The current issue dan full text archive of this journal is available at
https://e-journal.unair.ac.id/jraba/index
Jurnal Riset Akuntansi dan Bisnis Airlangga Vol. 9 No. 1 (2024) 74-94 ISSN 2548-1401 (Print) ISSN 2548-4346 (Online)

Model Of Digital Transformation in Banking Sector

Vebtasvili Vebtasvili*[1]

ABSTRACT

Digital transformation has become the foundation for building policy, organizational, and HR transformations. The paper estimates a model of digital transformation in banking sector reflect on the phenomenon, the literature from multiple fields, and case studies. The data is used from the case of The Financial Services Authority (OJK) and Bank Indonesia. The finding shows that the internal factors, external factors, and risks could determine whether the implementation of the digital transformation model succeeds. There are still many improvements to integrate overall and work for the digital transformation.

Keywords: model, digital transformation, banking sector, Indonesia

ABSTRAK

Transformasi digital menjadi landasan dalam membangun transformasi kebijakan, organisasi, dan SDM. Makalah ini memperkirakan model transformasi digital di sektor perbankan mencerminkan fenomena tersebut, literatur dari berbagai bidang, dan studi kasus. Data yang digunakan adalah kasus Otoritas Jasa Keuangan (OJK) dan Bank Indonesia. Temuan menunjukkan bahwa faktor internal, faktor eksternal, dan risiko dapat menentukan keberhasilan penerapan model transformasi digital. Masih banyak perbaikan yang harus diintegrasikan secara keseluruhan dan berupaya menuju transformasi digital.

Kata Kunci: **model, transformasi digital, sektor perbankan, Indonesia**

ARTICLE INFO

***Article History*:**

Received: 31 March 2024

Accepted: 22 May 2024

Available online: 31 May 2024

Introduction

Industry structure is blurring, and dynamic abilities are taking on a new character in high-velocity markets. They are basic, experiential, and unstable procedures that use rapidly generated new information and iterative execution to deliver adaptable but unexpected results. Finally, well-known learning processes drive the growth of dynamic capacities and explain route dependency (Eisenhardt and Martin 2000; Eisenhardt and Graebner 2007).

Technological advancements have enabled the emergence of several new digital-based business models, which are significantly more efficient and innovative, bringing opportunities and challenges that require proper management. Digital transformation exists in the Industrial Revolution 4.0. With the movement of digitalization, people can now perform economic and financial activities regardless of time and space. Economic transactions can be performed in any place, at any time, and from anywhere. Companies need to change and meet the needs that arise due to digital transformation in the economic and financial activities for the survival of their business. The industrial revolution 4.0 has spread to the banking sector. The revolution demands banks to adapt and conduct changes (Otoritas Jasa Keuangan 2021).

Drawing on prior work, digital transformation in various sectors enhances understanding and encourages future study by proposing strategic imperatives and a research agenda. It is important to study the confluence of many subjects rather than focusing just on one to understand existing information better.

[1] Correspondent Author : Universitas Bangka Belitung, Bangka, Telp. Email: vebtas@gmail.com ; vebtasvili@ubb.ac.id

DOI: https://doi.org/10.20473/jraba.v9i1.56487

Jurnal Riset Akuntansi dan Bisnis Airlangga Vol. 9. No. 1 (2024) 74-94
ISSN 2548-1401 (Print) ISSN 2548-4346 (Online)

A cross-disciplinary exchange of knowledge aids in understanding the strategic imperatives of digital transformation, which covers numerous functional domains such as marketing, information systems, innovations, strategy, and operations management. Treating digital transformation in functional terms conveys payments into profits. Practitioners must integrate insights from information systems, marketing, strategic management, innovation, and operations management to make sound organizational-wide decisions about responding to digital technologies and implementing digital organizational changes (Verhoef et al. 2021).

