

THE IMPACT OF AI ON STRATEGIC DECISION MAKING IN STARTUP COMPANIES

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Abstract

Modern developments have driven many changes in the business environment, including in startup companies. One significant change is the widespread use of AI technology for decision making. Without realizing it, the use of AI technology can influence strategic decision making in startup companies. This research investigates the function of artificial intelligence (AI) in the transformation of strategic decision making in startup companies. The research method used is qualitative by studying existing literature. The research results show that AI has great potential to increase efficiency, accuracy and personalization in decision making. However, the application of AI is also faced with challenges such as data quality, security and ethics. This research highlights the importance of balancing the benefits and risks of AI, as well as the need for a comprehensive strategy to effectively adopt this technology.

Keywords: Artificial Intelligence (AI), Strategic Decision Making, Startup, Digital Transformation, and Efficiency

Introduction

The rapid development of technology has penetrated all lines of people's lives, produce broad and varied impacts. One of the most technologies currently being discussed is artificial intelligence, or AI. In the last decade, intelligence Artificial intelligence experienced exponential development, becoming the main driving force in the world of technology (Ririh, et al, 2020). Rahmasari (2023) explains that developments in AI have had a significant impact on the way businesses operate. Startups, as dynamic and adaptive business entities, are very interested in harness the potential of AI. There is increasing interest in AI technology as a tool for retrieval Strategic decisions not only have a good impact on the company itself, but also give rise to negative impacts such as over-dependence, lack of transparency, even AI can threaten the security of company data.

The impact of AI technology is visible through pre-research on startup companies. The startup successfully utilizing AI will be superior to its competitors. However, for startups that failing to utilize AI effectively has the potential to face a number of challenges and significant consequences. This intense competition also encourages startups to continue innovate and develop more advanced AI solutions. This can be triggering AI arms race, where startups compete with each other to create superior services and products. But on the other hand, there can be pressure to continue to innovate causing startups to ignore ethical and security aspects in AI development.

Previous studies regarding the impact of AI technology on decision making strategy in startups has produced mixed findings. Several studies have highlighting increased efficiency and accuracy in decision making thanks to utilization of AI. Fachrurazi, et al (2023) said that there are still deep gaps understanding the long-term impact of AI on organizational culture, innovation, and startup business model. Bintang, et al (2023) said that there was little research in-depth discussion of the ethical and social challenges that arise from the use of deep AI startup context. Looking at these findings, Sunandi & Wahyuni (2024) said that the role of AI in startup strategic decision making is a complex topic and and continues to experience change. Further research is needed to reveal thoroughly how AI can shape the future of startups, including its impact on competitiveness, growth and business sustainability. Additionally, it is important to considering the specific context of each startup in adopting AI. This research This is different from previous research where no documentation has been found explains the impact of AI technology on strategic decision making in startup company.

Thus, this research aims to explain the impact of AI on Strategic decision making in startup companies. This research is uplifting Startup companies are an interesting object of study because of their innovative, adaptive, and growth oriented. This research is important to do because not only cover the shortcomings of previous studies, but also serve as material for consideration in making decisions policies

for startup companies when using AI technology as a source of adoption strategic decisions. This research is guided by one question: how does technology impact AI in strategic decision making in startup companies. In answering question, this article first explains the general overview of the company startups and Artificial Intelligence (AI) technology. Next, explain the positive impacts and negative about using AI technology based on the views of startup companies. This finding Later it will be discussed in order to get good implications for startup companies.

Research Methods

This research method is qualitative by studying existing literature. A qualitative approach was chosen with the aim of exploring in depth the meaning and experiences experienced by research subjects. (Rukin, 2019). The main phenomena in This research is to discover the positive and negative impacts of AI technology so that The explanation of the answers proposed strongly supports the use of the words compared statistics. Apart from that, qualitative is considered capable of providing opportunities for data exploration profound for a researcher. The literature study approach itself helps researchers to conduct in-depth exploration of the literature, build a strong theoretical framework, and gain a broad and comprehensive understanding of a research topic. (Benamen, & Dokolamo, 2024). The data source used is documentation that contains a collection of research reports, news articles, and scientific journals. Data is collected via literature review sourced from Elsevier and scientific journals from Google Scholar. The data obtained from the literature review was then processed through three stages of analysis systematic, which includes data reduction, data presentation, and drawing conclusions. Stage The first is data reduction. This data reduction is like filtering the raw data we have into information that is more focused and relevant to the research objectives. The second stage, namely presenting data in a form that is easy to understand and interpret. The main goal of Data presentation is to provide a clear and concise picture of the findings study. The third or final stage is drawing conclusions. At this stage, researchers will reviewing data that has been provided to answer research questions and interests relevant conclusions.

