

# Role of ChatGPT as an Innovative Tool for Data Analysis and Market Trend Prediction in Business Information Systems

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## ABSTRACT

The advancement of information and communication technology has fundamentally transformed the business landscape. Businesses are increasingly reliant on data to make effective, market-oriented decisions. Within the context of business information systems, ChatGPT can be utilized as an innovative tool to optimize data analysis processes, provide deeper market insights, and even make predictions about future trends. The aim of this research is to explore and test the potential of ChatGPT as an innovative tool in analyzing data and predicting market trends within the context of business information systems. This research employs a literature review approach with a qualitative methodology and descriptive analysis. Data were obtained from Google Scholar for the period of 2003-2024. The study results indicate that in an era where data has become the most valuable asset for companies, the ability to analyze and understand data effectively is key to success. In this context, the role of ChatGPT as an innovative tool for data analysis and market trend prediction in business information systems becomes highly significant. ChatGPT possesses the capability to comprehend and process human language with a high level of complexity, thus enabling it to harness data in various beneficial ways for companies.

**Keywords:** ChatGPT, Data Analysis, Market Trends, Business Information Systems

## INTRODUCTION

The development of Information and Communication Technology (ICT) has brought about fundamental changes in the business landscape, where digitization and automation have become the main pillars in company operations (Wahyoedi et al., 2023). This transformation drives companies to increasingly rely on comprehensive data analysis to support more precise and relevant strategic decision-making in facing the constantly evolving market dynamics.

In this context, data analysis plays a central role in efforts to understand various aspects influencing business performance, including market behavior, consumer trends, as well as internal and external factors. A profound understanding of data enables businesses to anticipate changes in consumer preferences and adapt their products and services accordingly to meet market needs and expectations (Tung et al., 2024).

The available data today is becoming increasingly complex and heterogeneous, encompassing various formats such as text, images, sound, as well as structured and unstructured information. Managing and analyzing such data require the utilization of intelligent and innovative

tools (Sundu et al., 2022). The existing data complexity creates new challenges for companies in their efforts to transform raw data into valuable insights.

Artificial Intelligence (AI), particularly through the application of Natural Language Processing (NLP) techniques, has shown remarkable potential in analyzing and understanding textual data more akin to human cognition. NLP capabilities allow machines to comprehend, interpret, and generate human language naturally, resulting in increased efficiency in processing large volumes of text (Khensous et al., 2023). These techniques encompass various approaches such as syntactic, semantic, and pragmatic analysis, enabling an understanding of language context and nuances, thus yielding more accurate and insightful findings.

ChatGPT is one of the latest examples of significant advancements in the field of Natural Language Processing (NLP). Models like ChatGPT have demonstrated increasingly sophisticated abilities in understanding and generating text closer to human skills. These abilities include context comprehension, language nuances, and more accurate meaning interpretation, enabling more natural interactions between machines and humans (Sudirjo, Ausat, et al., 2023). This development is supported by the use of advanced machine learning algorithms, such as transformers, allowing models to learn from vast amounts of textual data and generalize that knowledge into new contexts.

In the context of business information systems, ChatGPT can be integrated as an innovative tool with great potential to optimize various data analysis processes (Jusman, Almaududi Ausat, et al., 2023). Its usage enables companies to gain deeper market insights through sophisticated natural language processing capabilities, capable of interpreting and analyzing large volumes of textual data efficiently (Sudirjo, Diawati, et al., 2023). This model can identify patterns and trends that might be overlooked by traditional analysis methods and can assist in making predictions regarding future trends based on historical data and contextual analysis.

The primary advantage of ChatGPT lies in its flexibility in handling various types of textual data and its adaptive capability for continuous improvement through training (Ausat, Azzaakiyyah, et al., 2023). This ability makes ChatGPT highly suitable for implementation across various scales and types of businesses, from small enterprises to large corporations. The model can understand and process highly diverse textual data, including documents, conversations, and other digital content, enabling its application in various business contexts such as customer service, market analysis, and content strategy development (Harahap, Ausat, et al., 2023). Continuous training processes allow ChatGPT to be constantly updated and improved based on the latest data and changes in trends, ensuring relevance and accuracy in its application.

