THE IMPACT OF AGILE AND ADAPTIVE BANKING TECHNOLOGY TRENDS IN SUPPORTING DIGITAL TRANSFORMATION FOR FINANCIAL COMPANIES

Anita Kusuma Dewi*[1]
Politeknik Negeri Lampung, Indonesia
Email: anitakusumadewi@polinela.ac.id

Ahadi Rerung
STIE Port Numbay Jayapura, Indonesia
Email: adrrg15473@gmail.com

Agus Sunaryo
STIE Port Numbay Jayapura, Indonesia
Email: agusunaryo093@gmail.com

Abstract
Digital transformation has become a necessity for financial companies to remain competitive in the modern era. Agile and adaptive banking technology trends play a crucial role in this process, enabling financial companies to respond to market changes more quickly and efficiently. Agile technologies, such as artificial intelligence, big data, and cloud computing, support process automation, reduce operational costs, and increase efficiency and speed of service. In addition, technological adaptation allows the development of more innovative products and services, in line with evolving customer needs. The application of advanced technologies also improves data and transaction security, reduces the risk of fraud, and ensures compliance with applicable regulations. The impact and implications of agile and adaptive banking technology trends in supporting digital transformation are broad and profound. Financial companies that successfully utilize these technologies will be able to increase efficiency, improve customer experience, reduce risk, and maintain their competitiveness in an increasingly digital and connected market. This study summarizes the positive impacts of implementing modern banking technologies in supporting digital transformation for financial companies, while also underlining the importance of innovation and adaptability in this dynamic industry.
Keywords: Impact, technology trends, agile and adaptive banking, digital transformation, financial companies

---

[1] Correspondence author

INTRODUCTION

Raji et al., (2024) stated that in the rapidly developing digital era, technology plays an increasingly crucial role in various sectors, including the banking and financial sector. Digital transformation has become a must for financial companies to remain relevant, competitive, and responsive to changing market needs. Agile and adaptive technologies, such as artificial intelligence (AI), blockchain, big data, and cloud-based financial services, have enabled banks and financial institutions to innovate in their products and services.

These technology trends not only improve operational efficiency but also provide a better experience for customers. For example, the use of AI in data analytics helps financial companies better understand consumer behavior, while blockchain improves the security and transparency of financial transactions (Ajayi-Nifise et al., 2024). In addition, cloud technology allows for faster and more flexible data storage and processing, supporting faster and more accurate decision making. However, behind its benefits, the adoption of technology also poses challenges, such as the need for changes in organizational culture, improving employee skills, and rapid and dynamic regulatory adjustments. Therefore, financial companies must be able to be agile and adaptive in facing these changes in order to maximize the benefits of digital transformation.

According to Popoola et al., (2024) the impact of agile and adaptive banking technology trends in supporting digital transformation for financial companies can be understood through several key factors driving this change. In the digital era, consumers increasingly expect financial services that are fast, easily accessible, and can be customized to their personal needs. Access via mobile devices, as well as the ability to make transactions in real time, have become the new standard in banking services. This has encouraged financial companies to adopt technologies that enable them to meet these expectations, such as mobile banking, digital payments, and application-based services. The emergence of fintech and technology startups offering innovative financial solutions has increased competition in the banking industry. Traditional financial companies face pressure to adopt new, agile and adaptive technologies to remain competitive. Technological innovations such as AI, blockchain, and big data enable banks to improve operational efficiency, reduce costs, and provide a better customer experience, helping them compete with new players in the market. Technology continues to evolve at an incredible pace, creating new opportunities for financial companies to improve their

services (Pal, 2022). For example, artificial intelligence can be used for better data analysis, while blockchain can improve the security and transparency of transactions. Adopting cloud technology enables companies to operate more flexibly and scalably. This technology supports more effective digital transformation, allowing financial companies to respond quickly to market changes. Increasingly stringent regulations in the financial sector, especially related to data protection and cybersecurity, are forcing companies to innovate. New technologies can help companies meet regulatory requirements more efficiently, for example by using AI for fraud detection or blockchain for anti-money laundering (AML) compliance. Regulations also often drive the adoption of certain technologies, such as open banking, which requires banks to share data with trusted third parties (Sia, S. K., Weill, P., & Zhang, 2021).

