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DIGITAL BANK TRANSFORMATION: SUSTAINABLE INNOVATION IN FINANCIAL INSTITUTIONS

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ABSTRACT
Introduction: *Bank digital transformation is a continuous innovation from conventional commercial banks to digital banks. The driving force in traditional retail banks to carry out sustainable innovation can be seen from the internal and external sides in the form of mutually supportive operations and strategies. In the face of competitive pressures, businesses in the financial services industry increasingly depend on innovation and sustainability to succeed and survive. The stress of business competition has made many banks worldwide close their branch offices in recent years.* ***Method:*** *This study is a literature study that collects theoretical references relevant to sustainable innovation in financial institutions, focusing on two main topics: sustainable digital technology innovation in Fintech and banks' digital transformation.* ***Result:*** *Fintech uses digital technology as a sustainable solution in offering financial inclusion services that are difficult for old players in the financial industry to fulfill. Fintech appears in peer-to-peer lending, virtual marketplaces and digital currencies. For the Bank's digital transformation, several regulations from the Financial Services Authority related to sustainable innovation must be complied with. Financial Services Authority Regulation Number 51/POJK.03/2017 concerning implementing Sustainable Finance for Financial Services Institutions, Issuers and Public Companies. Financial Services Authority Regulation Number 13/POJK.02/2018 concerning Digital Financial Innovation in the Financial Services Sector.* ***Conclusion:*** *The driving force in the Company to carry out sustainable innovation can be seen from the internal and external sides in the form of mutually supportive operations and strategies. The proposed digital transformation strategy for the Bank's continuous innovation is as follows: compliance with regulators, customer-centric, openness principles, and making digital a core value in business.*

Keywords: *Innovation, Sustainability, Digital Bank, Fintech.*

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INTRODUCTION

Based on Law No. 7 of 1992 concerning Banking which has been amended into Law No. 10 of 1998, a bank is a business entity that collects funds from the public in the form of deposits and distributes them back to the public in the form of credit and or other documents by the aim is to improve the standard of living of the people (Simatupang, 2019).

In the face of competitive pressures, businesses in the financial services industry increasingly depend on innovation and sustainability to succeed and survive. The stress of business competition has made many banks worldwide close their branch offices in recent years. In 2021 according to S&P

Global Market Intelligence Data, in the United States, it was recorded that 2,927 branches were closed, a record number of bank branch closures (Brief, 2021).

In Indonesia, thousands of commercial banks were also closed, so the fate of bank employees were questioned (Laucereno, 2022). The Financial Services Authority has recorded a decrease in the number of Commercial Banks branches since 2016, from 32,720 associates to 28,688 at the end of the year (R. Indonesia, 2016).

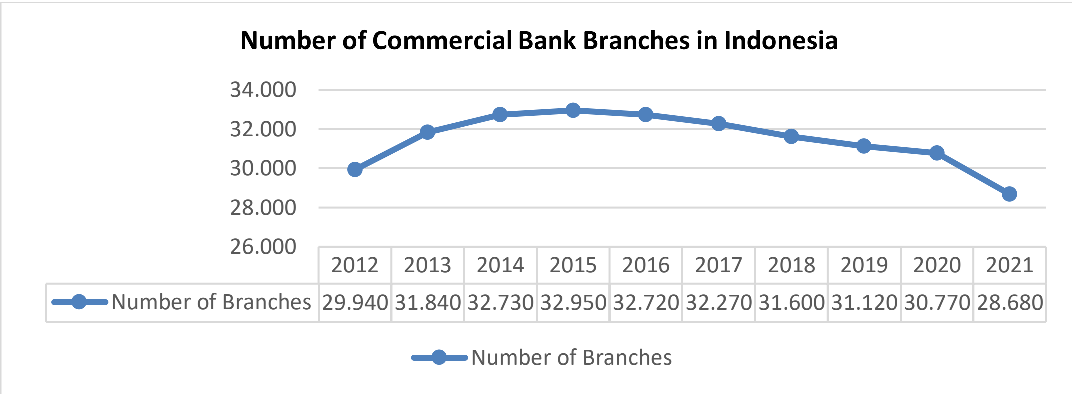

Figure 1. Number of Commercial Banks Branches in Indonesia

However, on the business side of commercial banks, Figure 2 shows growth in the number of assets, sources of funds and distribution of funds which have continued to increase since 2012.