A multidisciplinary conversation is essential given the nature of digital transformation, which incorporates changes in organization, strategy, information technology, supply chains, and marketing. In today's business world, managers are increasingly challenged to respond to the emergence of new digital technologies that blur market boundaries and alter agent roles (for example, customers become co-producers, competitors become collaborators, and firms vertically integrate or bypass existing parties). To provide managerial guidance for digital transformation, we need to understand how firms can gain a sustainable competitive advantage by leveraging specific resources, adopting winning strategies, and changing internal organizational structures (Verhoef et al. 2021).

Digital transformation has become the foundation for building policy transformation, organizational transformation, HR transformation, and work culture as long as this continues to be done (Bank Indonesia 2023). Digital transformation leads to banking sector stability, while bank competition results in banking sector fragility (Khan and Ahmed Khattak, 2024). Commercial banks' production efficiency has improved significantly due to digitalization investments; nonetheless, variation exists between banks (Zuo et al. 2021).

Banks need to utilize big data properly. In the past several years, data availability has increased by double on average every year. The volume of data in 2020 was predicted to be approximately 40,000 exabytes. Big data needs to be better utilized by banks to improve the quality of their products and services. Big data is the most effective way to obtain and analyze customers' behavior, including potential customers. Using big data will also enable Banks to detect anomalies or suspicious behavior, determine the cause of issues and failures, and take swift and corrective actions to improve effectiveness and efficiency.

Banks are able to choose either to embrace changes by using the opportunities that technology offers through making interactions with the greater ecosystem of market participants and other service providers or to take a defensive position by concentrating on the development of competitive solutions to all customer and product segments and putting limitations on access to their systems (Rahimi et al. 2022). According to Diener and Špaček (2021), digital transformation prioritizes strategy and management, technology and regulation, consumers, and employees. Greek bank executives plan specific instructional events to help their personnel shift to the new digital environment. Executives are interested in whether staff are ready to adopt and integrate digitization into their regular work routines (Kitsios et al. 2021a; 2021b; 2021c). The critical role of workers' skills and stakeholders' digital experience in overcoming limitations is to

DOI: https://doi.org/10.20473/jraba.v9i1.56487

Jurnal Riset Akuntansi dan Bisnis Airlangga Vol. 9. No. 1 (2024) 74-94
ISSN 2548-1401 (Print) ISSN 2548-4346 (Online)

contribute to improving management and human resource policies to solve DT in the banking sector.

Banks need to collaborate with other digital businesses, such as e-commerce, big tech, fintech, ride-hailing, and online media. The new collaborations will bring many benefits for both the banks and their customers. For Banks, the collaborations will bring the opportunity to increase the innovation of available products, including the channels to distribute their services to a more widespread general public. In addition, the collaborations will make it easier for customers to access banking products and services wherever and whenever necessary (Otoritas Jasa Keuangan 2021).

There are limited empirical data on Banking with different topics, such as service quality (Joseph et al. 1999), banking risk (Apostolic et al. 2009), sustainable business model (Yip and Bocken 2018), finance digitalization to finance and banking industry (Khairina 2022), e-services ((Kitsios et al. 2021a; 2021b; 2021c), direct banking by the customer in the retail banking industry (Filotto et al. 2021) and digital transformation process (António Porfírio et al. 2024). Technological and digital innovation has significant strategic implications for companies by altering the competitive setting and the market dynamics in the financial sector. Various research, such as in a model of digital transformation in financial services providers (Chanias et al. 2018), in creative industry (Li 2020), and sustainable financial service systems (Rahimi et al. 2022).

In a world where ICT is evolving and the implementation and application of networks and IoT is advancing, ICT is being utilized to its full potential in the manufacturing sector, such as in Germany's "Industry 4.0", the United States' "Advanced Manufacturing Partnership", China's "Made in China 2025", and Japan "Society 5.0". Such initiatives to drive change in the so-called fourth industrial revolution are now being implemented through government-private partnerships.

Japan has implemented the future society of the Society 5.0. Society 5.0 was described as a human-centered society that balances economic development and resolves social issues through a system that highly integrates cyberspace and physical space. It aims to ensure the people's safety and security with sustainability and resilience. A society in which each individual can achieve diverse well-being (Cabinet Office, 2015; Rojas et al., 2021).