Results and Discussions

Startups are young companies that have just been established and focus on development innovative products or services. Startups are often founded by small teams with a business idea unique features and high growth potential. They usually operate with capital limited and moving quickly to test and develop their products.

AI is a technology that allows machines to understand and interpret information from the real world, such as text, images and sound. (Octavianus, et al, 2023). Artificial Intelligence (AI) is an attempt to make machines think and act like humans. (Zein, 2021). Artificial intelligence technology has made major contributions to various areas of life. This impact can be positive or negative. The positive impact of using AI consists of: increasing productivity, effective decision-making processes, improving quality of life. Meanwhile, the negative impacts of using Artificial Intelligence (AI) technology consist of: excessive dependence, lack of transparency, and can threaten the security of company data. AI is a technology with great potential, but it needs to be managed wisely. By understanding both the positive and negative impacts, companies can maximize the benefits of AI while minimizing the risks.

However, in general there are several positive and negative impacts of AI on strategic decision making in startup companies:

Positive impact:

1. **More Accurate and Fast Data Analysis:** Artificial Intelligence (AI) is capable of processing huge volumes of data in a short time, identifying patterns and providing deep insights. Startups can make more accurate decisions thanks to relevant and up-to-date data.
2. **More Precise Predictions:** Through the application of machine learning algorithms, Artificial Intelligence (AI) can predict market trends, consumer behavior and business performance with a high degree of accuracy. This is invaluable for strategic planning and long-term decision making.
3. **Better Personalization:** AI enables startups to understand customers individually and provide a more personalized experience. This can increase customer satisfaction and brand loyalty.

Negative impact:

1. **Dependence on Data:** The quality of decisions generated by AI is highly dependent on the accuracy and representation of the data used. Biased data will produce biased decisions.

2. **Data Security Risks:** The use of Artificial Intelligence (AI) involves the collection and storage of large amounts of data, which increases the risk of data breaches and leaks of sensitive information.
3. **Lack of Transparency:** Some AI algorithms, especially deep learning, are difficult to explain in detail. This can make it difficult to understand how the AI arrived at certain decisions and raises issues in terms of accountability.

By utilizing artificial intelligence (AI), startup companies can collect and analyze data automatically. AI is able to identify trends and important patterns in the data, and then provide useful recommendations. This matter enables decision makers in the company to act more precisely and quickly, thereby increasing productivity and maximizing resource use. Artificial intelligence technology has changed many things for startup companies strategic decision making. For example, an e-commerce startup company can utilize AI to analyze customer data in depth, so it can provide highly personalized product recommendations. It's not just sales figures increases, but also customer trust increases (Ifadhila, et al, 2024). Another example i.e. logistics startup companies can use AI to optimize routes delivery, reduce operational costs, and increase delivery speed. With Thus, the company is able to improve the quality of service to customers and increasing competitiveness (Huda, & Izzadin, 2024). Furthermore, Safitri (2024) said that financial technology startup companies can use AI to develop new, more innovative products, such as robo-advisors that provide investment advice designed according to individual risk tolerance levels.

Below, researchers describe examples of startup companies in Indonesia that use it AI technology for strategic decision making, namely:

Table 1

Company Name	Industrial Sector	Main Services	Deep AI applications Retrieval Decision
Bukalapak	E-commerce	Online marketplaces	Price optimization product, recommendation products, and analysis consumer behavior.
Hellodoc	Health	Doctor consultation and service digital health	Analysis of patient data to give medical advice better.
Teacher's room	Education	Platforms learning on line	Recommendation learning personal based on analysis student performance.
Tanihub	Agriculture	Agritech platform for farmers and market	Demand prediction market and analysis supply chain risk.
Smart Shop	Retail	Digitalization of stalls traditional	Location analysis strategic and management inventory using data A.I.

Source: author

Based on the data presented, it can be concluded that startup companies in Indonesia, such as Bukalapak, Halodoc, Ruangguru, Tanihub, and Warung Pintar, have taken advantage artificial intelligence (AI) technology significantly to support decision making their strategy. This use of AI allows these companies to:

1. **Understand Customers Better:** AI helps companies analyze data customers in depth, so they can understand their preferences, behavior, and customer needs better. This allows companies to provide more relevant and personalized product or service recommendations, as well as increase customer satisfaction. For example, Bukalapak uses AI to Analyze consumer behavior and provide appropriate product recommendations.
2. **Improve Operational Efficiency:** AI can automate many tasks previously done manually, thereby increasing operational efficiency. For example, AI can be used to optimize product prices, predict demand, and managing inventory. This allows companies to reduce operational costs and increase profitability. As an example, Tanihub uses AI to predict market demand and analyze supply chain risk.

