technology and its potential in improving tourism information services. The author's use of keyword emphasis aims to provide discourse boundaries and support logical consistency. This is achieved through the use of limiting phrases. Academic journals, essays, and publications that have been published between 2015 to date were the main focus of this research. During the search, we used keywords to conduct searches across different publishing platforms. It is important to note that the papers, journals, and publications included are only those considered highly relevant to the subject matter of ChatGPT technology and its potential in improving tourism information services. Other papers, journals and publications were excluded as they were deemed unrelated to the subject matter. This scholarly article includes a total of 27 different sources that discuss in depth.

The investigation that is now taking place was categorized as a type of qualitative study. The process of collecting data included the application of a number of different approaches, such as attentive listening and the detailed documentation of all pertinent information. The aforementioned approaches were utilized as a means of facilitating the inspection of the data, which was carried out by way of a process that involved the reduction of the data, the presentation of the data, and the drawing of conclusions. The primary objective of this study was to achieve a more in-depth comprehension of the literature review that was carried out as a component of this research endeavor. During the phase known as "data reduction," the obtained information was methodically organized, categorized, and culled in order to simplify the process of coming to meaningful conclusions and make the development of significant results more manageable. Because the data were so complex and varied, conducting an analysis of them was required even during the phase where they were being reduced. The purpose of the reduction phase was to ascertain whether or not the information was pertinent to the ultimate objective. At the outset, a total of 40 different sources were collected. The initial method resulted in the value of the numerical variable being changed to 27. In addition to that, the data will be provided via graphical illustrations. The current stage is the next step in the process of data reduction, and it is the stage in which the data set is carefully organized in a structured manner in order to promote comprehension and simplify the process of drawing conclusions. Written discourse, more especially in the form of field notes, is the kind of data representation that is utilized in this particular setting. Utilizing this approach to the presentation of data can result in increased productivity when it comes to organizing and arranging data in relational patterns. The process is not complete until the final stage, which is the development of conclusions based on the data acquired. This step marks the completion of the technique that we applied to the analysis of qualitative data. During this stage, we checked the outcomes of data reduction and data presentation to ensure that they were consistent with the intended goal of the research. The objective of this stage is to derive meaning from the obtained data by identifying correlations, similarities, or dissimilarities, in order to build solutions to pre-existing problems that have been identified. The results that were drawn from the sources that were

---

used are deemed to be reliable. The objective of this endeavor is to collect facts that are trustworthy and accurate, with the goal of enhancing comprehension as a result.

## RESULTS AND DISCUSSION

The ChatGPT system is a type of chatbot, which refers to a computer or system that is designed to generate automatic responses in the form of text depending on input provided by users (Ausat, Suherlan, et al., 2023). It makes use of technology that is based on artificial intelligence (AI) to process the input provided by the user, comprehend the context and intent of the question or request, and deliver a suitable answer or solution (Fauzi et al., 2023). Natural language processing (NLP) is one of the things that distinguishes ChatGPT unique from other types of chatbots. This capacity is one of the things that puts ChatGPT apart. When applied to the field of tourism, this natural language processing (NLP) skill gives computers the ability to comprehend the language that tourists employ when describing their wants, requirements, or issues.

There are a few steps involved in the operation of ChatGPT, the most important of which are data collecting, training, and testing (Dwivedi et al., 2023). To begin, the computer will gather data from a wide variety of sources, such as websites, periodicals, or other materials that are in some way connected to the subject of tourism. Following then, the device will go through a training phase, during which the information that has been gathered will be processed and utilized to enhance the device's capacity to comprehend and react appropriately to input from the user. Following the completion of the training phase, the engine will next be put through its paces in a variety of various tests to ensure that it is of sufficient quality. This testing can involve modeling numerous situations that may arise during a visitor's journey, such as requests for information about tourist attractions, hotel reservations, or the handling of issues such as missing passports or illness. In the context of tourism, this testing may require testing software or a physical prototype.