Society 5.0 provides opportunity to develop new systems and processes. These include technological, economic, geopolitical, and psychological shifts. By integrating cyber and physical places, digital transformation will significantly impact several sectors of society, including private life, public administration, industrial structure, and employment. Integrating physical and internet involves storing vast amounts of information (big data) from sensors in physical environments in cyberspace. Big data is evaluated using AI algorithms and displayed to users via audiovisual devices like screens or speakers.

In this paper, by building on theory from literature, our purpose is to estimate a model of digital transformation in banking sector reflect on the phenomenon, the literature from multiple fields, and case studies. We use the data from the case of The Financial Services Authority (OJK) and Bank Indonesia.

DOI: https://doi.org/10.20473/jraba.v9i1.56487

Jurnal Riset Akuntansi dan Bisnis Airlangga Vol. 9. No. 1 (2024) 74-94
ISSN 2548-1401 (Print) ISSN 2548-4346 (Online)

Literature review

Dynamic Capabilities in High-Velocity Market

Table 1 explains dynamic capabilities in high-velocity markets (Eisenhardt and Martin 2000), which are divided into five main aspects: market definition, pattern, execution, outcomes, and key to effective evolution.

Table 1. Dynamic Capabilities in High-Veloccity Market

	High-velocity market
Market definition	Ambiguous industry structure, fluid business models, blurred boundaries, shifting players, nonlinear and unpredictable change, the more crucial aspect of evolution is selection, not variation. Selection is difficult because it is challenging to figure out which experience should be generalized from the extensive situation specific knowledge that occurs.
Pattern	Simple, experiential routines that rely on newly created knowledge specific to the situation.
Execution	Iterative Effective implementation necessitates understanding both the ingredients, important similarities of capabilities, and the recipe such as sequence of implementation).
Outcomes	Unpredictable Dynamic capabilities rely extensively on new knowledge created for specific situations. Routines are purposefully simple, allowing for emergent adaptation, although not completely unstructured.
Key to effective evolution	Carefully handled selection learning can be excessively quick. The decision of what to keep from experience is more important. Timing and loosely organized organization result in a sequence of unexpected benefits. The strategic rationale is opportunity; the imperative is when, where, and how frequently to change.

Joseph et al. (1999) assessed the impact of service quality in the Australian banking industry. The six highlighted variables are convenience/accuracy, feedback/complaint management, efficiency, queue management, accessibility, and customization. According to the Importance-Performance grid, banks that provide electronic banking should focus on many areas:

1) Banks should issue statements for all electronic transactions. Users allow to check the accuracy of all transactions, including transaction confirmation.
2) Banks should increase access to electronic services. Installing new ATMs and EFTPOS stations is a key issue for customers, but it is not being addressed adequately.
3) Banks should offer a toll-free helpline for their consumers. This hotline may receive consumer complaints and general feedback on electronic banking services. Customers would not only benefit from this free service,

DOI: https://doi.org/10.20473/jraba.v9i1.56487

Jurnal Riset Akuntansi dan Bisnis Airlangga Vol. 9. No. 1 (2024) 74-94
ISSN 2548-1401 (Print) ISSN 2548-4346 (Online)

but banks would also get valuable insights into upcoming technological developments.

4) Banks should improve ATM security by lighting them brightly at night.
5) Banks should upgrade their technical facilities to assist the elderly and disabled. ATMs that read aloud the keys pushed would help the visually impaired and lower the height of ATM screens, making the service more accessible to wheelchair users.
6) Banking managers should prioritize resource allocation based on performance outcomes. Queue management is in the possible overkill quadrant, indicating that management views it as more important than customers. Banks may benefit from allocating some resources to address the issue of "accessibility".

Yip and Bocken (2018) researched the sustainable business model in Hongkong Banking and interviewed 15 bank bankers of 15 Banks. Sustainable business model archetypes for banks are divided into three sections: technological, social, and organizational. Then, they are divided into eight sub-sections, as included in Table 2.