In a competitive business ecosystem, speed and accuracy in accessing market information, as well as the ability to anticipate and forecast future trends, are key for companies to gain significant competitive advantages. The availability of timely and accurate data provides a strong foundation for companies to make smarter and more targeted business decisions (Niu et al., 2021).

Referring to the above explanations, the purpose of this research is to explore and test the potential of ChatGPT as an innovative tool in analyzing data and predicting market trends in the context of business information systems. By understanding the role and capabilities of ChatGPT more deeply, it is hoped that this research can provide a significant contribution to the development of more effective and market-oriented data analysis solutions. Through this approach, we aim to enhance understanding of how artificial intelligence, particularly in terms of natural language processing, can be used to support more precise and responsive business decision-making in the face of market changes.

## LITERATURE REVIEW

### ChatGPT

ChatGPT stands for "Generative Pre-trained Transformer," an artificial intelligence model developed by OpenAI. This model utilizes a technology called "transformer" in natural language processing to generate text that resembles human text. ChatGPT has been trained on a large amount of text data from various sources, thus possessing a deep understanding of human language and the ability to generate text with better context (Harahap, Junianto, et al., 2023). The model is renowned for its ability to answer questions, write essays, or even engage in conversations with human-like proficiency levels (Basir et al., 2023). Consequently, ChatGPT holds great potential in various

applications, including data analysis and market trend prediction, where its ability to understand and process text data can be leveraged to generate valuable insights for business decision-making (Subagja et al., 2023).

### Data Analysis

Data analysis is a systematic process of examining, cleaning, organizing, and interpreting data to identify patterns, trends, relationships, and relevant insights (Alem, 2020). Through data analysis, hidden or related information can be uncovered, enabling better fact-based decision-making. This process involves the use of various statistical, mathematical, and computational techniques to present data in a more meaningful and understandable form. From raw data, data analysis helps transform it into valuable information, which can be used to support strategic decision-making, identify business opportunities, understand consumer behavior, or even predict future trends (Özemer & Kabadurmus, 2020). Thus, data analysis is a key aspect of information management in business, academic, and scientific contexts.

### Market Trends

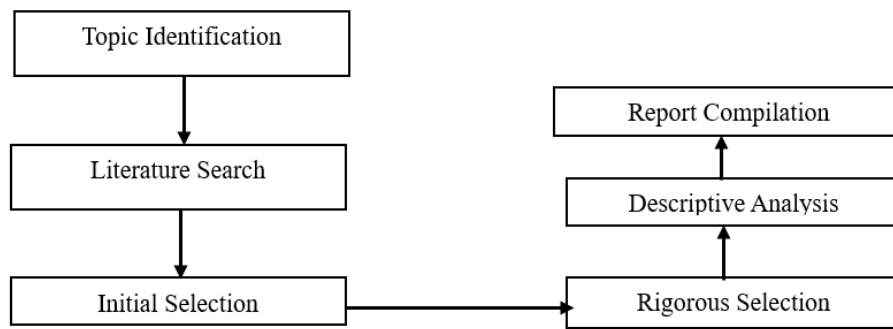
Market trends refer to the direction or pattern of changes in consumer preferences, behaviors, or demand for specific products or services in a market (Rajagopal, 2015). This includes factors such as increases or decreases in demand, changes in consumer preferences, technological advancements, government policies, or global economic conditions that affect the market as a whole. Market trend analysis aims to understand market dynamics, forecast future demand, and anticipate upcoming changes (Durmus Şenyapar, 2024). This enables companies to make better decisions regarding product development, marketing strategies, pricing, and resource allocation, with the goal of seizing opportunities or mitigating risks associated with market changes. With a deep understanding of market trends, companies can better prepare for the dynamic business environment and gain a competitive edge in the competitive market.