One of the benefits of using ChatGPT in the context of the tourism industry is that it is able to deliver information and recommendations that are tailored to the interests and requirements of individual travelers (Carvalho & Ivanov, 2023). The NLP technology enables the machine to interpret the requests or inquiries posed by travelers in a language that is more natural to them and to respond in a manner that is appropriate given the circumstances (Khurana et al., 2023). Travelers will find it much simpler to plan and carry out their trips in a manner that is both more effective and more on target as a result of this. Additionally, ChatGPT has the potential to boost both production and efficiency in the travel and tourist business. In certain situations, it is possible for technology to take the place of people in delivering information or making reservations for tickets or hotels. This has the potential to lower operational expenses while simultaneously improving service efficiency.

However, the application of ChatGPT within the context of tourism does come with a few downsides or difficulties. In the first place, it might not be able to respond to inquiries or requests that are overly complicated or ambiguous. For example, it might not be able to answer questions about the upcoming weather or make highly detailed recommendations regarding activities. This is due to the fact that the machine is only capable of generating responses based on data that it has already learned, and it is unable to generate responses that are outside the scope of its knowledge. Second, there is a possibility that adopting ChatGPT will remove the individual and human aspects of communication. In the tourism sector, interactions between customers and service providers frequently necessitate cordial and amicable exchanges between the parties involved. While ChatGPT is able to provide accurate information and suggestions (Haleem et al., 2022), the assistance of a real person in finding solutions to difficulties and answering questions can frequently result in a more gratifying experience for travelers.

A further obstacle that must be overcome in order to successfully adopt ChatGPT is the system's ongoing upkeep and improvement (Javaid et al., 2023). The engine needs to be regularly updated and modified in order to stay up with the most recent trends and advances in the tourism sector. This is necessary in order to keep the performance of the system at an acceptable level and to provide appropriate responses to the inquiries and requests made by travelers. This calls for a major investment of time and money, particularly on the part of businesses or organizations that

make use of ChatGPT as a service solution.

In spite of this, the deployment of ChatGPT in the tourism industry opens up a wealth of options for both the businesses that supply services and the customers who use them. The implementation of AI technology in an increasingly digital era has the potential to accelerate and simplify the service process, thereby cutting both operational costs and the amount of time needed to provide services (Perifanis & Kitsios, 2023). In addition, ChatGPT can aid service providers in gathering data and feedback from travelers, with the goal of enhancing and improving the quality of the services that are offered.

To guarantee that the data gathered and utilized in the training of the engine is of high quality and pertinent to the tourism industry, one of the things that has to be taken into consideration in order to optimize the use of ChatGPT in the tourism sector is to ensure that the data collected and utilized in the training of the engine is. In addition to this, it is required to carry out an adequate number of tests in order to guarantee both the quality and functionality of the engine in a wide range of diverse circumstances. In addition, businesses or organizations who use ChatGPT have a responsibility to take into account the requirements and preferences of visitors while responding to specific concerns or requests for services (Taecharungroj, 2023) and (Rivas & Zhao, 2023). Travelers who are looking for an experience that is both more personalized and has more of a human touch may, in some circumstances, ask the service provider for options that involve human connection.

In its most basic form, ChatGPT is one of the artificial intelligence technology solutions that may be applied to enhance customer service and operational effectiveness in the travel and tourist industry. The usage of ChatGPT presents a significant opportunity for businesses that cater to visitors and service providers to speed up the process of providing services and improve the overall quality of those services, despite the fact that its implementation presents a number of obstacles and disadvantages. Therefore, businesses or organizations that are involved in the tourism industry have an obligation to carefully analyze the benefits and drawbacks of utilizing ChatGPT prior to putting it into practice, and they must also pay attention to the requirements and preferences of tourists in order to deliver the highest quality of service.