Table 2. The Archetype of The Eight Financially Sustainable Business Model

The archetype of the eight financially sustainable business model	Difference from banking business model
1. Maximize material and energy efficiency	Banks want to pursue a comprehensive strategy to optimize material and energy efficiency rather than a piecemeal approach.
2. Substitute with digital processes	Banks continue to innovate with digital procedures for client engagement, aiming to reduce or eliminate traditional branch networks through fintech.
3. Encourage sufficiency	Banks abandon the "selling more" approach in favor of exceptional services/products tailored to the specific demands of their clients.
4. Adopt a stewardship role	In addition to standard CSR initiatives, banks often use a shared value method to leverage and benefit their main business, such as re-employing retiring employees part-time.
5. Inclusive value creation	Banks benefit from assisting the underprivileged, who may eventually become loyal clients. Furthermore, it implies greater business in the short term, provided the risk is manageable.
6. Repurpose for	Banks segment their business more

DOI: https://doi.org/10.20473/jraba.v9i1.56487

Jurnal Riset Akuntansi dan Bisnis Airlangga Vol. 9. No. 1 (2024) 74-94
ISSN 2548-1401 (Print) ISSN 2548-4346 (Online)

society/environment	correctly based on sustainable enterprises rather than utilizing the present negative screening technique.
7. Resilience in loan granting	Banks utilize a more thorough method to identify unsustainable borrowers in all aspects, including commercial and personal consumers.
8. Sustainable financial products Asset	Banks provide consumers with innovative financial platforms to address the rising market need for sustainable enterprises.

António Porfírio et al. 2024 investigated the digital transformation process factors affecting digital transformation in banking. Based on the literature research, an interview script was created for semi-structured interviews with four board members from Portugal's banking industry. These interviews revealed that it was critical to fine-tune the questions used to complete questionnaires with 50 banking employees, with the goal of understanding their perceptions of the main factors affecting DT in the Portuguese Banking System in accordance with the expected outcomes of this process, which are increased organizational performance and business volumes. Fifty banking employees representing 18 banks and financial institutions operating in Portugal, including banks with different dimensions and operating in different market segments (commercial banks, investment banks, national and foreign banks, financial credit institutions, etc).

From the interviews and supporting the main results of the literature review, digital transformation is a holistic process that comprehends changes at internal and external levels, encompassing: i) internal factors such as budget issues, communication levels, employees' levels of comprehension, and understanding, or their job tenure; and ii) external elements such as regulations and compliance, general levels of people's digital experience, market and competitiveness difficulties, or technological readiness level; and iii) employee attributes such as age, gender, education, or job tenure.

Digital Transformation in the Banking Sector

There are various key drivers of digital transformation in the banking sector (Khairina 2022). These drivers include technological advancements, changing consumer behaviors and expectations, increased market potential for digital banking, and the need for banks to maintain and increase their market share in the digital era. Strategies for implementing digital transformation in banking to implement digital transformation in banking, strategies include developing and offering digital banking products and services, improving the skills of employees for future growth, using data analytics and cloud computing to enhance operational efficiency, adopting a customer-centric approach, and aligning digital transformation initiatives with the overall business strategy of the bank.

Khan and Ahmed Khattak (2024) explore the rapid advancement of digital transformation in the banking sector and its implications on financial stability.

DOI: https://doi.org/10.20473/jraba.v9i1.56487

Jurnal Riset Akuntansi dan Bisnis Airlangga Vol. 9. No. 1 (2024) 74-94
ISSN 2548-1401 (Print) ISSN 2548-4346 (Online)

There has been a significant increase in investment in financial innovation, indicating a strong momentum in the industry towards technological modernization. While new applications such as cryptocurrencies and mobile trading present opportunities, there is also an ongoing debate among regulators about the potential risks to financial systems due to this digital shift. The paper acknowledges a lack of comprehensive research on the overall impact of digital transformation on financial stability and strives to address this gap. It discusses how digital transformation can reduce the threat of financial instability through mechanisms like decentralization and improved efficiency but also notes the need for further investigation into this area.