### Business Information Systems (BIS)

Business Information Systems (BIS) is a framework that integrates information technology with business processes to manage and process data into meaningful information for decision-making in a business context (Aydiner et al., 2019). BIS involves not only information technology infrastructure such as software, hardware, and communication networks but also encompasses organizational structure, policies, procedures, and people involved in business information management. The main goal of BIS is to provide timely, accurate, and relevant insights to management and other business users to assist them in planning, managing, and making effective decisions (Qu et al., 2019). By leveraging BIS, companies can enhance operational efficiency, optimize business performance, improve service quality, and respond quickly to market changes and dynamic business environments.

## RESEARCH METHOD

This research employs a literature review approach with a qualitative methodology and descriptive analysis. Data were obtained from Google Scholar for the period of 2003-2024. Initially, literature search was conducted using relevant keywords. From the search results, 53 initial articles were identified. Subsequently, a rigorous selection process was undertaken to filter out relevant and high-quality articles, resulting in only 28 articles being chosen. Following the selection, each article was analyzed descriptively to identify main themes, key findings, and approaches used in examining the role of ChatGPT in data analysis and market trend prediction within the business information systems context. The results of the analysis were then utilized to compile the research report.



**Figure 1.** Research Flowchart

## RESULTS AND DISCUSSION

In an era where data has become the most valuable asset for companies, the ability to analyze and understand data effectively is key to success. Amidst the evolving complexity of information, companies are required to optimize every aspect of their business, including marketing strategies, supply chains, product development, and investment decisions. However, the challenges faced in processing and utilizing this data lie in its scale, speed, and complexity. This is where the role of ChatGPT as an innovative tool for data analysis and market trend prediction in business information systems becomes crucial. As a leading AI language model, ChatGPT can comprehend and process human language with a high level of complexity. With this capability, ChatGPT can be used as a tool to leverage data in various beneficial ways for companies.

Initially, ChatGPT has the capability to perform market sentiment analysis using various online data sources, including but not limited to social media, discussion forums, and product evaluations. Leveraging natural language processing technology, this platform can parse and interpret conversation patterns representing consumer opinions, perceptions, and preferences (Chowdhury, 2003). With deep insights into customer attitudes, companies can adjust their marketing strategies more effectively to meet the dynamically changing needs and expectations of the market.

ChatGPT has the capacity to conduct text analysis on a wide scale. Its technological prowess in processing and interpreting various types of texts in diverse languages enables ChatGPT to be a useful tool for companies to explore and analyze emerging patterns in textual data. Through its ability to parse and interpret text, ChatGPT can assist in identifying significant trends, such as trending topics or changes in consumer preferences reflected in various analyzed text data sources. The use of ChatGPT in text analysis provides significant added value to companies in making decisions based on a deep understanding of market trends and consumer behavior (Suriani et al., 2023).

Taking its function further, ChatGPT can serve as a vital tool in predicting market dynamics. By leveraging abundant historical datasets and analyzing identified trends, ChatGPT can produce accurate predictions about future market behaviors. With the generated predictions, companies can take proactive steps based on relevant and detailed information. The utilization of ChatGPT as a predictive tool allows companies to anticipate market changes more effectively and provides opportunities to optimize their strategies to achieve desired outcomes in a constantly changing business environment (Shihab et al., 2023).

Furthermore, ChatGPT can play a highly useful role in the context of high-complexity data analysis and modeling. Its ability to interpret complex instructions and process data in various formats makes it a highly potential tool for companies to unearth deep insights from their data. One of its main advantages is its ability to identify hidden patterns and reveal complex relationships between various variables in datasets. The use of ChatGPT in data analysis and modeling contexts presents the possibility of gaining a deeper understanding of observed phenomena and opens up opportunities to make more precise and informed decisions in the context of corporate strategy (Diantoro et al., 2024).

In addition to the aforementioned benefits, ChatGPT's role in the context of business information systems can be expanded through synergistic integration with various other technologies. For example, ChatGPT can be integrated with image or voice recognition technology to investigate and analyze data in multimedia formats (Prananta et al., 2023). It is evident that such technological amalgamation provides extensive opportunities for companies to leverage data in various formats and sources to gain a more holistic understanding of market behavior and consumer preferences. The use of ChatGPT in conjunction with other technologies enhances the depth of analysis and broadens the scope of understanding complex market dynamics, providing a solid foundation for informed and intelligent strategic decision-making.

