

Impact of Using Artificial Intelligence in business modeling

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ABSTRACT

The rapid growth of AI technology has changed the global business landscape, including with various applications such as data analysis, market prediction, and business process automation. This research aims to investigate the impact of using artificial intelligence (AI) in business modeling. This research methodology includes literature analysis to understand the latest trends and developments in the use of artificial intelligence in the business sector with a qualitative approach. The results of this research show that the use of artificial intelligence (AI) in business modeling in Indonesia has a significant positive impact. AI integration increases operational efficiency, optimizes supply chain management, and opens up innovation opportunities. AI also plays an important role in improving corporate security by proactively detecting and responding to cyber threats. Although it requires an initial investment, the long-term benefits include reduced operational costs and competitive advantage. Companies' success in adopting AI can create industry leaders who are able to adapt quickly and use data effectively, helping them face the challenges of an increasingly digital and dynamic future.

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INTRODUCTION

Artificial intelligence (AI) and blockchain technology bring significant changes in the paradigm of how humans work, live and play (Haqqi & Wijayanti, 2019). In particular, AI plays a central role in redefining the logic of business models, facilitating increasingly complex interactions between humans and machines, and changing human lifestyles and living standards (Natanael et al., 2023). In practice, the presence of AI brings profound changes in the development of new strategies and the creation of innovative sources of business value, creating increasingly greater academic interest in the changes in business models that occur (Pratama et al, 2023).

In the context of business process management, the role of artificial intelligence becomes crucial. In conventional business processes, humans dominate many aspects such as monitoring production, sales, inventory and finance (Prabowo et al, 2023). However, with the advancement of AI, the role of humans is slowly being replaced, especially in activities that require complex computational processes and processing large volumes of data. The implementation of artificial intelligence in business process management makes a significant contribution to increasing efficiency, accuracy and responsiveness, enabling companies to optimize their performance more effectively (Nugrahanti et al, 2023).

Advances in AI technology also create new opportunities in the context of business process management. AI systems can perform predictive analysis, assist in strategic decision making, and even identify patterns that are difficult to detect in business data (Gunawan et al, 2023). Thus, the implementation of AI not only brings operational efficiencies, but also has a

positive impact on innovation and a company's ability to adapt to market changes. Although the role of humans in business process management remains important, the integration of artificial intelligence provides additional impetus to improve the quality, speed and competitiveness of organizations in facing increasingly complex business challenges in this technological era (Salwa & Nasution, 2024).

While artificial intelligence (AI) technologies provide a critical foundation for successful digital services and business model innovation, spending on infrastructure, technology and digital data alone is not enough. True transformation requires profound changes in routines, skills, operational processes, and business models (Von Krogh, 2018). In this context, many companies encounter challenges when adopting AI, as AI algorithms often produce tentative solutions or probability-based predictions, which require human interpretation, justification and action to achieve concrete and valuable results (Lu, 2019).

It is important to recognize that AI adoption is not just an investment in technology, but also involves a complete organizational transformation (Wahab et al., 2023). Especially in the business-to-business (B2B) industry, service providers must engage in large-scale efforts to develop AI capabilities and integrate them into their business models. Maintaining competitiveness in the era of digital services requires a deep understanding of how to utilize AI technology to create value for customers (Lesnussa et al, 2023).

The necessary transformation is not just limited to behind-the-scenes research and development. Front-line services and sales, as well as extended ecosystem partnerships, must also involve AI (Sudrajat et al., 2023). However, despite awareness of the importance of transformation, many large companies face difficulties in scaling AI implementations beyond initial proof of concept. These barriers primarily arise from the challenges of integrating AI into value creation activities, service delivery, and coordination and alignment with customers and the extended ecosystem (Prahendratno et al., 2023).

In facing the complexity of this transformation, companies need to consider learning from previous failures, take a holistic approach that spans the entire business value chain, and engage in continuous innovation. Thus, success in adopting AI depends not only on the technology itself, but also on the ability of organizations to adapt their processes, skills and business models to the presence of AI (Hossain, 2017)

The implementation of artificial intelligence (AI) carries great potential for developing innovation processes in business models across organizations, especially in the context of industrial manufacturers. Business model innovation can be defined as “designed, novel, and non-trivial changes to key elements of a business model and/or the architecture that connects these elements” (Foss & Saebi, 2017). The adoption of AI technology triggers the need to revise the basic logic of how this technology is integrated into value offerings, as well as how AI interacts with individual jobs, organizational functions, and processes across the business, to ensure competitive value delivery, capture, and enhancement (Iansiti & Lakhani, 2020).

