Research Article

Artificial Intelligence (AI) in Telkom Indonesia's Digital Business Transformation

Acep Arna Hikmat[1], M. Yani Syafei[2], & Umi Narimawati[2]

[1] Student, Doctoral Program of Management Science, Universitas Komputer Indonesia, Bandung, Indonesia
[2] Lecturer, Doctoral Program of Management Science, Universitas Komputer Indonesia, Bandung, Indonesia
*Corresponding Author: acep.75424005@mahasiswa.unikom.ac.id | Phone: +628121200535

ABSTRACT

Digital transformation has become the key to organizational success in facing the disruptive era. This study aims to analyze the role of artificial intelligence (AI) in supporting the digital transformation of Telkom Indonesia's business. The research method used is qualitative with in-depth interviews with technology experts and key stakeholders at Telkom Indonesia, especially in mobile network management . The results of the study show that the implementation of AI has increased operational efficiency through network management, especially in better mobile networks, accelerated strategic decision-making and autonomous jobs , and created a positive impact on company performance in the form of efficiency and additional revenue and increased customer satisfaction. With this achievement, AI has proven to be one of the key factors in the success of the company's digital transformation. This study makes a significant contribution to understanding the implementation of AI as the main driver of digital transformation in telecommunications companies such as Telkom Indonesia. These findings are expected to be a reference for technology-based business strategies in the future.

Keywords: Artificial Intelligence; Transformation; AI; Telkom; Mobile Network

1. INTRODUCTION

Digital transformation has become an urgent need for companies in various industrial sectors, including the telecommunications industry or services. This process involves the adoption of digital technology to improve the efficiency, innovation, and competitiveness of the organization (Westerman et al., 2014). In the midst of increasingly tight global or regional competition, digital transformation is a necessity for companies that want to survive or grow. One of the latest technologies that is the main driver in transformation is artificial intelligence technology (Artificial Intelligence) or abbreviated as AI.

Telkom Indonesia, as a market leader in the national telecommunications industry or services, is required to continue to innovate in providing the best service to customers in order to maintain its position as a national market leader. With an increasingly complex technology ecosystem and increasing customer demands, the implementation of current technologies such as AI is considered a strategic step to provide operational efficiency, service personalization, and data-based decision making (Brock et al., 2019). In this context, AI not only plays a role as an automation tool, but also as a driver of transformation including culture and business processes in the company.

Previous studies have shown that the adoption or implementation of AI can generate significant benefits for companies. According to the McKinsey Global Institute (2018), companies that proactively integrate AI into their business processes are able to increase productivity by up to 40%. In addition, AI allows companies to leverage predictive analytics to understand customer behavior patterns, reduce churun rates, and create more personalized customer experiences (Chui et al, 2028). In the telecommunications industry, the potential of AI includes smart network management, automated customer service, and optimization of backend operations. A telecommunications company in Latin America managed to increase the productivity of its call center agents by 25% by leveraging AI to improve agent skills and knowledge (Alex Dragon Cercel, 2024). In addition, the adoption of AI in the telecommunications industry is estimated to create additional productive capacity equivalent to annual wage savings of $ 33 billion, showing the great potential of AI in improving operational efficiency in this sector (Ernst & Young LLP, 2024).

However, the challenges in the AI implementation process are not easy. Telkom Indonesia, like other leading companies, also faces obstacles in the form of human resource readiness, technological infrastructure, and quite large initial investment costs. In a study by PwC (2019), more than 70% of companies identified the lack of digital skills as a major barrier to adopting advanced technologies such as AI. Thus, it is important to understand how Telkom Indonesia can utilize this technology effectively while overcoming existing challenges. In addition, the speed of implementation also determines the amount of benefit value that will be obtained.

Study aims to explore the impact of AI implementation on digital transformation of business at Telkom Indonesia, focusing on one dimension, namely operational efficiency. This study is expected to contribute to the literature related to the role of AI in supporting digital transformation, especially in the Indonesian telecommunications sector. Thus, the findings of this study can also be a practical guide for other companies in developing AI-based strategies. Through a qualitative approach, this study attempts to fill the gap in the literature by providing a deeper perspective on how AI can be a key catalyst for digital transformation. This study also contributes to the broader discussion on technology adoption in developing countries, where cultural, economic, and regulatory contexts can influence the effectiveness of digital technology implementation.

2. RESEARCH METHOD

This study uses a qualitative approach with an in-depth interview method, which aims to explore in depth the views, experiences, and knowledge of the informants regarding the implementation of AI and digital transformation. This approach is suitable for understanding complex phenomena, especially in the field of information technology (Creswell, 2014). The sources in this study consisted of five technology experts from PT Telkom Indonesia, specifically related to mobile network management, who were selected purposively based on the following criteria:

1. Has more than ten years of work experience in the field of mobile technology.
2. Directly involved in AI-based digital transformation projects.
3. Able to provide insights relevant to research objectives.
4. Occupying the top leadership position of General Manager or above.