Given the current trend and the rapid growth of technology, the expansion of the usage of artificial intelligence (AI) technology in the tourism industry is another factor that needs to be taken into consideration on a broader scale. The application of AI technology can be of assistance to service providers in enhancing the effectiveness and quality of the services offered (Lee & Yoon, 2021), so bolstering the position of the firm or organization in the face of more intense competition (Rustiawan et al., 2023). However, in order to successfully utilize artificial intelligence technology, it is vital to make certain that the technology is used in a prudent and responsible manner. There is a possibility that the implementation of AI technology could have adverse effects on society, such as an increase in the rate of unemployment brought on by automation or the unethical use of data. Therefore, the application of artificial intelligence should consistently be based on ethical principles and long-term value systems.

Concerning ChatGPT, this technology possesses a great deal of untapped potential in terms of enhancing the quality of services provided to tourists and the overall experiences they have while on vacation. However, the personal interaction and human touch that are frequently required in the tourism business cannot be totally replaced by the employment of ChatGPT because of its limitations. As a result, businesses or organizations who use ChatGPT have a responsibility to pay attention to the requirements and preferences of tourists when offering solutions and finding solutions to problems.

When developing and utilizing ChatGPT, businesses or organizations need to pay attention to the quality of the data as well as the processes involved in machine training. Additionally, they need to guarantee that adequate trials are conducted to assure the quality and functionality of the machine in a variety of settings. In addition, businesses and other organizations need to take into account the ethical considerations and long-term values involved in the utilization of AI technology in order for the utilization of ChatGPT to be able to bring long-term benefits to the tourism sector as well as society in general.

## CONCLUSION

It is possible to draw the following conclusion from the information presented above: the application of AI technology, and more specifically ChatGPT, has a significant amount of untapped potential in terms of enhancing the quality of visitor services and experiences within the tourism industry. ChatGPT is able to assist service providers in giving solutions and addressing tourists' inquiries in a rapid and effective manner, as well as boosting the company's or organization's position in the midst of increasingly fierce competition. The usage of ChatGPT does, however, come with a few drawbacks and hazards, the most notable of which being the absence of personal interaction and a human touch, as well as the possibility of unethical data exploitation. Because of this, businesses or organizations who want to utilize ChatGPT need to pay attention to the requirements and preferences of tourists and carry out an adequate amount of testing and development in order to guarantee the machine's high quality and effective operation. In addition, the application of AI technology should never deviate from adhering to ethical standards and long-term ideals at all times. In order for the usage of ChatGPT to be of long-term benefit to the tourism sector as well as society as a whole, businesses and other organizations must take into account the technology's ethical implications as well as the values that contribute to its long-term viability.

While it is important for businesses or organizations in the tourism industry to pay attention to the requirements and preferences of visitors, it is also a good idea for these entities to consider using ChatGPT as an additional service that can be provided to visitors. In addition, before using artificial intelligence technology, businesses or organizations need to first carry out adequate testing and research, as well as take into consideration the ethical implications and long-term implications of doing so. Therefore, utilizing ChatGPT can result in maximum benefits for the travel and tourist business as well as society in general.