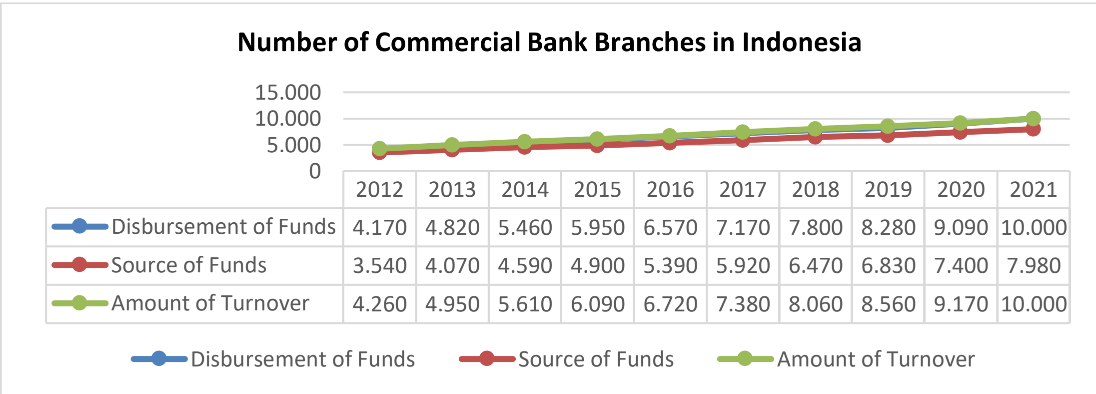

Figure 2. Total Assets, Sources of Funds, Distribution of Commercial Bank Funds

From an analysis of banking transaction data for 2021 at PT. Bank Central Asia, Tbk shows that the frequency of banking transactions conducted through branches is only 1%, while the frequency of transactions carried out through electronic channels is 99%. This data shows that customers in their transactions prefer to use electronic media such as ATMs, internet banking or mobile banking rather than going to commercial bank branches.

Regarding the total rupiah value of transactions at branches, 57% is still greater than transactions on electronic channels (KEUANGAN, n.d.). It can be interpreted that transactions made on electronic media, even though the number of frequencies is greater, are transactions of small value. Branches are still needed for transactions of high value, such as withdrawing money that exceeds the limit that an ATM can provide. Corporate credit transactions, home ownership, and car ownership loans also require the customer's presence at a bank branch. This research aims to identify and analyze the transformation of digital banks into sustainable innovations in financial institutions

METHOD

This study is a literature study that collects theoretical references relevant to sustainable innovation in financial institutions with particular attention to two main topics: sustainable digital technology innovation in Fintech and digital transformation of banks. Academic references are sought through international and national reputable journals and books deemed relevant. Analysis of rules and reports from financial institution regulators, namely Bank Indonesia and the Financial Services Authority, was also carried out in this study. This study will produce a digital transformation strategy proposal for the Bank's sustainable innovation.

RESULTS AND DISCUSSION

1. Fintech

Fintech stands for financial (financial) and technology, which means technological innovation to improve and automate the delivery and use of financial services. (Wahyuddin et al., 2022). Fintech uses digital technology as a sustainable solution in offering financial inclusion services that are difficult for old players in the financial industry to fulfill. Because some Fintechs create new markets, they are often referred to as startups or startups. Fintech is a continuous digital technology innovation in the financial sector with characteristics: agile, serving underserved segments, and faster, better services. So, that Fintech becomes a challenge, a threat, and finally seizes the traditional financial service providers that have taken root (Osburg & Lohrmann, 2017).

In May 2019, there were 249 Fintechs in Indonesia. There are 2 Fintech categories with the highest growth and composition, namely peer-to-peer lending (43%) and payments (26%) dominate the Fintech industry (Batunanggar, 2019). Fintech in the peer-to-peer lending category in 2018 recorded loans of Rp. 22.67 trillion, growing 645% from 2017. Fintech in the payments category in 2018 recorded a total transaction of Rp. 12.3 trillion, growing 557% from 2017.

a. Sustainable Digital Technology Innovation in Fintech

In essence, Fintech is used to help companies, business owners, and consumers better manage their financial operations, processes, and lives by taking advantage of special software and algorithms used in computers and smartphones (Bogoviz, 2020).

Some of the ongoing technological innovations in fintech include:

1) Artificial Intelligence

Artificial intelligence is the simulation of human intelligence in machines programmed to think like humans and imitate their actions. Machines with artificial intelligence can do learning and problem-solving like humans.