Financial companies are constantly looking for ways to improve operational efficiency and reduce costs. According to Winasis, S., Riyanto, S., & Ariyanto, E. (2020) technologies such as Robotic Process Automation can automate repetitive manual processes, while big data and analytics help companies make better and faster decisions. By adopting agile and adaptive technologies, companies can save time and costs, while increasing productivity and efficiency. The COVID-19 pandemic has accelerated the need for digital transformation in the financial sector. With physical restrictions being implemented worldwide, digital banking services have become more important than ever. Financial companies that have already adopted digital technologies have been able to adapt more quickly to this situation, while others have been forced to accelerate the adoption of new technologies to continue serving their customers effectively (Batchu, 2024).

Brühl, V. (2022) in his research stated that amidst the increasing awareness of the importance of sustainability, financial companies are encouraged to adopt technologies that are not only efficient but also environmentally friendly. For example, the adoption of digital technology reduces the need for physical documents, which in turn reduces the company's carbon footprint. Agile and adaptive innovation enables companies to continuously evolve and meet changing market needs, while still supporting sustainability goals.

These factors explain why the adoption of agile and adaptive technologies is critical for financial companies in this digital era. They are driven not only by the need to compete, but also by the demand to stay relevant in an ever-evolving and dynamic environment. However, the adoption of these technologies also requires companies to become more agile and adaptive. Agile

in terms of the ability to respond quickly to change, and adaptive in terms of the ability to adjust to new technologies and trends. The speed of technological change, as well as increasing consumer expectations for faster and more personalized services, require companies to continuously innovate and update the way they operate (Thomas, 2020).

On the other hand, challenges such as cybersecurity, increasingly stringent regulations, and the need to reskill the workforce also emerge along with the adoption of new technologies. Therefore, financial companies must balance the benefits of agile and adaptive technologies with the risks and challenges involved. In this introduction, it is important to understand the context and urgency of digital transformation supported by agile and adaptive banking technologies. By looking at the emerging trends and their impact on financial companies, we can explore more deeply how these technologies can help companies adapt to the rapidly changing business environment and remain competitive in the global market. This study aims to provide comprehensive insights into the role of technology in supporting digital transformation in the financial sector, as well as strategies that companies can implement to make the most of these technologies.

RESEARCH METHOD

This study uses a descriptive method by collecting data from various reliable sources, including literature studies and recent publications. The descriptive approach is used to comprehensively describe the impact of agile and adaptive banking technology trends in supporting digital transformation for financial companies. The first stage in this research method is collecting literature relevant to the research topic. A literature search is conducted through academic databases, scientific journals, and related publications that discuss the impacts of agile and adaptive banking technology trends in supporting digital transformation for financial companies. The selected literature must be of good quality and relevant to the research objectives. After collecting the literature, an analysis and synthesis of the information found is carried out. Relevant data and information on agile and adaptive banking technology trends, the contribution of digital transformation in financial companies, the impact and implications of agile and adaptive banking technology trends in supporting digital transformation for financial companies related to the research topic.

RESULT AND DISCUSSION

Agile and Adaptive Banking Technology Trends

According to Ogundipe et al., (2024) the trend of agile and adaptive banking technology reflects the rapid evolution in the financial industry, driven by technological advances and changing consumer needs and expectations. Here are some key trends that show how banking technology is becoming increasingly agile and adaptive according to Indriasari et al., (2022):

1. Artificial Intelligence and Machine Learning

   AI and ML are used in various banking applications, such as data analytics, fraud detection, service personalization, and process automation. These technologies enable banks to process large amounts of data efficiently and make faster and more accurate decisions. AI and ML enable banks to adapt to changes in customer behavior in real-time, as well as offer more personalized services based on predictive analysis.