The operational risk category in Banking is categorized into six aspects: systems risk, external risk, internal process risk, legal risk, people risk, and business risk (Apostolik et al. 2009), as in Table 3.

a. System risk is associated with the use of computer technology and computer systems. Every bank relies significantly on computers to support their day-to-day operations. In reality, modern banks cannot function without computer technology. The following are potential causes of technology-related system risk events:
b. Data corruption. An electrical surge affects data while it is being processed.
c. Insufficient project control. Failure to prepare effectively may have an impact on the quality of a computer-generated risk report.
d. Programming errors. Computer models might be unintentionally configured to produce erroneous results.
e. Overuse of "black box" technologies. This is an issue when users assume that the computer system's internal mathematical models are precisely without properly examining the problem and its solution from a conceptual or qualitative standpoint and without thoroughly stress-testing the system.
f. Service interruption(s). An electrical breakdown prevents you from accessing reports.
g. System security issues. Computer infections and hacking are becoming increasingly dangerous.
h. System suitability. System hardware may be insufficient to manage large traffic levels, causing failures or producing erroneous results.

The external risk associated with events beyond the bank's direct control. External risk events are rare, but when they occur, they may considerably impact a bank's operations, warranting broad public attention. Such external occurrences include large-scale robberies, fires, natural catastrophes, riots, and civil unrest.

a. Events at other banks can have an influence on the sector as a whole, such as widespread closures or bank runs.
b. External fraud and theft.
c. Terrorist attacks.
d. Interruptions in transportation systems may hinder bank employees from arriving on time for work.

DOI: https://doi.org/10.20473/jraba.v9i1.56487

Jurnal Riset Akuntansi dan Bisnis Airlangga Vol. 9. No. 1 (2024) 74-94
ISSN 2548-1401 (Print) ISSN 2548-4346 (Online)

Internal process risk is the risk that a bank's processes or procedures may fail. Personnel at a bank will adhere to predefined protocols and rules when carrying out day-to-day operations. Corporate policies and procedures provide the checks and controls required to ensure that clients receive acceptable service and that the bank follows the laws and regulations governing its operations.

The examples of internal process risk include:

a. Lack of control. Failure to audit recorded transactions inside and between bank and customer accounts.
b. Marketing mistakes. The bank claims that a service has a certain feature—a checking account with free checks for the life of the account—that is not genuinely available.
c. Money laundering: Engaging in a transaction or series of transactions to disguise the origin, ownership, and/or destination of money.
d. Documentation and reporting. The bank's regulators' reports are not accurate or complete, and the account opening documentation is wrong or inadequate.
e. Transaction error. Suppose a teller attaches an extra zero to a deposit, resulting in GBP 2,000 instead of GBP 200.
f. Internal fraud. Employees engage in intentional action to profit themselves or the bank at the expense of customers, clients, or the bank itself.

Table 3. Operational Risk Category in Banking

Operational Risk Category	
Systems risk	Computer, technology, and system failures Continuity planning
External risk	External occurrences, such as terrorist attacks or natural disasters, may have a negative impact on the bank.
Internal process risk	Failures in the bank's operations and procedures Challenges include insufficient control
Legal risk	Uncertainty about legal action Uncertainty about rule and regulation application
People risk	Possible issues include employee errors and fraud
Business risk	Potential loss due to deterioration in the bank's competitive position

Legal risk is the uncertainty that surrounds legal operations, such as the application or interpretation of contracts, laws, or regulations. Legal risk differs significantly from nation to country; in certain cases, legal risk arises from loosely drafted laws, which can lead to dubious legal interpretation. Laws enacted in the EU or the United States regularly transcend borders, potentially limiting a bank's international banking activities. Legal risk has emerged as a significant risk as a

DOI: https://doi.org/10.20473/jraba.v9i1.56487

Jurnal Riset Akuntansi dan Bisnis Airlangga Vol. 9. No. 1 (2024) 74-94
ISSN 2548-1401 (Print) ISSN 2548-4346 (Online)

result of the global adoption of complicated anti-money laundering, antiterrorism, and consumer data protection regulations.