New business models enriched by artificial intelligence offer a variety of benefits to customers, including cost cuts, improved service quality, better coordination and productivity, and delivery efficiency (Davenport & Ronanki, 2018). By expanding the scale, scope, and learning opportunities, AI-based business models can replace traditional ways with new ways of creating, delivering, and capturing value to increase competitiveness (Wirtz et al., 2016).

For example, companies with higher AI capabilities may be able to expand the value space by leveraging automated insights from industry data analysis to develop data-driven work approaches and co-create customer interactions (Sjödén et al., 2020). Nonetheless, the main challenge lies in the ability to develop AI services beyond the initial proof of concept, reaching broader customer segments through AI business models and proven offerings (Burström et al., 2021).

Therefore, a deeper understanding of the principles underlying AI-powered business model innovation is a necessity. This involves assimilating AI capabilities into business activities

related to value creation, delivery and capture to ensure scalable and sustainable growth in the era of digital transformation.

METHOD

This research uses qualitative methods with a descriptive approach to explore the impact of using artificial intelligence (AI) in business modeling in Indonesia. Research subjects were selected from industrial manufacturers that have implemented AI technology in their business models. Data was collected through in-depth interviews with stakeholders, analysis of company documents, participant observation in the company environment, and focus groups with various stakeholders. Data analysis was carried out using a descriptive approach to describe the phenomenon of artificial intelligence in business modeling. This process involves identifying patterns of findings, verifying results by data triangulation, and interpreting findings by referring to the conceptual framework and relevant literature. The research results are presented narratively to provide a comprehensive picture, and the findings are discussed in the context of business and related literature. The research conclusion summarizes the main findings and their potential implications for business model development in the era of artificial intelligence.

RESULTS AND DISCUSSION

A business model reflects the design or architecture of a company's mechanisms for creating, delivering, and capturing value. Although there have been some initial suggestions regarding the development of theory regarding the impact of artificial intelligence (AI) on business model innovation, the scope for deeper understanding is still limited. Therefore, this research aims to investigate in more detail how companies are integrating AI into their value creation, delivery and capture mechanisms.

In this context, it is important to note that leveraging digital capabilities such as AI is not just a technological challenge, but also a challenge to optimize organizational knowledge. This process is essential to continue creating knowledge that can increase the value obtained from digital technology. This research leads to a deep understanding of how companies are not only adopting AI technology mechanically, but also how they are successfully changing and improving their business models to gain maximum benefit from this innovation. Overall, this research highlights the importance of combining aspects of organizational knowledge with digital technology capabilities, especially AI, in creating added value and maintaining company competitiveness in this ever-evolving era.

In this research the author tries to describe the various impacts of using AI for business modeling.

Increased Operational Efficiency

The application of artificial intelligence (AI) is bringing a revolution in the operational efficiency of companies by automating routine and repetitive tasks. Business processes that previously required time and human effort, such as data analysis, can now be carried out quickly and efficiently through AI algorithms that are capable of processing large volumes of data. For example, in the context of data analysis, AI can automatically identify significant patterns and trends, providing deep insights without requiring direct human involvement. Inventory management also becomes more efficient because AI can predict demand, optimize stock levels, and provide recommendations for supply chain management.

Apart from that, the implementation of AI also has a positive impact on the company's transaction processing process. Thanks to the speed and accuracy of AI algorithms, transactions can be executed more quickly and accurately. This not only reduces the time required to complete a transaction but also reduces the risk of human error. As a result, companies can leverage human resources to focus on tasks that require creativity, in-depth analysis, and strategic decision making, while routine operational tasks can rely on artificial intelligence to be

performed with high efficiency. Thus, the integration of AI in business processes not only increases operational efficiency, but also allows companies to become more responsive, adaptive and innovative in the face of continuously changing market dynamics.

Deeper Data Analysis

The main advantage of artificial intelligence (AI) lies in its ability to process data on a large scale at high speed, opening the door for companies to gain deep insights from their business data. The data analysis performed by AI is not limited to the amount or complexity of data, and it helps companies identify patterns, trends, and opportunities that traditional analysis methods may not detect. For example, in the financial industry, AI can draw on large amounts of historical data to perform predictive analysis of market movements or customer behavior. This high speed of analysis allows companies to respond to market changes in real-time, providing a competitive advantage in fast and informed decision making.

