

The Role of Management Information System Innovation as a Catalyst to Enhance Profitability in the Contemporary Digital Business Era

¹Muhamad Malik Mutoffar, ²Achirsyah Bahar, ³Fahrina Mustafa

¹Department of Informatics Engineering, Sekolah Tinggi Teknologi Bandung, Indonesia

²Department of Industrial Engineering, Universitas Nasional Pasim, Indonesia, Indonesia

³Department of Management, Universitas Hasanuddin, Indonesia

¹malik@sttbandung.ac.id, ²pakiir@gmail.com, ³fahrina_mustafa@fe.unhas.ac.id

ABSTRACT

Digital business has become a phenomenon dominating the global market, influencing various industries, and changing the way companies operate and interact with customers. This research aims to examine the crucial role of innovation in MIS as a catalyst for enhancing profitability in digital businesses. The research method employed is a qualitative literature review conducted by gathering data from Google Scholar within the timeframe of 2003 to 2024. The study findings indicate that innovation in management information systems (MIS) plays a vital role in enhancing profitability in digital businesses in the contemporary era. Through the implementation of advanced information technology, businesses can create added value, improve operational efficiency, and respond to market changes more quickly. Innovation in MIS also enables the development of new business models, enhances customer experiences, and creates a more sustainable business environment.

Keywords: Innovation, Management Information System, Profitability, Digital Business

INTRODUCTION

In today's rapidly evolving business landscape, traditional strategies alone are insufficient for companies to maintain competitiveness. Increasingly, businesses are turning to a diverse array of information technologies to bolster their operational efficiency, flexibility, and responsiveness to market dynamics. This shift encompasses not only the adoption of software and automation systems but also the integration of advanced technologies such as artificial intelligence, data analytics, and cloud-based solutions. By embracing these innovations, companies can adapt more swiftly to environmental changes, boost productivity, and fortify their competitive stance in the global market (Ohara et al., 2024; Sudirjo, Diantoro, et al., 2023).

The extraordinary advancements in information technology, particularly in artificial intelligence (AI), cloud computing, data analytics, and the Internet of Things (IoT), herald a new era of digital transformation across industries (Sudirjo, Ausat, et al., 2023). These technologies offer unprecedented opportunities for companies to revamp their business processes comprehensively (Bernardus et al., 2024). For instance, AI facilitates task automation, thereby enhancing operational efficiency and enabling more precise predictions of market trends. Simultaneously, cloud computing infrastructure furnishes unparalleled flexibility and scalability, ensuring seamless access to data and applications. Moreover, data analytics empowers companies to glean valuable insights from vast data volumes, underpinning smarter decision-making (Mikalef et al., 2020). The IoT facilitates real-time data collection from interconnected physical devices, facilitating more efficient asset and infrastructure management. Through the synergistic application

of these technologies, companies can achieve heightened efficiency, productivity, and adaptability, enabling them to thrive amidst market fluctuations.

In the ever-changing business landscape, companies must continually innovate to remain relevant and competitive (Farida & Setiawan, 2022). Innovation, particularly in Management Information Systems (MIS), equips companies to respond swiftly and effectively to market shifts. With the evolution of information technology, including advancements in data analytics and AI, companies gain the capability to analyze markets, monitor competitors, and adapt strategies accurately. This enables them to grasp customer needs, industry trends, and emerging opportunities, empowering strategic decision-making. Thus, innovation in MIS emerges as a necessity for companies striving to navigate the dynamic business environment successfully.

In meeting the demands of today's digitally savvy consumers, personalized and seamless digital experiences have become imperative for brands (Dwivedi et al., 2021). Innovation in MIS plays a pivotal role in crafting these experiences, as it enables the integration of cutting-edge technology and personalization strategies. Through such integration, companies can cultivate impactful consumer experiences, fostering customer loyalty and brand affinity.

In the fiercely competitive business arena, maximizing profitability remains a paramount objective for companies. In the era of digital transformation, innovation in MIS emerges as a cornerstone for achieving this goal. By leveraging state-of-the-art technology and sophisticated strategies, companies can streamline operations, reduce costs, and expand market share (Triwahyono et al., 2023). This optimization of business processes enhances employee productivity, ultimately driving long-term profitability (Verhoef et al., 2021).