Research Steps: Data Collection, Structured and semi-structured interviews were conducted using a previously designed interview guide. The guideline includes questions related to:

1. Utilization of AI in company operations.
2. Challenges in implementing digital.
3. The impact of AI on digital transformation.
4. Interviews last approximately 60 minutes per session.

Thematic analysis techniques were carried out based on the stages of Braun & Clarke (2006):

1. Reread the data to understand the entire contents of the interview.
2. Identify the initial code based on the significant information that emerges.
3. Grouping the codes into main themes that represent the relationship between Ai and digital transformation.

Data validation is done by:

1. Informing the analysis results to the resource persons
2. Comparing interview results with internal documents of PT Telkom Indonesia
3. Referring to the literature on AI and Digital Transformation

3. RESULTS AND DISCUSSION

This study reveals that the implementation of Artificial Intelligence (AI) has a significant impact on the digital transformation process at Telkom Indonesia. The impact includes increasing operational efficiency including rapid data-based strategic decision making. However, challenges such as human resource (HR) readiness and large initial investment remain obstacles that need to be considered. Operational Efficiency through AI in Network Management. Operational efficiency is one of the main results of AI implementation in Telkom Indonesia. By utilizing AI technology in network management, especially in mobile networks, the company is able to minimize network disruptions by up to 15%. This AI technology uses a machine learning-based system that allows early detection of potential disruptions or problems in the network. AI also plays a role in real-time network data analysis, thus providing proactive solutions before problems escalate. This can reduce complaints by 15% and increase CSI (customer satisfaction index) by 4%.

This shows that AI not only helps maintain network stability, but also reduces the workload of technicians in performing maintenance. For example, predictive algorithms applied to network management systems can identify anomalous patterns that have the potential to cause disruption in the future. Thus, preventive actions can be taken earlier, reducing the cost of sudden repairs, while ensuring the quality of service to customers remains optimal. This can be seen from the 98% autonomous job (successful job) from 134 million machine jobs. All of the operational efficiency achievements above have an impact on achieving cost efficiency of 35% through mobile network optimization and opening up opportunities for increasing revenue by 3.2%. This certainly opens up opportunities for Telkom Indonesia to implement AI throughout the telecommunications network, not just in the mobile network. Although the results of AI implementation in Telkom Indonesia are very promising, this study also identified several major challenges. One of the biggest challenges is the readiness of human resources (HR) in facing this new technology. Many employees still need training and skills development to be able to adapt to AI-based systems. Telkom Indonesia needs to allocate resources for training programs that aim to improve HR competency so that they are ready to support digital transformation.

In addition, the high initial investment for AI implementation is a significant obstacle. AI technology requires strong infrastructure, from hardware to sophisticated software. These costs are often a heavy initial burden, especially for companies that want to fully utilize AI in their operations. However, the long-term impact of AI implementation, such as operational cost savings and improved service quality, is expected to provide a significant return on investment (ROI) for Telkom Indonesia. The implementation of AI cannot be separated from the processing of large data. Data related to personal data in the implementation of AI in mobile network management is not really needed or in other words, the data processed does not contain personal data or can be represented as someone's data but rather data processing in aggregate or derivatives of personal data so that each activity will not touch or must comply with the personal data protection law (UU PDP). For the processing of data containing personal data, Telkom Indonesia has also obtained approval from customers for personal data that has been provided to be stored, processed, used and so on for a certain period of time (active concern).

The results of this study provide an important contribution in the context of digital transformation in the Indonesian telecommunications industry. The implementation of AI is not only a major driver in increasing operational efficiency and customer satisfaction, but also provides a competitive advantage for Telkom Indonesia. By optimally utilizing AI technology, Telkom Indonesia can maintain its position as a market leader amidst increasingly fierce competition. However, to achieve the full potential of AI implementation, a comprehensive strategy is needed, ranging from human resource development, infrastructure investment, to organizational change management. This study also provides recommendations to other companies in similar industries to consider AI as an integral part of their digital transformation strategy.

4. CONCLUSION

This study concludes that the implementation of Artificial Intelligence (AI) in Telkom Indonesia has a significant impact in supporting the company's digital transformation. Several key findings show that the implementation of AI has increased operational efficiency through better network management, especially in mobile networks, accelerated strategic decision-making and autonomous jobs, and created a positive impact on company performance in the form of efficiency and additional revenue and increased customer satisfaction. With this achievement, AI has proven to be one of the key factors in the success of the company's digital transformation. However, this study also identified several challenges, namely the readiness of human resources and the large initial investment required for the implementation of this technology. Therefore, Telkom Indonesia needs to focus on developing human resource competencies and mature investment planning so that the implementation of AI can provide sustainable and comprehensive benefits. Overall, the results of this study confirm the importance of AI as a key driver of digital transformation in the telecommunications sector. These findings can be a reference for other companies that want to use AI technology to increase competitiveness and create innovations that are relevant to customer needs in the digital era.

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