## REFERENCES

- Alotaibi, Y. K., & Federico, F. (2017). The impact of health information technology on patient safety. *Saudi Medical Journal*, 38(12), 1173–1180. <https://doi.org/10.15537/smj.2017.12.20631>
- Ausat, A. M. A., Azzaakiyyah, H. K., Permana, R. M., Riady, Y., & Suherlan, S. (2023). The Role of ChatGPT in Enabling MSMEs to Compete in the Digital Age. *Innovative: Journal Of Social Science Research*, 3(2), 622–631. <https://doi.org/https://doi.org/10.31004/innovative.v3i2.346>
- Ausat, A. M. A., Suherlan, S., & Azzaakiyyah, H. K. (2023). Is ChatGPT Dangerous for Lecturer Profession? An In-depth Analysis. *Jurnal Pendidikan Dan Konseling (JPDK)*, 5(2), 3226–3229. <http://journal.universitaspahlawan.ac.id/index.php/jpdk/article/view/13878>
- Bawden, D. (2001). Information and digital literacies: a review of concepts. *Journal of Documentation*, 57(2), 218–259. <https://doi.org/10.1108/EUM0000000007083>
- Calvaresi, D., Ibrahim, A., Calbimonte, J.-P., Fragniere, E., Schegg, R., & Schumacher, M. I. (2021). Leveraging inter-tourists interactions via chatbots to bridge academia, tourism industries and future societies. *Journal of Tourism Futures*, 13(7), 1. <https://doi.org/10.1108/JTF-01-2021-0009>
- Calvaresi, D., Ibrahim, A., Calbimonte, J.-P., Schegg, R., Fragniere, E., & Schumacher, M. (2021). The Evolution of Chatbots in Tourism: A Systematic Literature Review. In *Information and Communication Technologies in Tourism 2021* (pp. 3–16). Springer International Publishing. [https://doi.org/10.1007/978-3-030-65785-7\\_1](https://doi.org/10.1007/978-3-030-65785-7_1)
- Camilleri, M. A. (2018). The Tourism Industry: An Overview. In M. A. Camilleri (Ed.), *Travel Marketing, Tourism Economics and the Airline Product* (1st ed., pp. 3–27). Springer. [https://doi.org/10.1007/978-3-319-49849-2\\_1](https://doi.org/10.1007/978-3-319-49849-2_1)
- Carvalho, I., & Ivanov, S. (2023). ChatGPT for tourism: applications, benefits and risks. *Tourism Review*, 4, 1. <https://doi.org/10.1108/TR-02-2023-0088>
- Dwivedi, Y. K., Kshetri, N., Hughes, L., Slade, E. L., Jeyaraj, A., Kar, A. K., Baabdullah, A. M., Koohang, A., Raghavan, V., Ahuja, M., Albanna, H., Albashrawi, M. A., Al-Busaidi, A. S.,