This research aims to delve deeper into the pivotal role of MIS innovation as a catalyst for enhancing digital business profitability. By elucidating how companies can strategically harness information technology, this study seeks to offer valuable insights into achieving business objectives in the contemporary dynamic landscape.

LITERATURE REVIEW

Innovation

Innovation is the process whereby new ideas, concepts, or technologies are applied to create added value or better solutions within a specific context (Mahardhani, 2023). It involves the development and implementation of new ways to solve problems, improve efficiency, or create products, services, or processes that are better than those previously existing. In other words, innovation involves integrating creative ideas with existing practices to effect positive change. The innovation process often involves experimentation, risk-taking, and ongoing iteration to yield impactful results (Suherlan & Okombo, 2023). The significance of innovation lies in its ability to drive change, create added value, and maintain competitiveness in an ever-evolving market. In the business context, innovation can occur in various aspects, including products, services, business models, operational processes, and marketing strategies, all aimed at meeting customer needs, optimizing company performance, and achieving larger business objectives (Wanof, 2023).

Management Information System (MIS)

A Management Information System (MIS) is a framework or structure consisting of software, hardware, procedures, and personnel working together to collect, store, manage, and present relevant information to leaders and managers within an organization to support effective decision-making processes. MIS enables organizational leaders to access needed information quickly and accurately, whether for strategic, tactical, or operational decisions (Berisha Shaqiri, 2014). Management Information Systems also allow integration across various organizational functions, such as finance, marketing, human resources, and supply chain, enabling management to have a holistic view of company performance (Vickery et al., 2003). Beyond merely providing data, MIS also facilitates in-depth analysis and visualization of information to aid management in understanding trends, identifying opportunities, and addressing challenges faced by the organization. Thus, MIS is a highly critical tool in supporting efficiency, productivity, and competitive advantage for an organization in an increasingly complex and dynamic business environment (Handoyo et al., 2023).

Profitability

Profitability is the ability of a company or business entity to generate profit or earnings from its business operations over a specific period (Hakim & Naelufar, 2020). This concept reflects the efficiency and effectiveness of the company in managing resources and conducting its business activities to yield revenues greater than the costs incurred. Profitability can be measured by various metrics, including gross profit margin, net profit margin, return on investment (ROI), return on assets (ROA), and return on equity (ROE). High profitability indicates that a company can generate healthy profits from its business activities, while low profitability may indicate issues in operational management, high costs, or other problems in the business structure (Akhmadi & Januarsi, 2021). Consistent and high profitability is crucial for the long-term sustainability and growth of a company, as the profits generated can be utilized for reinvestment in the business, paying dividends to shareholders, or funding expansion and innovation efforts that can enhance the company's competitiveness in the market. Thus, profitability is one of the most important and commonly used performance measures in evaluating the financial success of a company.

Digital Business

Digital business refers to economic activities that rely primarily on digital technology as the main foundation in their operations, marketing, and interactions with customers (Lynn et al., 2022). It encompasses various business models that are fully or predominantly dependent on the internet, software, and information technology to conduct their business activities. Digital businesses include everything from online stores, e-commerce platforms, digital services, mobile applications to high-tech companies focusing on the development of information technology solutions. The presence of digital businesses has transformed the way consumers interact with products and services, enabling transactions without geographical boundaries and providing greater accessibility to customers (Kraus et al., 2021). Innovation in digital business also involves the use of data analytics, artificial intelligence, and other technologies to understand customer behavior, enhance user experience, and optimize business processes (Agustian et al., 2023). Thus, digital businesses not only create new opportunities for companies to reach a broader market but also drive transformation in how companies operate and communicate with customers in the ever-evolving digital era (Purnomo, 2023).

RESEARCH METHOD

This research method is a qualitative literature review conducted by gathering data from Google Scholar within the timeframe of 2003 to 2024. A qualitative approach is used to deeply understand the concepts, theories, and relevant findings related to the role of innovation in management information systems and its impact on profitability in contemporary digital business era. The literature review is conducted by identifying and analyzing various articles, journals, conference papers, and other scholarly literature relevant to the research topic. Data obtained from Google Scholar is used to formulate a comprehensive understanding of the theoretical framework and key concepts related to this research topic. Data analysis is carried out by summarizing, synthesizing, and evaluating the findings found in relevant literature. This approach provides insights into the concept of innovation in management information systems and how its implementation can influence profitability in the contemporary digital business era.