Research Method

This research used a qualitative research method, which compromised a literature review from previous investigations (Eisenhardt and Martin 2000; Eisenhardt and Graebner 2007), online references, documentation books, and case study research. A qualitative technique based on interpretative in-depth case study research is used to investigate the implementation of digital transformation. Interpretive case study research aims to comprehend both the context and process of digital change. We argue that this research methodology is acceptable for the topic.

Building theory from case studies entails utilizing one or more examples to develop theoretical framework assertions and/or build theory based on empirical data. Case studies are thorough empirical descriptions of individual instances of a phenomenon, often based on a variety of data sources. Theory building with case studies is popular and important because it is one of the most effective (if not the best) bridges between rich qualitative data and mainstream deductive research. The inductive case study is similar to traditional deductive research in that it focuses on developing constructs, measurements, and testable theoretical claims (Eisenhardt and Graebner 2007; Wolfswinkel et al. 2013).

The organization we chose fitted this requirement. Our chosen company met this condition. The Financial Services Authority (OJK) was established to ensure that overall financial services activities are organized, fair, transparent, and accountable, that the financial system enlarges in a sustainable and stable manner, and that consumer and societal interests are protected. The organization's regulatory and supervisory responsibilities include financial services operations in the banking, capital markets, and non-bank financial industry sectors.

The legislation established micro-prudential regulation and supervision under the authority of OJK and macroprudential regulation and supervision under the responsibility of Bank Indonesia, with the goal of achieving financial system stability (Otoritas Jasa Keuangan 2021).

Result and Discussion

The results and discussion are divided into two main parts: a model of digital transformation in banking sector and a case of The Financial Services Authority (OJK) and Bank Indonesia.

Model of Digital Transformation on Banking Sector

Figure 1 explains the model of digital transformation in banking sector. It begins with internal factors, such as employee skills and competencies. To master the digital transformation, the organization should upskill and reskill the employees to understand and interact with the digital world. Besides that, the employee should have an agile mindset and be open to learning continuously because the employee should increase their competencies to align with the organization's goals. After that, the employee needs the communication skills to

DOI: https://doi.org/10.20473/jraba.v9i1.56487

Jurnal Riset Akuntansi dan Bisnis Airlangga Vol. 9. No. 1 (2024) 74-94
ISSN 2548-1401 (Print) ISSN 2548-4346 (Online)

collaborate in cross-functional sections. Every section is important and needs to collaborate to reach the goals and compete in competitive advantage.

The employee skills and competencies can be upgraded by first upskilling and second reskilling. In the rapidly evolving digital landscape, employees must continually acquire new skills. Organizations should invest in training programs that improve digital literacy, data analytics, cybersecurity, and adaptability. Second, Agile Mindset. Employees need to embrace change and be open to learning. An agile mindset allows them to respond swiftly to technological shifts and contribute effectively to DT initiatives. Third, Cross-Functional Collaboration. Encourage collaboration across departments. Employees with diverse expertise can collaborate on innovative solutions, bridging gaps between technology and business functions.

We should know the personal characteristics of banking employees, such as age and education. It is essential and relevant to increase the employee skills and competencies. The banking employees are divided into old and young employees. For digital transformation, young employees should be good in advance in the process of digital transformation application. However, the young employee still lacks skill and experience. The old employee can give advice and interact with young employees to collaborate to align the organizational goals. The communication skills of old employees are usually good, and the young employees can learn from their experience.