- Balakrishnan, J., Barlette, Y., Basu, S., Bose, I., Brooks, L., Buhalis, D., ... Wright, R. (2023). "So what if ChatGPT wrote it?" Multidisciplinary perspectives on opportunities, challenges and implications of generative conversational AI for research, practice and policy. *International Journal of Information Management*, 71, 102642. <https://doi.org/10.1016/j.ijinfomgt.2023.102642>
- Fauzi, F., Tuhuteru, L., Sampe, F., Ausat, A. M. A., & Hatta, H. R. (2023). Analysing the Role of ChatGPT in Improving Student Productivity in Higher Education. *Journal on Education*, 5(4), 14886–14891. <https://doi.org/10.31004/joe.v5i4.2563>
- Haleem, A., Javaid, M., & Singh, R. P. (2022). An era of ChatGPT as a significant futuristic support tool: A study on features, abilities, and challenges. *BenchCouncil Transactions on Benchmarks, Standards and Evaluations*, 2(4), 100089. <https://doi.org/10.1016/j.tbench.2023.100089>
- Harahap, M. A. K., Kraugusteeliana, K., Pramono, S. A., Jian, O. Z., & Ausat, A. M. A. (2023). The Role of Information Technology in Improving Urban Governance. *Jurnal Minfo Polgan*, 12(2), 371–379. <https://doi.org/10.33395/jmp.v12i2.12405>
- Javaid, M., Haleem, A., & Singh, R. P. (2023). ChatGPT for healthcare services: An emerging stage for an innovative perspective. *BenchCouncil Transactions on Benchmarks, Standards and Evaluations*, 3(1), 100105. <https://doi.org/10.1016/j.tbench.2023.100105>
- Jurenienė, V. (2016). Interaction between Cultural/Creative Tourism and Tourism/Cultural Heritage Industries. In *Tourism - From Empirical Research Towards Practical Application* (2nd ed., Vol. 22, p. 1). InTech. <https://doi.org/10.5772/62661>
- Kamar, K., Lewaherilla, N. C., Ausat, A. M. A., Ukari, K., & Gadzali, S. S. (2022). The Influence of Information Technology and Human Resource Management Capabilities on SMEs Performance. *International Journal of Artificial Intelligence Research*, 6(1.2), 1. <https://doi.org/10.29099/ijair.v6i1.2.676>
- Khurana, D., Koli, A., Khatter, K., & Singh, S. (2023). Natural language processing: state of the art, current trends and challenges. *Multimedia Tools and Applications*, 82(3), 3713–3744. <https://doi.org/10.1007/s11042-022-13428-4>
- Kraugusteeliana, K., Indriana, I. H., Krisnanik, E., Muliawati, A., & Irmada, H. N. (2023). Utilisation of ChatGPT's Artificial Intelligence in Improving the Quality and Productivity of Lecturers' Work. *Jurnal Pendidikan Dan Konseling (JPDK)*, 5(2), 3245–3249. <https://doi.org/10.31004/jpdk.v5i2.13650>
- Lee, D., & Yoon, S. N. (2021). Application of Artificial Intelligence-Based Technologies in the Healthcare Industry: Opportunities and Challenges. *International Journal of Environmental Research and Public Health*, 18(1), 271. <https://doi.org/10.3390/ijerph18010271>
- Manzoor, F., Wei, L., Asif, M., Haq, M. Z. ul, & Rehman, H. ur. (2019). The Contribution of Sustainable Tourism to Economic Growth and Employment in Pakistan. *International Journal of Environmental Research and Public Health*, 16(19), 3785. <https://doi.org/10.3390/ijerph16193785>
- Mich, L., & Garigliano, R. (2023). ChatGPT for e-Tourism: a technological perspective. *Information Technology & Tourism*, 4, 1. <https://doi.org/10.1007/s40558-023-00248-x>
- Perifanis, N.-A., & Kitsios, F. (2023). Investigating the Influence of Artificial Intelligence on Business Value in the Digital Era of Strategy: A Literature Review. *Information*, 14(2), 85. <https://doi.org/10.3390/info14020085>
- Rivas, P., & Zhao, L. (2023). Marketing with ChatGPT: Navigating the Ethical Terrain of GPT-Based Chatbot Technology. *AI*, 4(2), 375–384. <https://doi.org/10.3390/ai4020019>
- Rustiawan, I., Gadzali, S. S., Suharyat, Y., Iswadi, U., & Ausat, A. M. A. (2023). The Strategic Role of Human Resource Management in Achieving Organisational Goals. *Innovative: Journal Of Social Science Research*, 3(2), 632–642. <https://doi.org/10.31004/innovative.v3i2.345>
- Subagja, A. D., Ausat, A. M. A., Sari, A. R., Wanof, M. I., & Suherlan, S. (2023). Improving Customer Service Quality in MSMEs through the Use of ChatGPT. *Jurnal Minfo Polgan*, 12(2), 380–386. <https://doi.org/10.33395/jmp.v12i2.12407>

- Sudirjo, F., Ausat, A. M. A., Rijal, S., Riady, Y., & Suherlan, S. (2023). ChatGPT: Improving Communication Efficiency and Business Management of MSMEs in the Digital Age. *Innovative: Journal Of Social Science Research*, 3(2), 643–652. <https://doi.org/https://doi.org/10.31004/innovative.v3i2.347>
- Taecharunroj, V. (2023). “What Can ChatGPT Do?” Analyzing Early Reactions to the Innovative AI Chatbot on Twitter. *Big Data and Cognitive Computing*, 7(1), 35. <https://doi.org/10.3390/bdcc7010035>
- Um, T., Kim, T., & Chung, N. (2020). How does an Intelligence Chatbot Affect Customers Compared with Self-Service Technology for Sustainable Services? *Sustainability*, 12(12), 5119. <https://doi.org/10.3390/su12125119>