2. Digital and Mobile Banking

   The use of mobile banking applications has become the norm, giving customers access to make transactions, check balances, and manage their accounts. Continuously updated mobile banking platforms allow banks to add new features, such as contactless payments, AI-based chatbots, and other financial services, so as to stay relevant to evolving customer needs.

3. Blockchain and Distributed Ledger Technology

   Blockchain offers greater security and transparency for financial transactions. It is used in international payments, smart contracts, and settlement of transactions. With technology that can be adapted for various purposes, banks can reduce operational costs and risks while increasing the efficiency and reliability of transaction processes.

4. Cloud Computing

   Cloud technology allows banks to store and manage data more efficiently, and support the rapid development of new applications and services. Cloud computing provides the flexibility needed for scalability and innovation, allowing banks to develop new services and expand their operations more easily and quickly.

5. Robotic Process Automation

   RPA is used to automate repetitive manual tasks, such as data processing, account management, and regulatory compliance. This automation allows banks to improve operational efficiency and reduce human error, while quickly adapting processes to meet changing regulations or business needs.

6. Open Banking and Application Programming Interfaces

   Open banking enables better integration between banks and third parties, such as fintechs, through APIs. This creates a more open and collaborative ecosystem. Banks can quickly add new services provided by third parties and offer more choices to customers, while still focusing on their core services.

7. Enhanced Cybersecurity

   With the rise in cyber threats, technologies such as advanced encryption, multi-factor authentication, and biometrics are increasingly being adopted to protect customer data. Banks can quickly respond to new threats and enhance their security systems to protect against evolving cyberattacks.

8. Data Analytics and Big Data

   Big data is used to understand customer behavior, identify market trends, and inform strategic business decisions. These technologies enable banks to adapt quickly to changing markets and customer needs, and develop more responsive and proactive strategies.

9. Digital Payment Services

   Digital payment services, including e-wallets and peer-to-peer payments, are gaining popularity and widespread adoption. These technologies enable banks to adapt to changes in the way customers transact, offering solutions that are fast and easy to use.

These agile and adaptive banking technology trends suggest that banks must continue to innovate and adapt to rapid changes in technology and consumer behavior (Dutta et al., 2022). By adopting this technology, banks can improve operational efficiency, offer better customer experiences, and remain competitive in an increasingly dynamic market.

Contribution of Digital Transformation in Financial Companies

Mavlutova, I., & Volkova, T. (2019) stated that the digital transformation of the financial sector will not take place properly without human intervention. There must be a balance between financial technology and the role of humans in it. Through this balance, companies will gain maximum benefits from the transformation process being carried out. Digital transformation makes the financial system run better. At the same time, its existence must be supported by quality human resources.

The use of digital technology will make changes to the global financial ecosystem because the public's need for digital services continues to grow. Among the various industries, the banking sector is the most lagging behind in terms of digital transformation (Costa et al., 2022). As a form of utilizing high

digital transaction opportunities, the banking industry needs to innovate to create the availability of access and control of digital services. In addition, the presence of cross-industry players and collaboration between players, such as incumbent banks, e-wallets, and e-commerce, also encourages increased financial inclusion and the development of the evolution of banking services. As a form of adaptation to the digital economy, companies are transforming through integration between technology, resources, and management concepts. Digital transformation refers to processes and strategies through the use of digital technology that can create changes in business operations and create value for customers (Boratyńska, K. (2019). In the financial industry, this commitment is demonstrated through the development of software, mobile banking, financial technology, and the use of intelligent technology, such as know your customer, learning machine to anti-money laundering, and robotic process automation. Companies utilize their digital assets to support inclusive and sustainable economic growth. On this basis, investments are made to develop information technology capacity to drive business activities and increase the company's competitiveness in the digital era, especially in software. This software is an intangible asset that supports business development and the basis for continuing digital transformation in all fields.