RESULTS AND DISCUSSION

In the contemporary era marked by rapid advancements in information technology, the role of innovation in management information systems has become a crucial catalyst for enhancing the profitability of digital businesses. Amidst the swiftly changing consumer behaviors and increasingly fierce competition in the global market, digital businesses are required not only to adapt quickly but also to lead such changes. Therefore, innovative strategies in information management are essential to enable companies to seize emerging opportunities, overcome new challenges, and develop sustainable competitive advantages. By leveraging cutting-edge

technology and implementing best practices in information management, digital businesses can strengthen their market position, deliver added value to customers, and ensure sustainable growth in this dynamic environment.

First and foremost, it is important to understand that management information systems (MIS) lie at the core of digital business operations. MIS is not merely a set of administrative processes; rather, it encompasses everything from collecting, storing, processing, to distributing relevant information to support effective decision-making (Biswas & Wang, 2023). In the evolving landscape of digital business, MIS goes beyond mere administrative tools. It serves as the foundation supporting innovative product development, services, and business strategies that enable companies to adapt to digital market dynamics. Furthermore, MIS provides the groundwork for developing solutions that can swiftly and accurately respond to changing consumer trends. By optimizing MIS, digital businesses can streamline operational processes, enhance efficiency, and deliver significant value to stakeholders (Martínez-Peláez et al., 2023).

Innovation in management information systems (MIS) not only enables digital businesses to optimize their internal processes but also leads to profound transformations in how they operate and innovate. By harnessing the latest technologies such as big data analytics, machine learning, and artificial intelligence, businesses can extract valuable insights from the data they gather, both internally and externally. This is not just about understanding current consumer trends but also about predicting future customer needs and behaviors. With a deeper understanding of customer preferences and needs, businesses can adopt a more proactive approach in adjusting their products, services, and marketing strategies (Lemon & Verhoef, 2016). Moreover, innovation in MIS not only helps in responding quickly to market changes but also opens doors to creating greater value through better personalization and engaging customer experiences. Through smart and strategic utilization of innovative SIM technology, digital businesses can achieve higher levels of operational efficiency, cost reduction, and significant productivity improvements, thus strengthening their positions in competitive markets.

In addition to supporting internal process optimization and the development of more personalized customer experiences, innovation in management information systems (MIS) also presents opportunities for digital businesses to design more meaningful and satisfying interactions with their customers. By effectively leveraging customer data, including information on preferences, purchasing behavior, and past interactions, businesses can deliver highly tailored products and services (Taherdoost, 2023). This approach not only fosters stronger relationships between businesses and customers but also lays a solid foundation for enhancing long-term customer loyalty. Beyond mere business transactions, these personalized experiences open doors to the formation of sustainable and mutually beneficial relationships between businesses and customers. Thus, besides boosting customer retention, innovation in MIS also has the potential to generate higher long-term revenue through increased value alongside enhanced customer satisfaction and loyalty.

However, it is important to acknowledge that the role of innovation in management information systems (MIS) extends beyond operational optimization and customer experience enhancement. Innovation in MIS brings broader implications, enabling digital businesses to explore new opportunities and design business models that drive substantial change (Van de Wetering et al., 2023). By leveraging new technologies and market trends, businesses can transcend existing boundaries and create truly revolutionary products and services. This not only creates significant added value for customers but also opens doors to sustainable and meaningful growth for the businesses themselves. In facing the ever-changing business environment and increasingly fierce competition, innovation in MIS becomes key to unlocking new potentials, seizing emerging opportunities, and building a strong foundation for long-term success (Yani et al., 2023). By continuously pushing the boundaries of innovation, digital businesses can position themselves as leaders in the market, inspiring industry changes, and strengthening their positions as pioneers in this evolving digital era.

However, to truly act as a catalyst driving increased profitability and competitive advantage, innovation in management information systems (MIS) requires strong support from

company management and appropriate investments in technology and human resource development. A strong commitment from management is required to garner comprehensive organizational support for SIM innovation. Moreover, strategic investments in technology infrastructure and human resource development are key to realizing the innovative potential of MIS. Businesses must be prepared to take risks, foster a culture of continuous innovation, and actively engage in updating and improving their information systems in line with evolving technology and market demands (Vial, 2019). By adopting this approach, businesses can ensure that their SIM remains relevant, adaptive, and capable of delivering sustainable added value in the face of rapid dynamics and increasingly fierce competition in this digital era.