2) Machine Learning

Machine learning is a field of artificial intelligence (Artificial Intelligence). It is the concept that a machine with a computer program can learn and adapt to new data without needing to be programmed again by humans.

3) Predictive Behavior Analytics

   Covers a wide range of statistical techniques from data mining, predictive modeling, and machine learning, which analyze current and historical facts to predict future or unknown events.

4) Data-driven Marketing

   Data-driven marketing or data-driven marketing is a method of determining the final marketing decision that is fully based on certain data that has been set.

   A data-driven marketing process is where marketers gain insights and trends based on in-depth analysis of big data collected through consumer interaction and engagement to form predictions about future behavior.

5) Chatbots

   Chatbots are artificial intelligence-based programs that simulate conversations or chats with other users, like humans, through messaging applications, websites, mobile applications, or by telephone. This technology is also a digital assistant that can quickly understand and process user requests and provide relevant answers. Chatbots are often described as one of the most sophisticated and promising expressions of interaction between humans and machines.

6) Distributed Ledger Technologies

   Distributed Ledger Technology (DLT) is a protocol that enables decentralized digital database security. DLT allows storing all information safely and accurately using cryptographic technology. Once the information is stored, it becomes an immutable database managed by outside networks. Blockchain is one application of distributed ledger technology. NFT (Non-Fungible Tokens) and Crypto Currencies are implemented with the blockchain concept.

b. Fintech category

Fintech innovation in business can be categorized as follows:

1) Peer to peer Lending

   Peer to Peer (P2P) Lending is a fintech service that offers mediation between investors/lenders and borrowers where anyone can easily borrow money even if they don't have a bank account. Fintech that runs Peer to Peer Lending includes Friends Money, Danamas, Asetku, KoinWorks etc.

2) Crowdfunding

   Fintech is for mass financing or joint ventures, one of which is used for online fundraisings, such as helping disaster victims and sick people or funding work/projects. Fintech in crowdfunding services include kitabisa.com, tanifund.com

3) Market Aggregator
Fintech acts as a collector/comparator of financial products, which will collect financial data as a useful reference to make it easier to make decisions. Fintech market provisioning/aggregators include rajapremi.com, pasarpolis.com, cerati.com etc.
4) Payment, Settlement & Clearing
Serves as a payment gateway, providing money/electronic wallets (e-money/e-wallet). Bank Indonesia supervises this Fintech activity because the payment system is under the responsibility of Bank Indonesia. Kredivo, Akulaku and e-money such as Dana, Gopal, Ovo, LinkAja, and ShopeePay are examples of this Fintech.
5) Risk & Investment Management
Fintech helps users get investment products that best suit their preferences. There is also asset management that will help make business operations more practical. Investment program offerings by Fintech, such as investee, my finances are examples of Fintech risk & investment management.
6) E-commerce

c. Fintech advantage

Some of the benefits of Fintech are as follows:
1) Innovative
2) Faster
3) Flexible
4) Interactive
5) Super Application
6) Disruptive Thinking
7) Design Thinking

2. Digital Bank Transformation

The development of information technology has changed the approach to how people interact with financial institutions. Advances in digital technology have opened up new ways of doing financial business, giving rise to Fintech, which has shaken up established financial institutions such as banks (McMillan, 2014). Fintech appears in peer-to-peer lending, virtual marketplaces and digital currencies. They have opened up new possibilities for meeting society's demand for liquid and secure loan opportunities while still providing borrowers with long-term financing for riskier projects. By analyzing the new options, it becomes clear that banking is no longer needed. Information Technology enables the financial system to support a decentralized and capital-intensive economy without banking. In the digital era, where Fintech is emerging, banking is starting to lose its reason for existence. Information Technology can destroy the banking system's functioning and enable banking to develop. The digital revolution in the last decade has drastically changed the behavior of economic agent transactions. Consumption patterns shift to shopping on digital platforms and demand payment methods that are mobile, fast, and at the same time secure. Industrial relations between actors turned to an increasingly modular pattern and gave birth to new business models. Digital platforms with a global dimension are increasingly fading jurisdictional barriers (borderless) and reducing national economic sovereignty.