Digital transformation provides various conveniences and benefits and encourages innovation that leads to the creation of competitive advantages and improved company performance. However, the implementation of digital technology still encounters many difficulties caused by various factors that differ from one sector to another. The effectiveness of digital transformation depends on the size of the company because it requires resources, skills, commitment, and the right understanding of digital opportunities, so even large companies find it easier to adopt new technologies (Hadi, A. M., & Hmood, 2020).

Digital transformation plays a very important role in financial companies, especially in improving efficiency, innovation, and customer experience. Here are some of the main contributions of digital transformation in the financial sector (Chanias et al., 2019):

1. Increased Operational Efficiency: By integrating digital technology, financial companies can automate various business processes, which reduces operational time and costs. For example, the use of robotic process automation allows banks to process transactions faster and with fewer errors

2. Better Customer Experience: Digital transformation allows companies to offer more personalized and responsive services. Through mobile applications and online platforms, customers can access financial services anytime and anywhere, increasing customer convenience and satisfaction.

3. Product and Service Innovation: Financial companies can develop new products that are more in line with customer needs through data analysis and digital technology. For example, fintech services that offer faster and easier payment and loan solutions.

4. Financial Inclusion: Digital transformation also contributes to financial inclusion by providing wider access to previously underserved communities. Technologies such as mobile banking enable more people to obtain financial services.

5. Security and Compliance: With the increasing cyber threats, digital transformation also includes improving security systems and regulatory compliance. The use of sophisticated encryption technologies and monitoring systems helps protect customer data and prevent fraud. Overall, digital transformation makes a significant contribution to financial companies by improving efficiency, innovation, and customer experience. In an increasingly digital world, companies that are able to adapt and utilize technology will have a greater competitive advantage.

Digital transformation makes a huge contribution to strengthening and developing financial companies in various aspects. From increasing efficiency to developing new products, financial companies that successfully utilize digital technology will have a significant competitive advantage in the global market (Thottoli et al., 2023).

Impact and Implications of Agile and Adaptive Banking Technology Trends in Supporting Digital Transformation for Financial Companies

Mulyana, R., Rusu, L., & Perjons, E. (2024) stated that the trend of agile and adaptive banking technology has brought about major changes in the way financial companies operate and interact with customers. Here are some of the main impacts and implications of this trend in supporting the digital transformation of financial companies summarized from several studies:

1. Increased Efficiency and Productivity

The adoption of technologies such as AI, RPA (Robotic Process Automation), and big data allows financial companies to automate complex and repetitive business processes. This increases operational efficiency, speeds up processing times, and reduces operational costs. Financial companies can increase employee productivity by shifting human labor

from routine tasks to more value-added work. It also allows them to offer faster and more responsive services to customers, thereby increasing customer satisfaction.

2. Improved Customer Experience

   Technologies such as AI, mobile banking, and cloud-based services enable better service personalization and easier access for customers. The use of analytical data allows banks to understand customer needs and offer customized products and services. By improving customer experience, financial companies can increase customer loyalty and reduce churn rates. Satisfied customers are more likely to stay loyal and recommend the service to others, which in turn can drive business growth.

3. Risk Reduction and Increased Security

   Technologies such as blockchain, AI, and machine learning help in detecting fraud more effectively, improving transaction security, and ensuring regulatory compliance. These technologies enable better monitoring and faster response to potential threats. By improving security and reducing risk, financial companies can build greater trust among customers and stakeholders. Better compliance also reduces the risk of fines and sanctions, which can damage a company's reputation and financial stability.

4. Greater Flexibility and Adaptability

   Agile banking technologies enable companies to adapt quickly to market changes, new regulations, and customer needs. For example, the adoption of cloud computing allows banks to quickly increase or decrease capacity based on demand. This flexibility allows financial companies to stay competitive and relevant in an ever-changing market. They can more quickly launch new products, enter new markets, and respond to emerging industry trends.

