

ARTIFICIAL INTELLIGENCE AND AUTOMATION: A LITERATURE REVIEW ON BUSINESS ADAPTATION AND RESILIENCE

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Abstract

The use of artificial intelligence (AI) and automation in the business world has become a major focus in the literature addressing business adaptation and resilience. This study reviews the literature to explore how AI and automation technologies can be applied to improve operational efficiency, respond quickly to market changes, and manage supply chains and human resources more effectively. The results of this study show that AI and automation can not only optimise business processes by reducing costs and human error, but can also improve a company's ability to anticipate and cope with disruptions and crisis situations. As such, the integration of AI and automation gives companies a significant competitive advantage, enabling better adaptation to changing business environments and improving overall resilience.

Keywords: Artificial Intelligence, Automation, Adaptation, Business Resilience

Introduction

The development of information and communication technology has driven significant innovation in various industrial sectors. One of the most prominent developments is the application of Artificial Intelligence (AI) and automation in business processes. Artificial Intelligence (AI) is a field of computer science that focuses on developing systems or machines capable of performing functions or tasks that would normally require human intelligence. This includes capabilities such as learning, reasoning, pattern recognition, and natural language understanding (Aloisi & Stefano, 2022). AI uses algorithms and mathematical models to process data and make decisions, which can be continuously improved through machine learning. The application of AI extends to areas such as facial recognition, chatbots, predictive analytics, and autonomous cars, all of which demonstrate the technology's ability to improve efficiency and provide innovative solutions to challenges (Vincent-Lancrin & Vlies, 2020).

Automation, on the other hand, is the process of using technology to carry out tasks or operations without or with little human intervention. In the context of industry

and business, automation is often used to increase efficiency, reduce human error, and save operational time and costs. Automation systems can be implemented in various forms, ranging from robotics in manufacturing, office automation software, to integrated supply chain management systems (Gill et al., 2024). The combination of automation with AI creates systems that not only perform tasks automatically but are also able to adapt and learn from data, expanding the system's capacity to respond to complex and dynamic situations. Both technologies have shown great potential in improving operational efficiency, reducing costs, as well as opening up new opportunities through sophisticated data analysis and automated processes (Taj & Zaman, 2022).

In this digital era, many companies are starting to recognise the importance of adopting AI and automation as part of their business strategy. However, the adoption of these technologies is not without its challenges. Adapting to AI and automation requires significant changes to organisational structure, work culture and workforce skills. In addition, the increasing reliance on technology also raises questions about the resilience of businesses in the face of new risks such as cyber-attacks, system crashes, and rapidly changing market dynamics (Zehir et al., 2020).

Given these complexities, it is important for companies to understand how best to adopt AI and automation technologies, while ensuring the long-term resilience of their businesses. Research on business adaptation and resilience in the context of AI and automation can provide important insights for business decision-makers. A comprehensive literature review can bring together findings and best practices, and identify knowledge gaps that need to be further explored (Borges et al., 2021).

In this context, this research will review the existing literature on business adaptation and resilience to AI and automation adoption. This research is expected to provide a clear picture of the key factors that influence the successful adoption of these technologies, as well as how companies can mitigate risks and strengthen their resilience.

Research Methods

The study in this research uses the literature method. The literature research method is a systematic approach to collecting, assessing, and analysing information that exists in academic and non-academic literature on a particular topic. This process involves collecting relevant sources such as books, journals, articles, and other documents, which are then evaluated to understand what has been researched previously, identify gaps in knowledge, and develop a conceptual or theoretical framework that supports further research (JUNAIDI, 2021); (Abdussamad, 2022). Literature research allows the researcher to build a strong foundation by synthesising findings from various studies, and provides context and justification for the research issues raised. This method not only helps in understanding the latest developments in a particular field but also ensures that the research conducted contributes significantly to the existing knowledge (Wekke., 2020)

Results and Discussion

Business Adaptation to AI and Automation

Business adaptation to AI and automation is an important step taken by modern organisations to remain competitive in a fast-changing global economy . The use of these technologies can transform various aspects of business operations, from improving process efficiency to creating innovative products and services. In this digital age, companies that successfully adapt AI and automation can utilise big data and prescriptive analytics to make better and faster business decisions. This also allows them to identify market trends and customer behaviour more accurately, providing a significant competitive advantage (Chukwunweike et al., 2024) .

Firstly, in manufacturing, AI and automation have fuelled the fourth industrial revolution (Industry 4.0). Intelligent machines integrated with the internet of things (IoT) enable more flexible factory operations and responsiveness to changing market demands. With the use of robots and other automated systems, companies can reduce labour costs, increase productivity, and minimise human error. Routine production processes can be performed with high precision, while human resources can be focused on more strategic and complex tasks (Sartor & Lagioia, 2020) .