The digitalization trend affects all aspects of the economy, changes the pattern of public transactions, both individuals and corporations, and disrupts conventional functions, including the financial sector. This trend creates opportunities and risks that pose new challenges for authorities. The policy challenge for the rules is finding the right balance between efforts to optimize the opportunities brought by digital innovation and mitigating risks (B. Indonesia, 2019).

Changes in public expectations of financial services are forcing banks to adapt and transform to maintain business continuity. Banking development needs to be directed to various effective strategies to accelerate the transformation of banking digitization. However, the change in banking digitalization presents new challenges that need to be anticipated by banks. Banking development also needs to be directed at various efforts to deal with multiple challenges that banks will face in the digitalization era. Thus, banks can benefit greatly in the digitalization era while still prioritizing the principle of prudence to not cause stability fluctuations in the financial sector that impact the national economy.

Bank digital transformation is a form of continuous innovation from Conventional Commercial Banks to Digital Banks. They have to think and do continuous innovation like Fintech. Digital business models are influenced by technological evolution and aim to implement digital service-oriented policies to ensure long-term business sustainability (Pînzaru et al., 2022).

Continuous innovation in the form of digital transformation in the Company must pay attention to the following matters:

1) Motivation to adopt continuous innovation within the Company.
2) Company Relations with Customers and Business Partners.
3) Internal communication within the Company regarding constant innovation and digital transformation.
4) Use of digital tools to support digital transformation.
5) The result of the adoption of continuous innovation in the Company.

a. Sustainable Innovation Ecosystem

So far, the theories and practices explored have demonstrated sustainable innovation for digital transformation at the company level. At the ecosystem level, sustainable innovation will be more meaningful.

Industry practice suggests shared knowledge creation, stakeholder engagement, and working with partners and customers for technology, product development and environmental sustainability solutions. In this way, sustainability can become a driving force for innovation and business change. In contrast, the innovation approach contributes to sustainability, providing a new agenda for economic, social and environmental issues (Liu & Stephens, 2019).

In carrying out digital transformation, two dimensions interact to form a sustainable innovation ecosystem that is:

1) Key players/drivers: industry (companies, suppliers, competitors, etc.), universities, research and development institutions, governments, users, and NGOs.

2) Key Performance Indicators / Outcomes: product, service, process, business model and long-term network development.

b. Driving Force

Innovation is related to knowledge creation and sharing activities within and between organizations, such as the exploration and introduction of new products, new production methods, new markets, new sources of supply, and new industrial organizations. Internet of Things, big data, 3D printing and other advanced technologies of the Industrial Revolution 4.0 are increasingly reflecting and enabling the development of the sharing economy with features of creativity, small company participation and community engagement (Trott, 2017). At the same time, the sustainability feature is an important consideration due to the social and environmental impacts of production and economic activities. Companies are now considering sustainable features in their product innovation, process technology and supply chain. Through approaches such as reducing energy consumption, investing in recycling and engaging in community activities, the Company's brand and image can be better recognized by customers, which in turn brings benefits to the Company in a sustainable manner.

Proactively considering continuous innovation in the financial services industry can be linked to digital transformation resulting in new product and process designs, enabling companies to respond to new sustainability pressures and challenges while also taking advantage of existing opportunities. Externally, supply management, ethical sourcing, and strong customer relationships can also lead to impactful (and beneficial) innovations for institutions and society. The flow of digitalization in the world of economics and Finance has changed the behavior of economic agents. Now people are increasingly demanding financial services that are fast, cheap, and safe. The interaction pattern between economic actors, both as consumers and as factors of production, is also out of the ordinary. The world is heading for a new normal that is no longer the same as what we know. Digitalization is a new genre we need to understand and reap the benefits of without losing vigilance. Technological innovation is a solution that makes financial services in your hand no longer stop as mere jargon. Now everyone, male and female, young and old, rich and poor, with or without a bank account, has the same access to the world of Finance, simply with an application on a smartphone that is connected online. Digitalization opens wide doors for economic and financial inclusion opportunities for everyone (B. Indonesia, 2019). The driving force within the Company to carry out sustainable innovation can be seen from the internal and external sides in the form of operations and strategies (Dalvi et al., 2019), namely:

1) Internals
   a) Internal Operations
      - Resource Efficiency
      - Cost reduction
      - Innovation
      - Employee Attractiveness
      - Customer Attractiveness
      - Supply Chain Pressure

b) Internal Strategy
   - Sustainability Vision/Mission
   - Sustainability Road Map
   - Government Sustainability Performance