5. Leveraging Data for Better Decision Making

   With the ability to collect, analyze, and leverage big data, financial firms can make more informed business decisions. This includes more effective risk management, pricing, and marketing strategies. Better data-driven decision making enables firms to increase profitability, identify new market opportunities, and optimize their product and service portfolios.

6. Increasing Competition with Fintech

   Fintech and other technology firms have leveraged agile and adaptive technologies to offer faster, cheaper, and more innovative financial services. This has put pressure on traditional financial firms to upgrade their technology and processes to stay competitive. Traditional financial firms

must invest more in innovation and technology development to maintain their market share. This also drives collaboration between banks and fintechs to create better solutions for customers.

7. Social Impact and Financial Inclusion

Digital technologies have enabled greater access to financial services for people previously excluded from the traditional financial system. Services such as mobile banking and digital wallets enable greater financial inclusion, especially in remote areas. Financial firms can play a greater role in supporting financial inclusion and social responsibility. This also opens up new business opportunities in previously underserved markets.

8. Challenges in Managing Change and Organizational Culture

While new technologies offer many benefits, their implementation requires significant changes in organizational culture and employee skills. Firms must manage this transition carefully to avoid resistance and ensure successful technology adoption. Financial firms need to invest in employee training and development, and adopt a culture of innovation that encourages experimentation and learning. They must also be prepared to manage the risks associated with change, such as potential operational disruptions and the need for restructuring.

9. Impact on Regulation and Compliance

As the adoption of digital technologies increases, regulators are also tightening oversight and introducing new regulations that require financial firms to maintain higher standards of security, privacy, and compliance. Financial firms must ensure that they are not only compliant with existing regulations, but also prepared to adapt to new regulations that may emerge. This may require additional investment in compliance and risk management technology.

10. Increased Transparency and Trust

Technologies such as blockchain can increase transparency in financial transactions, which in turn increases customer trust in financial institutions. By increasing transparency, financial firms can build a stronger reputation and reduce uncertainty among customers and business partners.

The impact and implications of agile and adaptive banking technology trends in supporting digital transformation are broad and profound (Pramanik et al., 2019). Financial firms that successfully leverage these technologies will be able to increase efficiency, enhance customer experience, reduce risk, and maintain their competitiveness in an increasingly digital and connected marketplace. However, they must also be prepared to address the challenges

associated with adopting these technologies, including cultural changes, regulations, and the need for ongoing investment.

CONCLUSION

The trend of agile and adaptive banking technology has a significant positive impact on financial companies in increasing efficiency, innovation, and security, while strengthening their position in facing the ever-changing market dynamics. The adoption of agile and adaptive banking technology plays a crucial role in supporting digital transformation for financial companies. Some of the key points identified in this study include:

1. Increased Operational Efficiency
2. Adaptation to Market Changes
3. Improved Customer Experience
4. Security and Compliance
5. Continuous Innovation

Agile and adaptive banking technology is key to supporting digital transformation in the financial sector, helping companies become more efficient, responsive, and innovative in facing the challenges and opportunities in the digital era.

REFERENCES

Ajayi-Nifise, A. O., Odeyemi, O., Mhlongo, N. Z., Ibeh, C. V., Elufioye, O. A., & Falaiye, T. (2024). Digital transformation in banking: The HR perspective on managing change and cultivating digital talent. *International Journal of Science and Research Archive, 11*(1), 1452-1459.

Batchu, R. K. (2024). Digital Transformation in Banking: Navigating the Technological Frontier. *International Machine learning journal and Computer Engineering, 7*(7), 1-13.

Boratyńska, K. (2019). Impact of digital transformation on value creation in Fintech services: an innovative approach. *Journal of Promotion Management, 25*(5), 631-639.

Brühl, V. (2022). Agile methods in the German banking sector: some evidence on expectations, experiences and success factors. *Journal of business economics, 92*(8), 1337-1372.