In addition to production, AI and automation are also having a major impact on customer service and marketing. Chatbots powered by AI can provide responsive and personalised customer service, helping to answer common questions and resolve issues in real-time. In marketing, machine learning algorithms can analyse customer data to generate relevant content and better targeted campaigns. This not only improves customer experience but can also increase conversions and customer loyalty (Imamov & Semenikhina ., 2021)

However, adapting to AI and automation is not without its challenges. One of the main challenges is resistance to change, especially from employees who are worried about losing their jobs to automation. Therefore, it is important for companies to manage this change wisely, investing time and resources in retraining and developing new skills for employees. In addition, there are also challenges related to integrating new technologies with existing systems and ensuring data security and customer privacy (Aziza et al., 2023).

Finally, successful business adaptation to AI and automation is highly dependent on strategy and strong management support. Companies need to have a long-term vision and a clear roadmap for the implementation of these technologies. This includes assessing technology readiness, developing internal capabilities, and collaborating with technology partners. With a planned approach and effective execution, companies can maximise the potential of AI and automation to accelerate business actions towards sustainable growth and success in competitive markets (Eling et al., 2022) .

Overall, AI and automation offer great opportunities for businesses to improve efficiency, innovation and customer experience. However, successfully adapting these technologies requires careful planning and effective change management. By doing so,

companies will be in a better position to face future challenges and capitalise on the opportunities that exist in this digital age.

Business Resilience with AI Implementation

Business resilience is one of the main aspects that companies focus on in facing market dynamics and global challenges. The implementation of artificial intelligence (AI) is an effective solution to strengthen business resilience. By utilising AI's analytical and predictive capabilities, companies can be better prepared for rapid and unpredictable changes. AI is able to process large amounts of data and generate deep insights, which help companies make more informed and quicker decisions (Gonçalves et al., 2022).

One of the ways AI improves business resilience is through predicting market trends and behaviours. Machine learning algorithms can identify patterns from historical data and provide accurate predictions of future market demand. With this information, companies can plan better inventory, production, and marketing strategies. Efficient stock management reduces the risk of excess or shortage of goods, and ensures product availability according to customer demand (Chowdhury, 2024).

Furthermore, AI also plays an important role in optimising the supply chain. Using AI, companies can monitor supplier performance, identify potential disruptions, and proactively seek alternative solutions. For example, when there is a bottleneck in the supply of raw materials, AI can analyse various factors and recommend alternative suppliers capable of meeting business needs. This capability helps companies to reduce dependence on a single source and maintain smooth business operations (Wach et al., 2023).

In addition, AI also supports operational resilience through business process automation. Various routine and repetitive tasks can be automated using AI technology, such as in administration, customer service, and manufacturing. This not only reduces labour costs but also improves efficiency and reduces human error. Automation also allows companies to continue operating efficiently even in crisis situations, such as pandemics or natural disasters, when there are limited human resources (Roberts et al., 2021).

Finally, business resilience with AI implementation is also closely related to risk management and compliance. AI can help identify and evaluate business risks through comprehensive data analysis. For example, in the financial sector, AI can detect fraud or embezzlement activities by analysing transactions in real-time. In addition, AI can ensure regulatory compliance by monitoring and managing data required for audits and compliance reports. Thus, companies can reduce legal and reputational risks that may arise from non-compliance (Xue et al., 2020).

Overall, AI implementation provides many benefits in strengthening business resilience. With better predictive capabilities, supply chain optimisation, process automation and risk management, companies can face challenges more confidently and responsively. In the long run, this not only improves efficiency and productivity but also ensures business sustainability amidst a changing environment.

Conclusion

Artificial intelligence (AI) and automation in business adaptation and resilience, it is clear that these technologies have a very significant role in dealing with the ever-changing market dynamics. AI and automation not only assist companies in optimising day-to-day operations but also provide competitive advantage through in-depth data analysis and data-driven decision-making. With its advanced capabilities, AI enables companies to respond to market changes quickly and efficiently, and improve accuracy in forecasting upcoming business trends.

The implementation of AI and automation also brings positive impacts in supply chain and human resource management. These technologies enable companies to monitor and assess supplier performance in real-time, identify potential disruptions, and proactively seek alternative solutions. In addition, automation of routine and repetitive tasks helps companies reduce operational costs, improve efficiency, and minimise human error. This is especially important in crisis situations, where limited human resources can be a major obstacle to a company's operational continuity.

Finally, the comprehensive implementation of AI and automation gives companies the ability to adapt and improve business resilience on an ongoing basis. With its ability to manage risk and ensure compliance, these technologies help companies maintain their stability and reputation in the market. Therefore, companies that want to remain competitive and survive in an increasingly complex and uncertain business environment need to consider the integration of AI and automation in their business strategy.

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