Moreover, ChatGPT's role can also be extended towards fostering closer interaction between companies and their clients. Through the adoption of ChatGPT-powered chatbots, companies can provide more responsive and personalized customer services (Jusman, Ausat, et al., 2023). These chatbots act as virtual agents capable of answering customer queries, providing product recommendations tailored to individual preferences, or even conducting direct transactions with clients. With the ability to understand human language and respond quickly, ChatGPT-powered chatbots present a smoother and more satisfying interaction experience for clients, while also providing opportunities for companies to strengthen connections with their customer base and enhance customer retention.

Taking further steps in its contribution to business information systems, ChatGPT's role encompasses data analysis services and support for decision-making processes. With its speed and efficiency in processing information, ChatGPT can provide in-depth analysis and relevant reports for company management (Ausat, Rachman, et al., 2023). Rooted in this capability, management can make better and faster decisions, relying on accurate and up-to-date information presented by ChatGPT. In contexts requiring high responsibility and swift action in decision-making, ChatGPT's presence as a supporting tool is crucial, offering the possibility to minimize risks and maximize opportunities in dynamic business environments.

Furthermore, ChatGPT's role has significant potential to be expanded into the realm of new product development and services. By leveraging the intellectual insights derived from data analysis using ChatGPT, companies can explore new opportunities that inspire product innovations and services that can optimally respond to customer needs and desires. Through a deep understanding of market trends and consumer preferences reflected in data, companies can design more adaptive and competitive solutions, opening doors for product differentiation and sustainable growth opportunities (Sudirjo, 2023). The use of ChatGPT in the context of product and service development becomes an analytical tool and a catalyst for creating sustainable added value for companies and their customers.

However, it is inevitable to note that the utilization of ChatGPT in the framework of business information systems poses a number of challenges and considerations that need to be addressed. For example, it is essential to be mindful of the importance of safeguarding customer data security and privacy when leveraging ChatGPT, as well as considering the ethical implications that may arise from the use of this technology in business decision-making processes. In an era where concerns about data security and privacy are increasing, companies must take effective measures to ensure that sensitive information is not misused or inadvertently exposed (Janet Ngesa, 2023). Furthermore, awareness of the ethical implications of using artificial intelligence algorithms like ChatGPT is becoming increasingly important, given the potential adoption of this technology in making decisions that can affect multiple parties. Therefore, in integrating ChatGPT into business information systems, companies need to consider and address these challenges wisely, to ensure that the use of the technology brings optimal benefits without harming the interests or rights of individuals.

Overall, ChatGPT's role in its capacity as an innovative tool for data analysis and market trend prediction in the framework of business information systems stands out as a highly vital element in efforts to enhance the efficiency, effectiveness, and competitiveness of companies in the ever-evolving digital era. By leveraging its unique ability to understand and process human language in the context of data analysis, ChatGPT becomes a crucial catalyst in driving more

optimal and rapid decision-making for companies. More than just providing information, ChatGPT also helps companies identify hidden opportunities and bridge the gap between information and action. In a dynamic and rapidly changing business environment, ChatGPT's adaptability becomes key to ensuring the sustainability and growth of companies in the future.