2) external
   a) Operational External
      - Competitive Advantage
      - Reputation, Brand Value
      - Regulation, Standard
      - Tax Incentives
      - Profitability
   b) External Strategy
      - Materials Analysis
      - Disclosure – Sustainability Report

c. Bank Digital Transformation Strategy

The environment is becoming increasingly uncertain due to the pressures of globalization and digitalization forces. The globalization process has been going on for a very long time. But the speed of change is different now compared to the past. Another strength of digitization is the use of the internet and the rise of Fintech. Uncertainty and strategy are integrally linked. Design is basically about how to navigate an uncertain future. If the standard approach treats uncertainty as a topic that does not need to be explored in detail, then the continuous innovation strategy considers the uncertainty framework. This framework is underpinned by the assumption that it is possible for leaders to logically identify the most relevant political, economic, social and technological factors in the environment that impact their organizations and take strategic action accordingly (Datta et al., 2021). To be successful in competing with Fintech, the Bank needs to carry out continuous innovation with a digital transformation strategy as follows:

- Compliance with Regulators
  Comply with the rules submitted by regulators, namely the government, Bank Indonesia and the Financial Services Authority
- Customer Centered
  Continuous innovation using customer-centered technology, building relationships using convert, connect and collaborate methods.
- Openness
  Collaborating with business partners, including Fintech, by applying the principle of open banking according to the blueprint of Bank Indonesia's payment system.
- Digital as Core Value
  Continuous innovation by carrying out digital bank transformation is not only carried out as project management in producing new products or carried out on a business basis by pursuing profit. Digital transformation must be the Company's principal value in doing business.

1) Comply with Government Regulations

   For the Bank's digital transformation, there are several regulations from the Financial Services Authority related to sustainable innovation that need to be complied with, including:
   - Financial Services Authority Regulation Number 51/POJK.03/2017 concerning implementing Sustainable Finance for Financial Services Institutions, Issuers and Public Companies.
   - Financial Services Authority Regulation Number 13/POJK.02/2018 concerning Digital Financial Innovation in the Financial Services Sector
2) Sustainable Finance Principles from the Financial Services Authority

   Sustainable Finance is comprehensive support from the financial services sector to create sustainable economic growth by aligning economic, social and environmental interests. The biggest challenge in implementing sustainable Finance is convincing business actors and the community that efforts to generate profits will be better and more sustainable if done by considering natural resources and social impacts on society. This is known as the principle of profit, people, and planet (3P). Thus, an initiative is needed that can change the mindset of business actors from pursuing short-term gains to long-term prosperity (Keuangan, 2021). Phase I Roadmap has resulted in several initiatives that have become the foundation for changing the mindset of business actors. First, OJK introduces eight principles of Sustainable Finance. These eight principles are the main considerations for players in the financial industry to develop their activities. Second, OJK requires players in the financial services industry to prepare reports containing the application of environmental, social and governance principles in business plans and the obligation to submit information to the public regarding the application of the Environmental, Social, Governance (ESG) principles. Third, OJK has compiled a Sustainable Business Activity Category. This category will serve as a reference for grouping the green sector for the financial industry so that it will increase the service portfolio in the development of sustainable Finance.
3) Indonesian Payment System Blueprint 2025

   The 2025 Indonesian Payment System Blueprint (BSPI) is the cornerstone for Bank Indonesia and the national payment system industry to step into the digital era, which is very different from previous generations. The digital age is inevitable and has colored the landscape of payment systems lately. The shorter technology cycle is a challenge for regulators to keep abreast of developments amid the variation, innovation, and complexity of payment systems (B. Indonesia, 2019).

   In responding to these conditions, regulators must be proactive in encouraging innovation and technology development because they can increase productivity, efficiency and inclusiveness. However, on the other hand, regulators must also be aware of the challenges and risks accompanying these innovations and technological developments. For this reason, a balanced approach (striking the right balance) between encouraging innovation and mitigating risk needs to be carried out carefully and in the right measure by making the vision of the 2025 Indonesian Payment System Blueprint (SPI) as follows:

- SPI 2025 supports the integration of the national digital economy-finance so that it guarantees the central Bank's function in the process of money circulation, monetary policy, and financial system stability, as well as encouraging financial inclusion.
- The 2025 Indonesia Payment System supports banking digitization as the main institution in the digital financial economy through open banking and the use of digital technology and data in the financial business
- Indonesia Payment System 2025 guarantees interlink between Fintech and banking to avoid shadow-banking risks through digital technology arrangements (such as APIs), business cooperation, and company ownership
- The 2025 Indonesian Payment System guarantees a balance between innovation and consumer protection, integrity and stability, as well as fair business competition through the implementation of KYC & AML-CFT, data/information/public business disclosure obligations, and the application of regtech and Supertech in reporting, regulatory and supervisory obligations
- The 2025 Indonesian Payment System guarantees national interests in the inter-country digital-financial economy through the obligation to process all domestic transactions within the country and cooperation between foreign and trained operators, taking into account the principle of reciprocity

From the vision, it appears that the 2025 Indonesian Payment System Blueprint supports the integration of the national digital economy-finance to guarantee the central Bank's function in the process of money circulation, monetary policy, and financial system stability.

d. Indonesian Banking Development Roadmap 2020-2025

Banking has a strategic role in moving the wheels of the national economy. The main function of banking in the economy is to collect public funds and channel these funds to finance production and consumption activities to encourage national economic growth. With this strategic role, strong (resilient), competitive and contributive national banking is a prerequisite for its success in supporting national economic growth. To realize this, OJK has prepared a blueprint in the form of the 2020-2025 Indonesian Banking Development Roadmap as a direction and reference for all stakeholders so that all efforts and initiatives in future banking development can be carried out in one harmonious orchestra (I. B. Indonesia, 2020).

The 2020-2025 Indonesian Banking Development Roadmap has been prepared by taking into account the following basic considerations:

- The mandate of Law Number 21 of 2011 concerning the Financial Services Authority
- Alignment of Banking development with Government work programs, Plans
- National Long-Term Development and National Medium-Term Development Plans
- The need for strengthening and increasing banking competitiveness
- Opportunities and challenges facing banking in the digitalization era

The main objectives in the 2020-2025 Indonesian Banking Development Roadmap are:

1) Strengthening structure & competitive advantage, among others, by:
   - Increase capital
   - Accelerating consolidation and strengthening of bank business groups
   - Strengthen the implementation of governance and efficiency
   - Drive product and service innovation
2) Digital transformation acceleration
   - Strengthening IT Governance and Risk Management
   - Encouraging the use of IT Game Changers (Open API, Cloud, Blockchain, AI, Super App, Omnichannel)
   - Encouraging cooperation related to technology.
   - Encouraging the implementation of advanced digital banks.

To achieve this goal, a supportive, sustainable financial ecosystem is needed. OJK is currently developing an initiative to create a Sustainable Finance Ecosystem in Indonesia through collaboration with relevant ministries and institutions. It is hoped that this ecosystem will be able to encourage the implementation of sustainable finance principles to reduce the impact of climate change and achieve other goals contained in the Sustainable Development Goals. In this ecosystem, the role and contribution of banking are vital in accelerating the achievement of the expected goals. Banking is expected, among others, to be able to create the instruments or tools needed to increase sustainable financing activities.

e. Implementation of Sustainable Innovation at PT. Bank Central Asia, Tbk

PT. Bank Central Asia, Tbk (BCA) is committed to implementing sustainability principles that support a harmony between business and Environmental, Social, and Governance (ESG) aspects. Amid an ongoing pandemic, a new, all-digital lifestyle has become the backbone of the national economy and banking. BCA responded to this development by improving digital-based banking services' capabilities to contribute to national economic recovery. This digital transaction is accompanied by layered data protection and IT security to mitigate the risk of cybercrime. In addition, BCA has implemented "green initiatives" in its operational activities, including digitizing work processes and implementing a green office. This significantly saves energy and paper in banking transactions and operations at BCA.

Furthermore, BCA focuses on developing a Sustainable Finance portfolio, including providing credit to the MSME sector, which continues to grow positively. BCA is also one of the pioneers in financing new renewable energy to eco-efficient products. As a joint effort and responsibility in controlling the COVID-19 pandemic, BCA, through the community empowerment program, participates in supporting the government's vaccination program through vaccination centers for workers, workers' families and the wider community. Following government regulations, BCA implements Work from Home and promotes Banking from Home. The Company also consistently assists and builds the capabilities of the 12 villages administered by BCA so that village communities can support village economic growth for the better. Overall, increased mobility, economic recovery, and various innovation breakthroughs and collaborations are a concrete form of our togetherness with all stakeholders. Engage together, act together, and Live to Engage. (PT. Bank Central Asia, Tbk, 2022) . BCA annually provides a Sustainability Report as a form of transparency in carrying out a sustainable financial business.