Innovation plays a profound role in Management Information Systems (MIS), with significant implications for the advancement of digital businesses in today's technology-driven contemporary era. Innovation in MIS isn't just a supportive factor; it's the primary key to enhancing profitability and sustainability in digital business. By leveraging information technology intelligently and strategically, businesses can attain sustainable competitive advantages in an increasingly complex environment. Through innovation in MIS, businesses can enhance their operational efficiency, elevate customer experience standards, and even identify new opportunities that drive business growth. Furthermore, innovation in MIS isn't merely an option but a necessity for digital businesses aiming to succeed in rapidly changing markets. By strengthening their innovative foundations in information management, digital businesses can confidently face future challenges and position themselves as leaders in their respective industries. Therefore, efforts to explore and implement innovation in MIS not only enrich business strategies but also pave the way for sustainable success in this digital era.

In addition to significantly impacting the enhancement of competitiveness in the increasingly complex global digital market, innovation in Management Information Systems (MIS) also opens promising opportunities for deeper transformation. By harnessing advanced information technology, businesses can not only change how they operate but also shift their paradigms in communicating and interacting with customers worldwide. Innovation in MIS enables businesses to adopt a more open and responsive approach to the rapidly changing global market dynamics, allowing them to move faster and more flexibly in responding to customer demands, creating products and services more aligned with market needs, and strengthening relationships with customers worldwide (Cichosz et al., 2020). Through the integration of sophisticated information technology into their business processes, digital businesses can expand their global reach, strengthen their positions in international markets, and create significant value for their stakeholders. Thus, innovation in MIS not only serves as the key to enhancing digital business competitiveness but also acts as a catalyst for sustainable growth and success in the increasingly dynamic global market.

One crucial aspect emerging from innovation in Management Information Systems (MIS) is its ability to support synergistic integration and collaboration among various existing business functions (Chen et al., 2019). By building well-integrated and interconnected information systems, key departments such as marketing, sales, production, and customer service can efficiently share data and work together to achieve larger business goals. This creates an environment where information can flow smoothly across various business units, enabling teams to quickly and accurately respond to dynamic market changes (Javaid et al., 2022). Moreover, this robust integration allows businesses to optimize resource utilization, minimize redundancy, and enhance overall operational efficiency. By strengthening this cross-functional collaboration through innovation in MIS, businesses can take firmer steps towards success, enhancing their competitiveness and achieving superior performance in the ever-changing and competitive market.

In addition to playing a role in optimizing internal processes and improving customer experiences, innovation in Management Information Systems (MIS) also acts as a catalyst for the development of new technology-driven business models. For example, the concept of the Internet of Things (IoT) opens up new opportunities for businesses to develop digitally connected products, changing how products interact with their environment and users. By directly collecting data from these products, businesses can gain deeper insights into user behavior and product operational

conditions, enabling them to offer additional services tailored to customer needs more precisely (Nitin Rane et al., 2023). By adopting this approach, businesses not only enhance the value of their products but also open up new opportunities to generate additional revenue through service-based or subscription-based business models, as well as various new forms of data monetization. Thus, innovation in MIS not only brings about changes in operations and marketing but also stimulates fundamental changes in how businesses understand and leverage technology to create added value for customers and their organizations.

It is undeniable that innovation in Management Information Systems (MIS) plays a crucial role in shaping and maintaining a more sustainable business environment. Beyond just enhancing operational efficiency, innovation in MIS provides opportunities for businesses to integrate sustainability principles into their entire operations network. By leveraging technology to optimize resource usage and reduce carbon footprint, businesses can significantly mitigate their negative impact on the environment (Sutrisno et al., 2023; Wahyoedi et al., 2023). For example, by adopting digital solutions for inventory management and supply chain, businesses can minimize waste and inefficient energy use. Additionally, by facilitating remote work and reducing the need for excessive business travel, innovation in MIS also contributes to a significant reduction in greenhouse gas emissions. Through the integration of these sustainable practices into their daily operations, businesses can not only enhance their reputation as socially and environmentally responsible business players but also achieve greater efficiency and long-term sustainable profits. Thus, innovation in MIS is not only a necessity but also a must for businesses that want to play a meaningful role in building a greener and more sustainable future for our planet.