The application of AI in data analysis also helps overcome the complexity of information. AI can identify complex relationships and patterns, even in highly heterogeneous data. For example, in the healthcare industry, AI can help identify relationships between symptoms and diseases from varying medical data. Thus, AI expands data analysis capabilities by providing richer and more relevant information, which can guide companies in making better and strategic decisions. In addition, AI's ability to extract deep insights from data also supports innovation. Companies can identify new market trends, customer preferences, or potential emerging market needs, all of which can become the basis for new product development or changes to business strategy.

Improved Business Decisions

The predictive analysis capabilities of artificial intelligence (AI) have opened up huge opportunities for making smarter business decisions. In this context, AI can leverage historical and current data to forecast future events, helping companies make more informed and timely decisions. For example, in the retail industry, AI can predict market trends and consumer preferences based on previous purchasing patterns and demographic data. This provides strategic benefits for companies in managing stock, optimizing offers, and creating more effective marketing campaigns.

Additionally, AI also helps in demand estimation, allowing companies to adjust production or stock according to changing market needs. This process helps reduce the risk of overstock or understock, which in turn can improve supply chain efficiency and optimize operational costs. More accurate predictions of demand can also have a positive impact on customer service levels, by providing products or services that meet consumer expectations. The use of AI for pricing strategies is another example of how this technology enhances business decision-making intelligence. AI can analyze factors such as competitor prices, market demand, and consumer behavior to provide optimal price recommendations.

Personalize Customer Service

Leveraging artificial intelligence (AI) opens up huge opportunities for companies to improve customer experiences in a more personalized and relevant way. By mining customer data, AI can provide product recommendations that are more precise and in line with each individual's preferences. This not only creates a more satisfying shopping experience, but also provides added value to consumers by showcasing products that match their needs and desires. In addition, AI's ability to personalize services helps companies to respond dynamically to customer behavior. By serving tailored and relevant content, companies can increase customer engagement, strengthen ties with brands, and create more meaningful interactions.

Furthermore, this personalization strategy not only impacts customer satisfaction, but also contributes to better customer retention. By providing unique and customized experiences, companies can build long-term relationships with customers, reduce churn rates, and create strong loyalty. Overall, the integration of AI in delivering customer experiences has a positive



impact on brand image, marketing effectiveness, and long-term business growth, confirming AI's role as a key catalyst in creating unforgettable customer experiences.

Business Model Innovation:

The application of artificial intelligence (AI) opens the door for companies to create new business models or change existing business models, bringing innovation that drives growth and provides competitive advantage. One example of changing the business model is through subscription services. By using AI, companies can provide subscription services that are more personalized and tailored to customer preferences, providing sustainable added value. These subscription services can also provide long-term revenue stability for companies and build closer relationships with customers, promoting better customer retention.

Additionally, integrating AI can drive the development of data-driven platforms. Companies can leverage AI's capabilities to quickly manage and analyze big data, creating a platform that combines business wisdom with relevant information in real-time. This platform-oriented business model not only provides more comprehensive services, but also opens up opportunities for collaboration and innovation with external parties, such as business partners or application developers. Thus, integrating AI in business models not only creates operational efficiency but also creates business models that are more dynamic, responsive and focused on customer needs and changing market trends.

New Product and Service Development:

The use of artificial intelligence (AI) in identifying new product and service development opportunities opens a window for innovation that is responsive to market needs and consumer trends. Through in-depth data analysis, AI can analyze hidden patterns and information that may not be detected by traditional analysis methods. By understanding consumer behavior, preferences and market trends, companies can respond proactively by developing products and services that are more relevant and in line with customer expectations. For example, in the technology industry, using AI to analyze customer reviews, purchasing trends, and market feedback can yield valuable insights. Companies can use this information to identify gaps in the market or to explore opportunities to improve existing products. AI can also help predict future trends based on historical data, allowing companies to plan product development that is innovative and meets changing market expectations.

In addition, AI's ability to identify complex patterns and correlations in data can help companies design solutions they would never have thought of before. The use of AI algorithms can support companies in creating unique new products or services, taking measured risks, and anticipating evolving market needs. Thus, the use of AI in product and service development not only increases company competitiveness, but also supports innovative value creation to meet consumer demands and follow market developments more progressively.

Security Improvements

The integration of artificial intelligence (AI) in business modeling makes a significant contribution in strengthening the security aspects of companies. AI-based security systems have the ability to detect and respond to cyber threats proactively. Using machine learning algorithms, the system can analyze data traffic patterns, user behavior, and security anomalies to identify potential cyber threats at high speed. This rapid response allows companies to take preventative steps before threats cause serious repercussions.