3. **Make Faster and Accurate Decisions:** AI is capable of deep data processing large numbers very quickly and produce in-depth analysis. This matter enabling companies to make faster business decisions and accurate. For example, Halodoc uses AI to analyze patient data and provide better medical advice.

Below, the researcher also explains examples of startup companies abroad using AI for strategic decision making, namely:

Table 2

Company Name	Industrial Sector	Main AI Applications
Upwork	Online Job Market	Matching algorithm skill
Grammarly	Writing Aids	Natural Language Processing (NLP)
Canva	Graphic Design	AI image generation

Source: author

Based on the data presented, it can be concluded that Upwork companies use AI to analyze freelancer profiles and project requirements, so they can match both more efficiently, the company Grammarly utilizes NLP to check and improving writing, helping users produce better content, and the company Canva uses AI to automatically generate graphic designs, speeds up the design process and allows users without design skills to create attractive visual content.

This study shows that AI has a huge impact on how startups work make strategic decisions. AI is able to process data quickly, carry out analysis in-depth, and predict market developments. Thus, organizations that Utilizing AI can produce decisions that are more accurate and adaptive to market dynamics. However, this study also identified a number of obstacles startup companies face in adopting AI. Data quality and security goes wrong one of the main challenges faced. Although AI offers advantages in analyzing data, maintaining the integrity and security of information remains a top priority. With Thus, it is important to ensure the security and accuracy of the data on which it is based operation of AI systems. This research begins by underlining the importance of AI in modern business landscape. By utilizing deep learning, machine learning and natural language processing, AI significantly improves effectiveness, efficiency, and quality of decision making. This research tries to explain the contribution artificial intelligence or AI in the context of startup companies, determines the benefits and obstacles to its implementation, as well as analyzing how Artificial Intelligence (AI) can increase productivity and quality of decision making.

The research method used is qualitative, by conducting a study in-depth analysis of data obtained from various scientific publications. Findings of this research indicates that the implementation of AI in startup companies has had a significant impact significant. Artificial intelligence (AI) has automated routine tasks in management, such as data collection and reporting, thereby enabling manpower humans to do work that requires more detailed analysis and requires critical thinking.

The benefits identified in this research include more data analysis fast and accurate, more precise predictions, and better personalization. Intelligence artificial intelligence (AI) facilitates startup companies in making faster and more informed choices impartial, produces more comprehensive data analysis, and opens up new spaces for fresh business ideas. However, negative impacts are also recognized, such as dependency on data, data security risks, and lack of transparency. Need to be careful be careful in taking steps to overcome this obstacle, which includes understanding which is comprehensive about Artificial Intelligence or AI technology, strengthening the system data security with strong encryption and restricted access, preventing algorithms unbiased.

Artificial Intelligence (AI) has revolutionized the way startup companies collect and processing data in management. Thanks to its ability to process natural language and analyze data in depth, AI can process and information directly, thereby reducing dependence on human labor and increasing efficiency Work. Artificial intelligence can automatically collect and process deep data large numbers, producing accurate, high-quality information to support making strategic business decisions.

Artificial Intelligence (AI) has revolutionized the way startup companies manage data in management. AI is able to collect and process data automatically, replaces most manual work. This increases efficiency and accuracy in data processing, producing high quality data for decision making. Another advantage of AI is its ability to analyze data in depth. Artificial intelligence has the unique ability to uncover hidden patterns and trends in complex data, which are difficult for humans to detect. Thus, AI helps companies in making more accurate predictions about future business performance. In short, AI has

become an invaluable tool for startup companies strategic decision making. AI not only increases productivity, but also present a more comprehensive understanding of the data so that companies can produce good business decisions.

Artificial Intelligence (AI) has the ability to examine complex data in depth and discover patterns that are not visible to the naked eye. With Thus, startup companies can make smarter and more precise business decisions target. The use of AI in startup strategic decision making is not complete without obstacles and risks. One of the biggest challenges or obstacles is the need for well-organized and accurate data. Much of artificial intelligence relies on data high quality to function properly. Therefore, organizations need a powerful system for collecting, processing and storing accurate data. Besides Therefore, the complexity of integrating various systems is a challenge in itself development of artificial intelligence. Significant commitment of time and resources necessary for this complex integration procedure.

It is important to consider the advantages and disadvantages of implementing AI technology in new business. Increased productivity and efficiency, better quality of goods and services, faster innovation, and competitive advantage are the benefits. Business people can take the following actions to minimize negative impacts and optimize positive impact when integrating AI into strategic decision making in startup company:

1. Cooperation between Humans and Artificial Intelligence: The application of AI technology must be mutual complement their respective functions. Although artificial intelligence automates some data, humans still contribute to tactical awareness and interpretation of information.
2. Education and Skills Development: The business world must provide instruction and training for managers to help them become skilled in data analysis and artificial intelligence. This helps company managers learn how to use technology effectively and develop their skills in data analysis and artificial intelligence.
3. Data security and privacy: When leveraging AI technology, data security and privacy must be the main consideration. Business P needs to implement security measures cyber strong and ensure they comply with relevant data privacy laws.