Chanias, S., Myers, M. D., & Hess, T. (2019). Digital transformation strategy making in pre-digital organizations: The case of a financial services provider. *The Journal of Strategic Information Systems, 28*(1), 17-33.

Costa, I., Riccotta, R., Montini, P., Stefani, E., de Souza Goes, R., Gaspar, M. A., … & Larieira, C. L. C. (2022). The degree of contribution of digital transformation technology on company sustainability areas. *Sustainability*, *14*(1), 462.

Dutta, S., Pramanik, H. S., Datta, S., & Kirtania, M. (2022). Imperatives, Trends and Dynamics of Digital Transformation as Banks Adopt Technology and Intelligent Systems. In *Intelligent Systems in Digital Transformation: Theory and Applications* (pp. 323-348). Cham: Springer International Publishing.

Hadi, A. M., & Hmood, S. J. (2020). Analysis of the role of digital transformation strategies in achieving the edge of financial competition. *International Journal of Innovation, Creativity and Change*, *10*(11), 19-40.

Indriasari, E., Prabowo, H., Gaol, F. L., & Purwandari, B. (2022). Adoption of design thinking, agile software development and co-creation: A qualitative study towards digital banking innovation success. *Int. J. Emerg. Technol. Adv. Eng*, *12*(1), 111-128.

Mavlutova, I., & Volkova, T. (2019, October). Digital transformation of financial sector and challenges for competencies development. In *2019 7th International Conference on Modeling, Development and Strategic Management of Economic System (MDSMES 2019)* (pp. 161-166). Atlantis Press.

Mulyana, R., Rusu, L., & Perjons, E. (2024). The Influence of Hybrid Agile-Adaptive and Traditional IT Governance Mechanisms on Digital Transformation and Organizational Performance in the Indonesian Banking and Insurance Industries. In *Advances in Information Systems Development: Information Systems Development, Organizational Aspects, and Societal Trends* (pp. 173-197). Cham: Springer Nature Switzerland.

Ogundipe, D. O., Odejide, O. A., & Edunjobi, T. E. (2024). Agile methodologies in digital banking: Theoretical underpinnings and implications for customer satisfaction. *Open Access Research Journal of Science and Technology*, *10*(2), 021-030.

Pal, P. (2022). The adoption of waves of digital technology as antecedents of digital transformation by financial services institutions. *Journal of Digital Banking*, *7*(1), 70-91.

Popoola, O. A., Adama, H. E., Okeke, C. D., & Akinoso, A. E. (2024). Conceptualizing agile development in digital transformations: Theoretical foundations and practical applications. *Engineering Science & Technology Journal*, *5*(4), 1524-1541.

Pramanik, H. S., Kirtania, M., & Pani, A. K. (2019). Essence of digital transformation—Manifestations at large financial institutions from North America. *Future Generation Computer Systems*, 95, 323-343.

Raji, M. A., Olodo, H. B., Oke, T. T., Addy, W. A., Ofodile, O. C., & Oyewole, A. T. (2024). The digital transformation of SMES: a comparative review between the USA and Africa. *International Journal of Management & Entrepreneurship Research*, 6(3), 737-751.

Sia, S. K., Weill, P., & Zhang, N. (2021). Designing a future-ready enterprise: The digital transformation of DBS bank. *California management review*, 63(3), 35-57.

Thomas, A. (2020). Convergence and digital fusion lead to competitive differentiation. *Business Process Management Journal*, 26(3), 707-720.

Thottoli, M. M., Islam, M. A., Yusof, M. F. B., Hassan, M. S., & Hassan, M. A. (2023). Embracing Digital Transformation in Financial Services: From Past to Future. *SAGE Open*, 13(4), 21582440231214590.

Winasis, S., Riyanto, S., & Ariyanto, E. (2020). Digital transformation in the indonesian banking industry: Impact on employee engagement. *International Journal of Innovation, Creativity and Change*, 12(4), 528-543.