However, to reap all the benefits offered by innovation in Management Information Systems (MIS), businesses must adopt a careful and strategic approach to its development and implementation. Strong commitment from management is required to prioritize innovation in MIS as an integral part of their business strategy, and provide adequate support in terms of human resources, technology, and finance. This involves significant investment in developing employee skills and knowledge, adopting the latest technology, and allocating adequate budgets to support innovation projects. Additionally, information security is also a crucial aspect that businesses need to consider in this digital era, given the increasing cyber threats (Safitra et al., 2023). Therefore, businesses must prioritize the implementation of robust information security measures, including the use of advanced encryption technology, tight monitoring of network activities, and regular training for employees on good cyber security practices. By adopting a holistic and integrated approach to innovation in MIS, while paying attention to information security aspects, businesses can ensure that they not only derive maximum benefits from information technology but also protect themselves from potential risks and threats in this increasingly complex digital era.

Therefore, the role played by innovation in Management Information Systems as a catalyst for enhancing the profitability of digital businesses in the contemporary era is undeniable. Through the wise utilization of information technology, businesses can achieve higher accomplishments, with the ability to create significant added value, enhance their competitiveness in the increasingly complex global market, and build sustainable competitive advantages. In this context, investment in MIS innovation is not only a necessity to survive amid fierce and dynamic competition but also a crucial step towards achieving long-term growth and success. Integrating MIS innovation into their business strategy is not just about adopting the latest technology but also about fostering a culture of innovation that encourages creativity, experimentation, and continuous learning. By prioritizing MIS innovation as an integral part of their strategic planning, businesses can position themselves more strongly to face future challenges and seize opportunities emerging in this evolving digital era.

CONCLUSION

In conclusion, the role of innovation in management information systems (MIS) is a crucial key to enhancing profitability in digital businesses in the contemporary era. Through the implementation of advanced information technology, businesses can create added value, improve operational efficiency, and respond to market changes more rapidly. Innovation in MIS also enables

the development of new business models, enhancement of customer experiences, and creation of a more sustainable business environment. To maximize the benefits of innovation in MIS, here are some recommendations to consider:

1. **Investment in Relevant Technology:** Businesses need to commit resources to invest in relevant and advanced information technology, such as big data analytics, artificial intelligence, and the Internet of Things. This enables businesses to optimize their operations and create significant added value.
2. **Focus on Integration and Collaboration:** It is important to ensure good integration across various business functions and collaboration between departments. This will enhance operational efficiency and effectiveness and enable businesses to respond to market changes more quickly.
3. **Prioritize Information Security:** Businesses should pay special attention to information security to protect sensitive data and reduce the risk of data breaches and cyber attacks.
4. **Customer Engagement:** Effectively using customer data to understand their needs and preferences is key to enhancing customer experience and building loyalty.
5. **Be Responsive to Change:** Businesses should be prepared to adapt quickly to technological and market changes. Flexibility and resilience in facing change are key to surviving and thriving in a dynamic business environment.

By following these recommendations and prioritizing innovation in MIS, businesses can gain sustainable competitive advantages, improve profitability, and achieve long-term success in the ever-changing digital era.