**Table 1.** Role of ChatGPT in Business Intelligence

No	Aspect	Key Point
1	Analysis and Understanding of Data	Data has become the most valuable asset, and the ability to analyze and understand data is crucial for company success
2	Use of ChatGPT as an Innovative Tool	ChatGPT as a leading AI language model, capable of processing human language with high complexity
3	Market Sentiment Analysis	ChatGPT can analyze online conversations, helping companies understand customer views and preferences
4	Large-Scale Text Analysis	ChatGPT can identify trends and patterns in text data, such as hot topics or changing preferences
5	Market Prediction	ChatGPT can make predictions about future market behavior, enabling proactive steps in business strategy
6	Complex Data Analysis and Modeling	ChatGPT assists in gaining deep insights from data, like identifying hidden patterns or relationships between variables
7	Integration with Other Technologies	ChatGPT can be integrated with other technologies, like image or voice recognition for multimedia data analysis
8	Enhancing Customer Interaction	ChatGPT supports more responsive and personalized customer service through chatbot
9	Decision-Making Support	ChatGPT generates relevant analyses and reports for company management, enabling better decision-making
10	Development of New Products and Services	ChatGPT helps identify opportunities for innovation in new products and services to meet customer needs
11	Challenges and Considerations	Ensuring data security and privacy, as well as considering the ethical impact of using ChatGPT in business
12	Contribution to Company Efficiency, Effectiveness, and Competitiveness	Ensuring data security and privacy, as well as considering the ethical impact of using ChatGPT in business

## CONCLUSION

In an era where data emerges as the most valuable asset for companies, the ability to analyze and understand data effectively becomes the key to success. In this context, the role of ChatGPT as an innovative tool for data analysis and market trend prediction within business information systems becomes exceedingly crucial. ChatGPT possesses the capability to comprehend and process human language with a high level of complexity, thereby enabling its utilization in various beneficial ways for companies. Therefore, recommendations that can be provided based on the results of this research are as follows:

1. Utilize ChatGPT to analyze market sentiment and understand customer preferences by monitoring and analyzing online conversations, enabling companies to adjust their marketing strategies according to dynamic market responses.
2. Employ ChatGPT for large-scale text analysis to identify emerging trends and patterns in textual data, such as trending topics or changes in consumer preferences.
3. Harness the predictive capabilities of ChatGPT by leveraging historical data and detected trends to enable proactive measures in response to market changes.
4. Utilize ChatGPT as a tool for analyzing and modeling complex data to unearth profound insights from company data, such as identifying hidden patterns or complex relationships between variables.

5. Expand the role of ChatGPT within business information systems by integrating it with other technologies, such as image or voice recognition, to analyze multimedia data and gain a more comprehensive understanding of market behavior and consumer preferences.
6. Employ ChatGPT-supported chatbots to enhance interaction between the company and customers, providing more responsive and personalized customer service.
7. Leverage ChatGPT's capabilities in supporting decision-making by generating relevant analyses and reports for company management, enabling them to make better and faster decisions.
8. Utilize insights obtained from data analysis using ChatGPT to identify new opportunities in the development of products and services that can better meet customer needs and desires.
9. Remain vigilant of challenges and considerations related to the use of ChatGPT, including customer data security and privacy, as well as the ethical implications of using this technology in business decision-making.

By harnessing ChatGPT's unique ability to process human language, companies can enhance their efficiency, effectiveness, and competitiveness in the current digital era, enabling them to make better decisions, identify new opportunities, and adapt to rapid market changes.