Additionally, the main advantage of AI-based security systems is their ability to adapt to changes and evolution of cyber threats. By continuously learning and updating security models, AI can respond to increasingly complex and sophisticated threats. This is in contrast to traditional security systems which may be less responsive to emerging attack methods. In this way, artificial intelligence introduces a dynamic and evolving layer of security, increasing a company's deterrence against evolving cyber threats.

Efficiency in Supply Chain

The application of artificial intelligence (AI) in supply chain management opens up opportunities to increase efficiency and optimize processes across the board. One of the main contributions of AI is its ability to accurately predict demand. By analyzing historical data and factors that influence demand such as market trends, seasonality or promotions, AI can provide more accurate forecasts. This allows companies to manage stock more efficiently, reduce the risk of overstock or understock, and optimize supply chains to accommodate fluctuations in demand.

Not only that, AI can also make a big contribution to inventory management. Through real-time monitoring and analysis, AI can provide accurate information about inventory levels, usage, and product rotation speed. With a deeper understanding of inventory, companies can avoid excess inventory that can result in high carrying costs, and instead, ensure the right products are available when needed. By detailing these processes, companies can optimize resource allocation, reduce waste, and increase operational efficiency. In addition, AI can monitor production processes in real-time, providing full visibility into the running of the supply chain. By detecting anomalies or disruptions quickly, companies can respond quickly to avoid potential delays or losses. The use of this technology has a positive impact in increasing supply chain responsiveness, ensuring product quality, and optimizing resource use .

Reducing Operational Costs

While the initial investment required in implementing artificial intelligence (AI) may require significant funding allocations, the long-term benefits can be key to reducing a company's overall operational costs. This investment can have a positive impact, especially through business process automation. By leveraging AI to automate routine and repetitive tasks, companies can reduce dependence on human workers for time- and labor-intensive work. This not only improves operational efficiency, but also allows human resources to focus on tasks that require creativity, in-depth analysis and strategic decision making.

Apart from automation, AI can also help companies improve operational efficiency through improvements in data analysis. With its ability to process and analyze data on a large scale quickly, AI can provide deep insights into business performance and market trends. By understanding these patterns, companies can identify areas that require improvement or increased efficiency. Additionally, more accurate predictions from AI can help companies plan more effective strategies, reduce waste and improve supply chain management. In this way, the costs incurred for the initial investment in AI can be offset by significant operational efficiencies and long-term cost reductions.

Increasing competitiveness

Companies that successfully adopt and integrate artificial intelligence (AI) in their business models gain significant benefits in increasing their competitiveness in the market. AI's ability to analyze data at scale and provide deep insights opens up opportunities to make decisions that are more informed and responsive to market changes. With the ability to forecast trends, forecast demand, and identify new business opportunities, companies can take proactive steps to anticipate market changes and gain a first-hand advantage in responding to emerging trends.

Additionally, the integration of AI in business modeling gives companies a strategic advantage in adapting quickly to dynamic business environments. The high speed of analysis and fast response to data allows companies to take necessary actions in real time. This is especially important in the context of intense competition and rapidly changing market dynamics. Companies that are able to adapt quickly can take advantage of the first opportunities, optimize business strategies, and increase operational efficiency. Thus, the presence of AI in business modeling not only provides a competitive advantage, but also helps companies to remain relevant and successful amidst increasingly fierce competition.

CONCLUSION

The use of artificial intelligence (AI) in business modeling has a significant impact on various aspects of company operations in Indonesia. AI integration not only improves operational efficiency and optimizes supply chain management, but also opens up new opportunities for product and service innovation. AI plays a key role in predicting demand, improving data analysis and improving business decision making. Apart from that, the use of AI in business modeling also has a positive impact on the company's security aspects, especially in facing growing cyber threats. AI-based security systems enable early detection and proactive response to threats, protecting company data and assets more effectively. Although an initial investment is required, the long-term benefits of using AI can reduce operational costs, increase efficiency, and provide a competitive advantage in the marketplace. Companies that successfully adopt and integrate AI into their business models have the potential to become industry leaders, especially with their ability to adapt quickly and use data effectively as a strategic advantage. Thus, this research highlights the importance of companies in Indonesia embracing AI technology as an integral part of their business strategy, to not only face current challenges but also to prepare themselves for an increasingly digital and dynamic future.

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