REFERENCES

- Agustian, K., Mubarak, E. S., Zen, A., Wiwin, W., & Malik, A. J. (2023). The Impact of Digital Transformation on Business Models and Competitive Advantage. *Technology and Society Perspectives (TACIT)*, 1(2), 79–93. <https://doi.org/10.61100/tacit.v1i2.55>
- Akhmadi, A., & Januarsi, Y. (2021). Profitability and Firm Value: Does Dividend Policy Matter for Indonesian Sustainable and Responsible Investment (SRI)-KEHATI Listed Firms? *Economies*, 9(4), 163. <https://doi.org/10.3390/economies9040163>
- Berisha Shaqiri, A. (2014). Management Information System and Decision-Making. *Academic Journal of Interdisciplinary Studies*, 3(2), 19–23. <https://doi.org/10.5901/ajis.2014.v3n2p19>
- Bernardus, D., Arisa, M. F., Sufa, S. A., & Suparwata, D. O. (2024). Supporting Start-ups in Indonesia: Examining Government Policies, Incubator Business, and Sustainable Structure for Entrepreneurial Ecosystems and Capital. *International Journal of Business, Law, and Education*, 5(1), 236–259. <https://doi.org/10.56442/ijble.v5i1.372>
- Biswas, A., & Wang, H.-C. (2023). Autonomous Vehicles Enabled by the Integration of IoT, Edge Intelligence, 5G, and Blockchain. *Sensors*, 23(4), 1963. <https://doi.org/10.3390/s23041963>
- Chen, J., Viardot, E., & Brem, A. (2019). Innovation and innovation management. In *The Routledge Companion to Innovation Management* (pp. 3–16). Routledge. <https://doi.org/10.4324/9781315276670-1>
- Cichosz, M., Wallenburg, C. M., & Knemeyer, A. M. (2020). Digital transformation at logistics service providers: barriers, success factors and leading practices. *The International Journal of Logistics Management*, 31(2), 209–238. <https://doi.org/10.1108/IJLM-08-2019-0229>
- Dwivedi, Y. K., Ismagilova, E., Hughes, D. L., Carlson, J., Filieri, R., Jacobson, J., Jain, V., Karjaluoto, H., Kefi, H., Krishen, A. S., Kumar, V., Rahman, M. M., Raman, R., Rauschnabel, P. A., Rowley, J., Salo, J., Tran, G. A., & Wang, Y. (2021). Setting the future of digital and social media marketing research: Perspectives and research propositions. *International Journal of Information Management*, 59, 102168. <https://doi.org/10.1016/j.ijinfomgt.2020.102168>
- Farida, I., & Setiawan, D. (2022). Business Strategies and Competitive Advantage: The Role of Performance and Innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, 8(3), 1–16. <https://doi.org/10.3390/joitmc8030163>

- Hakim, M. Z., & Naelufar, Y. (2020). analysis of profit growth, profitability, capital structure, liquidity and company size of profit quality. *Jurnal Akademi Akuntansi*, 3(1), 12–35. <https://doi.org/10.22219/jaa.v3i1.10348>
- Handoyo, S., Suharman, H., Ghani, E. K., & Soedarsono, S. (2023). A business strategy, operational efficiency, ownership structure, and manufacturing performance: The moderating role of market uncertainty and competition intensity and its implication on open innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, 9(2), 100039. <https://doi.org/10.1016/j.joitmc.2023.100039>
- Javaid, M., Haleem, A., Singh, R. P., Suman, R., & Gonzalez, E. S. (2022). Understanding the adoption of Industry 4.0 technologies in improving environmental sustainability. *Sustainable Operations and Computers*, 3, 203–217. <https://doi.org/10.1016/j.susoc.2022.01.008>
- Kraus, S., Jones, P., Kailer, N., Weinmann, A., Chaparro-Banegas, N., & Roig-Tierno, N. (2021). Digital Transformation: An Overview of the Current State of the Art of Research. *SAGE Open*, 11(3), 215824402110475. <https://doi.org/10.1177/21582440211047576>
- Lemon, K. N., & Verhoef, P. C. (2016). Understanding Customer Experience Throughout the Customer Journey. *Journal of Marketing*, 80(6), 69–96. <https://doi.org/10.1509/jm.15.0420>
- Lynn, T., Rosati, P., Conway, E., Curran, D., Fox, G., & O’Gorman, C. (2022). The Digital Economy and Digital Business. In *Digital Towns* (pp. 69–89). Springer International Publishing. https://doi.org/10.1007/978-3-030-91247-5_4
- Mahardhani, A. J. (2023). The Role of Public Policy in Fostering Technological Innovation and Sustainability. *Journal of Contemporary Administration and Management (ADMAN)*, 1(2), 47–53. <https://doi.org/10.61100/adman.v1i2.22>
- Martínez-Peláez, R., Ochoa-Brust, A., Rivera, S., Félix, V. G., Ostos, R., Brito, H., Félix, R. A., & Mena, L. J. (2023). Role of Digital Transformation for Achieving Sustainability: Mediated Role of Stakeholders, Key Capabilities, and Technology. *Sustainability*, 15(14), 11221. <https://doi.org/10.3390/su151411221>
- Mikalef, P., Krogstie, J., Pappas, I. O., & Pavlou, P. (2020). Exploring the relationship between big data analytics capability and competitive performance: The mediating roles of dynamic and operational capabilities. *Information & Management*, 57(2), 103169. <https://doi.org/10.1016/j.im.2019.05.004>
- Nitin Rane, Achari, A., & Choudhary, S. P. (2023). Enhancing customer loyalty through quality of service: Effective strategies to improve customer satisfaction, experience, relationship, and engagement. *International Research Journal of Modernization in Engineering Technology and Science*, 5(5), 427–452. <https://doi.org/10.56726/IRJMETS38104>
- Ohara, M. R., Suparwata, D. O., & Rijal, S. (2024). Revolutionary Marketing Strategy: Optimising Social Media Utilisation as an Effective Tool for MSMEs in the Digital Age. *Journal of Contemporary Administration and Management (ADMAN)*, 2(1), 313–318. <https://doi.org/https://doi.org/10.61100/adman.v2i1.125>
- Purnomo, Y. J. (2023). Digital Marketing Strategy to Increase Sales Conversion on E-commerce Platforms. *Journal of Contemporary Administration and Management (ADMAN)*, 1(2), 54–62. <https://doi.org/10.61100/adman.v1i2.23>
- Safitra, M. F., Lubis, M., & Fakhurroja, H. (2023). Counterattacking Cyber Threats: A Framework for the Future of Cybersecurity. *Sustainability*, 15(18), 13369. <https://doi.org/10.3390/su151813369>
- 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., Diantoro, K., Al-Gasawneh, J. A., Azzaakiyyah, H. K., & Ausat, A. M. A. (2023). Application of ChatGPT in Improving Customer Sentiment Analysis for Businesses. *Jurnal Teknologi Dan Sistem Informasi Bisnis*, 5(3), 283–288. <https://doi.org/https://doi.org/10.47233/jteksis.v5i3.871>