## REFERENCES

- Alem, D. D. (2020). An Overview of Data Analysis and Interpretations in Research. *International Journal of Academic Research in Education and Review*, 8(1), 1–27.
- 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., Rachman, A., Rijal, S., Suherlan, S., & Azzaakiyyah, H. K. (2023). Application of ChatGPT in Improving Operational Efficiency in the Context of Entrepreneurship. *Jurnal Minfo Polgan*, 12(1), 1220–1228. <https://doi.org/https://doi.org/10.33395/jmp.v12i1.12667>
- Aydiner, A. S., Tatoglu, E., Bayraktar, E., & Zaim, S. (2019). Information system capabilities and firm performance: Opening the black box through decision-making performance and business-process performance. *International Journal of Information Management*, 47, 168–182. <https://doi.org/10.1016/j.ijinfomgt.2018.12.015>
- Basir, A., Puspitasari, E. D., Aristarini, C. C., Sulastrri, P. D., & Ausat, A. M. A. (2023). Ethical Use of ChatGPT in the Context of Leadership and Strategic Decisions. *Jurnal Minfo Polgan*, 12(1), 1239–1246. <https://doi.org/https://doi.org/10.33395/jmp.v12i1.12693>
- Chowdhury, G. G. (2003). Natural language processing. *Annual Review of Information Science and Technology*, 37(1), 51–89. <https://doi.org/10.1002/aris.1440370103>
- Diantoro, K., Munthe, E. S., Agus Herwanto, Mubarak, R., & Istianingsih, N. (2024). The Role of ChatGPT in Business Information Systems to Support Strategic Decision Making in Medium-Scale Enterprises. *Jurnal Minfo Polgan*, 13(1), 382–389.
- Durmus Şenyapar, H. N. (2024). The Future of Marketing: The Transformative Power of Artificial Intelligence. *International Journal of Management and Administration*, 8(15), 1–19. <https://doi.org/10.29064/ijma.1412272>
- Harahap, M. A. K., Ausat, A. M. A., Rachman, A., Riady, Y., & Azzaakiyyah, H. K. (2023). Overview of ChatGPT Technology and its Potential in Improving Tourism Information Services. *Jurnal Mininfo Polgan*, 12(2), 424–431. <https://doi.org/10.33395/jmp.v12i2.12416>
- Harahap, M. A. K., Junianto, P., Astutik, W. S., Risdwiyanto, A., & Ausat, A. M. A. (2023). Use of ChatGPT in Building Personalisation in Business Services. *Jurnal Minfo Polgan*, 12(1), 1212–1219. <https://doi.org/https://doi.org/10.33395/jmp.v12i1.12666>
- Heriyanto. (2022a). Pilkada di masa Pandemi Covid-19 Ditinjau dari Perspektif Administrasi Publik. *Prosiding Seminar Nasional Ilmu Ilmu Sosial (SNIIS)*, 384–391.
- Heriyanto, Debbie Yuari Siallagan, & Sulaiman. (2020). Peran Pemerintah dalam Pengembangan Teluk Berdiri sebagai Objek Ekowisata di Kabupaten Kuburaya Kalimantan Barat.