The business world must carefully manage the impact of AI, when utilizing AI in strategic decision making. Maximizing the benefits of AI technology is very important important, while avoiding the dangers. This can be achieved with the help of regulations and rigorous processes, training and development of skills, related personnel, as well continuous observation of the performance and application of artificial intelligence.

The way data is collected, analyzed and used for decision making has been changing dramatically as startup companies use artificial intelligence technology (AI) to make strategic decisions. Artificial intelligence systems can automate management processes, reducing manual workload, and increasing productivity through thorough data analysis and natural language processing. Focus is also given to accuracy data processing, thereby producing high quality data that functions as basis for sound judgment. One of the main contributions of AI technology to management is the ability to analyze problems more thoroughly. Leader Companies can create more effective strategies and make more informed judgments both because of AI's ability to recognize patterns and trends that cannot be detected by the eye man. However, there are challenges and impacts associated with the use of AI, esp related to structured data and its required quality.

Improved operational performance, more data analysis for understanding and precise forecasting, better analysis-based decision making, and improved correct processing of financial data are some of the benefits of implementation AI technology. However, there are negative impacts, such as the threat of algorithmic errors and automation of human work, must also be taken into account. The business world must pick up specific actions to optimize good impacts and minimize negative impacts. First and foremost, company leaders must receive training and build their skills in data analysis and artificial intelligence. This will guarantee that company leaders are able to understand and utilize this technology effectively. In addition, the jobs to be automated must be chosen carefully, with consider which activities are best suited for automation with intelligence artificial. By implementing strong and compliant cybersecurity measures relevant data privacy laws, data security and confidentiality also become top priority.

It is also important for humans and artificial intelligence to work together. AI and humans must work together, where AI automates certain activities and people help in the interpretation of information and strategic decision making. This is effective combines the advantages of AI technology with human qualities. Apart from that, management Rigorous organizational transformation is also required. Organizational change management effectiveness is essential because the use of artificial intelligence has the potential to change function company drastically. Every team member must be involved in the transformation process to reduce conflict and ensure successful acceptance.

Startup companies can maximize the benefits of artificial intelligence technology by implementing it. But this needs to be done carefully, with obedience strict adherence to rules and guidelines, skills development and training, as well as Continuously evaluate AI performance. Duties and abilities required by the company startups are also influenced by the use of artificial intelligence. Startup company jobs become more strategic and centered on data analysis and interpretation when tasks are routine automated. Therefore, startup companies must develop new capabilities, such as increased analytical capabilities, knowledge of AI methods, and capacity to works with AI systems. The secret to success in the era of digital transformation is ownership Strong understanding of management ideas, laws, and guidelines relevant. The business world will have a competitive advantage in decision making strategic and operational efficiency if they can effectively handle excess and shortcomings in the application of artificial intelligence.

Conclusions and Recommendations

This research has examined in depth the role of artificial intelligence (AI) in strategic decision making in startup companies. The research results show that AI has enormous power to change the business landscape, especially for newly established companies.

This research has underscored the transformative potential of artificial intelligence (AI) in metamorphosing the business landscape, especially for dynamic startups. AI does not just a tool, but also a catalyst for innovation that enables companies young people to compete effectively in an increasingly competitive market.

AI offers tremendous potential for startup companies to grow and develop. However, implementing AI is not without challenges. Companies need to have clear strategy, strong commitment, and a holistic approach to maximize the benefits of AI while minimizing its risks. Thus, AI can be a catalyst innovation and sustainable growth.

Startup companies are advised to start implementing AI gradually and measurable. Choose the business area that has the greatest potential to benefit from AI, such as customer data analysis or supply chain optimization. With a gradual approach, the company can manage risks and adapt more easily to change. Data quality is the key to successful AI implementation. Companies need to invest time and resources to collect, clean, and organize data effectively. Quality data will produce more accurate analysis and better business decisions better. Don't think of AI as an alternative to humans, but rather as a tool for increase human skills. Collaboration between humans and AI will produce results better and more innovative decisions. Take advantage of the human ability to understand context, creativity and complex problem solving, as well as deep AI capabilities processing data at scale and identifying patterns. Companies must pay attention to ethical aspects in the development and use of AI. Make sure that AI algorithms are unbiased, transparent and accountable. Additionally, pay attention also aspects of data privacy and information security.

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