- Suherlan, S., & Okombo, M. O. (2023). Technological Innovation in Marketing and its Effect on Consumer Behaviour. *Technology and Society Perspectives (TACIT)*, 1(2), 94–103. <https://doi.org/10.61100/tacit.v1i2.57>
- Sutrisno, Ausat, A. M. A., Permana, B., & Harahap, M. A. K. (2023). Do Information Technology and Human Resources Create Business Performance: A Review. *International Journal of Professional Business Review*, 8(8), e02206. <https://doi.org/10.26668/businessreview/2023.v8i8.2206>
- Taherdoost, H. (2023). Customer Relationship Management. In *E-Business Essentials* (pp. 237–264). SPRINGER. https://doi.org/10.1007/978-3-031-39626-7_10
- Triwahyono, B., Rahayu, T., & Kraugsteeliana, K. (2023). Analysing the Role of Technological Innovation in Improving the Operational Efficiency of MSMEs. *Jurnal Minfo Polgan*, 12(1), 1417–1426. <https://doi.org/10.33395/jmp.v12i1.12791>
- Van de Wetering, R., Doe, J., van den Heuvel, R., & Al Halbusi, H. (2023). How do SMEs shape business model innovation? A digital infrastructure, improvisational, and dynamic capability perspective. *SSRN Electronic Journal*, 1–28. <https://doi.org/10.2139/ssrn.4599211>
- Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Qi Dong, J., Fabian, N., & Haenlein, M. (2021). Digital transformation: A multidisciplinary reflection and research agenda. *Journal of Business Research*, 122, 889–901. <https://doi.org/10.1016/j.jbusres.2019.09.022>
- Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *The Journal of Strategic Information Systems*, 28(2), 118–144. <https://doi.org/10.1016/j.jsis.2019.01.003>
- Vickery, S. K., Jayaram, J., Droge, C., & Calantone, R. (2003). The effects of an integrative supply chain strategy on customer service and financial performance: an analysis of direct versus indirect relationships. *Journal of Operations Management*, 21(5), 523–539. <https://doi.org/10.1016/j.jom.2003.02.002>
- 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>
- Wanof, M. I. (2023). Digital Technology Innovation in Improving Financial Access for Low-Income Communities. *Technology and Society Perspectives (TACIT)*, 1(1), 26–34. <https://journal.literasisainsnusantara.com/index.php/tacit/article/view/35>
- Yani, A., Suparwata, D. O., & Hamka. (2023). Product and Service Innovation Strategies to Expand MSME Markets. *Journal of Contemporary Administration and Management (ADMAN)*, 1(3), 163–169. <https://doi.org/10.61100/adman.v1i3.67>