CONCLUSION

Bank digital transformation is a form of continuous innovation from Conventional Commercial Banks to Digital Banks. They have to think and do continuous innovation like Fintech. The digital business model is influenced by technological evolution and aims to implement digital service-oriented policies to ensure long-term business continuity. In carrying out digital transformation, it is important to form a sustainable innovation ecosystem with two interacting dimensions, namely: (1) key players/drivers: industry (companies, suppliers, competitors, etc.), universities, research and development institutions, government, users, and NGOs and (2) key performance indicators/outcomes: products, services, processes, business models, and long-term network development. The driving force in the Company to carry out sustainable innovation can be seen from the internal and external sides in the form of mutually supportive operations and strategies. The proposed digital transformation strategy for the Bank's continuous innovation is as follows: compliance with regulators, customer-centric, openness principles, and making digital a core value in business.

REFERENCES

Batunanggar, S. (2019). *Fintech development and regulatory frameworks in Indonesia*. ADBI Working Paper Series.

Bogoviz, A. V. (2020). *Complex Systems: Innovation and Sustainability in the Digital Age*. Springer.

Brief, D. (2021). *US banks closed 2,927 branches in 2021, a 38% jump*. Banking Dive. https://www.bankingdive.com/news/us-banks-close-2927-branches-in-2021-a-38-jump/617594/

Dalvi, M. G., Singh, A., Rambabu, P., Murthy, N. N., & Gosavi, N. (2019). Business Sustainability—A Study of Most Sustainable Corporations. *EMSD*, *8*, 130.

Datta, S., Roy, S., & Kutzewski, T. (2021). *Unlocking strategic innovation: Competitive success in a disruptive environment*. Routledge.

Indonesia, B. (2019). *Blueprint Payment System 2025 (2019)(Indonesian)*.

Indonesia, I. B. (2020). *Pedoman dan Strategi Audit Intern Bank*. Gramedia Pustaka Utama.

Indonesia, R. (2016). Otoritas Jasa Keuangan. *Surat Edaran Nomor*, *1*.

KEUANGAN, L. P. (n.d.). *PT BANK CENTRAL ASIA Tbk & ENTITAS ANAK*.

Keuangan, O. J. (2021). Roadmap keuangan berkelanjutan tahap II (2021-2025). *Diambil Kembali Dari Otoritas Jasa Keuangan: Https://Www. Ojk. Go. Id/Id/Berita-Dan-Kegiatan/Publikasi/Pages/Roadmap-Keuangan-Berkelanjutan-Tahap-II-(2021-2025). Aspx*.

Laucereno, S. F. (n.d.). *Ribuan Kantor Cabang Bank Tutup, Bagaimana Nasib Pegawai?* Finance.Detikcom. https://finance.detik.com/moneter/d-6102135/ribuan-kantor-cabang-bank-tutup-bagaimana-nasib-pegawai

Liu, Z., & Stephens, V. (2019). Exploring innovation ecosystem from the perspective of sustainability: Towards a conceptual framework. *Journal of Open Innovation: Technology, Market, and Complexity*, *5*(3), 48.

McMillan, J. (2014). *The End of Banking: Money, Credit and the Digital*.

Osburg, T., & Lohrmann, C. (2017). *Sustainability in a digital world*. Springer.

Pînzaru, F., Dima, A. M., Zbuchea, A., & Vereș, Z. (2022). Adopting Sustainability and Digital Transformation in Business in Romania: A Multifaceted Approach in the Context of the Just Transition. *Amfiteatru Econ*, *24*, 28–45.

Simatupang, H. B. (2019). Peranan perbankan dalam meningkatkan perekonomian indonesia. *JRAM (Jurnal Riset Akuntansi Multiparadigma)*, *6*(2), 136–146.

Trott, P. (2017). *Innovation management and new product development*. Pearson education.

Wahyuddin, W., Arfandi, S. N., Pakpahan, A. F., Hariningsih, E., Mashud, M., Hasan, M., Purba, B., Gustiana, Z., Jamaludin, J., & Fuadi, F. (2022). *Financial Technology: Sistem Keuangan Digital*. Yayasan Kita Menulis.