- EDUTOURISM Journal Of Tourism Research, 2(02), 8–16.  
<https://doi.org/10.53050/ejtr.v2i02.134>
- Heriyanto, H. (2022b). Role of People's Representative Council in Optimizing Regional Autonomy Based on Administrative Perspective. Proceedings of the 1st International Conference on Social Science and Technology (INCOSST), 1(1), 22–31.
- Heriyanto, H., Lubis, L. N., & Siallagan, D. Y. (2020). Pengaruh Struktur Organisasi terhadap Kinerja Pegawai pada PT Medco E dan P Indonesia Sumatera Selatan. Eksos, 16(2), 133–143. <https://doi.org/10.31573/eksos.v16i2.184>
- Heriyanto, H., Oktavianda, M., & Sihombing, G. K. H. (2022). SWOT Analysis in Facing the Quality 2024 Elections at the Regional General Election Commission of Kubu Raya Regency, West Kalimantan. LEGAL BRIEF, 11(4), 2268–2275.
- Heriyanto, H., Oktavianda, M., & Suprihartini, L. (2022). Complaint Management System Analysis: Online Community Aspiration And Complaint Services. Publik (Jurnal Ilmu Administrasi), 11(2), 224. <https://doi.org/10.31314/pjia.11.2.224-236.2022>
- Janet Ngesa. (2023). Tackling security and privacy challenges in the realm of big data analytics. *World Journal of Advanced Research and Reviews*, 21(2), 552–576. <https://doi.org/10.30574/wjarr.2024.21.2.0429>
- Jusman, I. A., Almaududi Ausat, A. M., & Sumarna, A. (2023). Application of ChatGPT in Business Management and Strategic Decision Making. *Jurnal Minfo Polgan*, 12(2), 1688–1697. <https://doi.org/10.33395/jmp.v12i2.12956>
- Jusman, I. A., Ausat, A. M. A., & Sumarna, A. (2023). Application of ChatGPT in Business Management and Strategic Decision Making. *Jurnal Minfo Polgan*, 12(2), 1688–1697. <https://doi.org/https://doi.org/10.33395/jmp.v12i2.12956>
- Khensous, G., Labeled, K., & Labeled, Z. (2023). Exploring the evolution and applications of natural language processing in education. *Revista Română de Informatică Și Automatică*, 33(2), 61–74. <https://doi.org/10.33436/v33i2y202305>
- Niu, Y., Ying, L., Yang, J., Bao, M., & Sivaparthipan, C. B. (2021). Organizational business intelligence and decision making using big data analytics. *Information Processing & Management*, 58(6), 102725. <https://doi.org/10.1016/j.ipm.2021.102725>
- Özemre, M., & Kabadurmus, O. (2020). A big data analytics based methodology for strategic decision making. *Journal of Enterprise Information Management*, 33(6), 1467–1490. <https://doi.org/10.1108/JEIM-08-2019-0222>
- Prananta, A. W., Susanto, N., Purwanto, A., & Fuadah, N. (2023). ChatGPT Artificial Intelligence Integration in Science Learning Media: Systematic Literature Review. *Jurnal Penelitian Pendidikan IPA*, 9(7), 315–321. <https://doi.org/10.29303/jppipa.v9i7.4386>
- Qu, Y., Ming, X., Ni, Y., Li, X., Liu, Z., Zhang, X., & Xie, L. (2019). An integrated framework of enterprise information systems in smart manufacturing system via business process reengineering. *Proceedings of the Institution of Mechanical Engineers, Part B: Journal of Engineering Manufacture*, 233(11), 2210–2224. <https://doi.org/10.1177/0954405418816846>
- Rajagopal. (2015). Market Trend Analysis. In *The Butterfly Effect in Competitive Markets* (pp. 95–118). Palgrave Macmillan UK. [https://doi.org/10.1057/9781137434975\\_4](https://doi.org/10.1057/9781137434975_4)
- Shihab, S. R., Sultana, N., & Abdul Samad. (2023). Revisiting the use of ChatGPT in Business and Educational Fields: Possibilities and Challenges. *BULLET : Jurnal Multidisiplin Ilmu*, 2(3), 534–545.
- 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/https://doi.org/10.33395/jmp.v12i2.12407>
- Sudirjo, F. (2023). Marketing Strategy in Improving Product Competitiveness in the Global Market. *Journal of Contemporary Administration and Management (ADMAN)*, 1(2), 63–69. <https://doi.org/10.61100/adman.v1i2.24>
- 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>
- Sudirjo, F., Diawati, P., Riady, Y., Ausat, A. M. A., & Suherlan, S. (2023). The Role of ChatGPT in Enhancing the Information Search and Decision-Making Process of Travellers. *Jurnal Minfo Polgan*, 12(2), 500–507. <https://doi.org/https://doi.org/10.33395/jmp.v12i2.12443>
- Sundu, M., Yasar, O., & Findikli, M. A. (2022). Data-Driven Innovation: Digital Tools, Artificial Intelligence, and Big Data. In *Organizational Innovation in the Digital Age* (pp. 149–175). Springer International Publishing. [https://doi.org/10.1007/978-3-030-98183-9\\_6](https://doi.org/10.1007/978-3-030-98183-9_6)
- Suriani, S., Abustan, A., Djakasaputra, A., Baharuddin, S. M., & Nur, I. (2023). Understanding Sentiment and Emotion through ChatGPT to Support Emotion-based Management Decision Making. *Jurnal Minfo Polgan*, 12(2), 1778–1788. <https://doi.org/10.33395/jmp.v12i2.13000>
- Tung, T. M., Lan, D. H., Cuc, T. T. K., & Oanh, V. T. K. (2024). Market Research And Business Intelligence Studies On The Expansion Of E-Commerce Enterprises. *Educational Administration: Theory and Practice*, 30(3), 467–479.
- Wahyoedi, S., Suherlan, S., Rijal, S., Azzaakiyyah, H. K., & Ausat, A. M. A. (2023). Implementation of Information Technology in Human Resource Management. *Al-Buhuts*, 19(1), 300–318. <https://doi.org/https://doi.org/10.30603/ab.v19i1.3407>