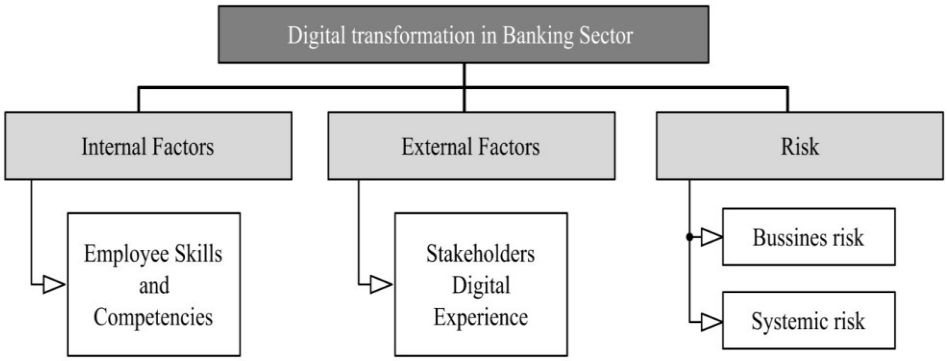

Figure 1. Model of Digital Transformation in Banking Sector

External factors are needed to implement the digital transformation. The stakeholders' digital experience is important for the organization's role. If the stakeholders have limited experience in using digitalization, it will be hard for the internal team to align its vision and mission with the organization. Therefore, the experience of the stakeholders can make the organization align with the organization's goals.

Stakeholders' digital experience can be increased such as customer-centricity, innovation, data-driven decision-making, collaboration, and open culture agility and flexibility. Customer-centricity is a digital-first culture that prioritizes customer needs. Organizations should align internal processes to simplify customer touchpoints throughout their journey. Innovation within a

DOI: https://doi.org/10.20473/jraba.v9i1.56487

Jurnal Riset Akuntansi dan Bisnis Airlangga Vol. 9. No. 1 (2024) 74-94
ISSN 2548-1401 (Print) ISSN 2548-4346 (Online)

digital culture involves exploring disruptive technologies and fostering a culture of experimentation. It encourages calculated risk-taking. Stakeholders should base decisions on data insights in data-driven decision-making. Organizations must invest in analytics tools and empower employees to make informed choices. Foster collaboration across teams. A culture of openness encourages knowledge-sharing and cross-functional problem-solving. Organizations should be agile in responding to market changes, regulatory shifts, and emerging technologies. These factors play a pivotal role in harnessing the full potential of DT and enhancing organizational effectiveness.

Risk is essential for the organization to become aware of what will happen today and in the future. Business risks will always be there whether the company likes it or not. Everyone and every organization should be prepared for the risks that happen to their organization. System risks also play an essential role in the organization. Although the internal and external factors are outstanding, they should be prepared for the system risks. If the system is an error and not running properly, then we must be ready for maintenance.

Business risk refers to the exposure a company or organization faces to factors that can lower its profits or even lead it to financial failure. Business risk encompasses everything that undermines a company's capacity to meet its financial objectives. These risks might originate from both internal and external sources.

1) Internal Factors:
   Management decisions play an essential role in a company's leadership or executive team's business choices, which can significantly impact its risk exposure. For instance, a CEO's decisions may affect profits or lead to unexpected losses. Therefore, the effectiveness of a company's strategy can influence its risk profile. A poorly devised strategy may expose the business to unnecessary risks.
2) External Factors:
   - Consumer preferences and demand: the changes in consumer tastes or demand for products/services can affect a company's revenue.
   - The economic climate is where the overall state of the economy, whether it is booming or facing a downturn, can impact business risk.
   - Government regulations, such as laws and regulations, can create business risks. Compliance with legal requirements is crucial.
   - Intense competition within an industry can threaten a company's market share and profitability.
3) Types of Business Risk:
   - Strategic risk arises from strategic decisions, market shifts, or technological changes. Mitigation involves robust planning and adaptability.
   - Compliance risk is associated with regulatory violations, and companies must adhere to legal requirements to avoid penalties.

DOI: https://doi.org/10.20473/jraba.v9i1.56487

Jurnal Riset Akuntansi dan Bisnis Airlangga Vol. 9. No. 1 (2024) 74-94
ISSN 2548-1401 (Print) ISSN 2548-4346 (Online)

- Operational risk emerges from internal processes, systems, or human error. Effective operational management is essential.
- Reputational risk can damage a company's reputation due to negative publicity or customer dissatisfaction. Therefore, building trust is crucial

4) Risk Management:
   - While it is impossible to eliminate all risks, companies can mitigate their impact through strategic risk planning.
   - Capital structure is when companies may adjust their debt ratio to ensure financial stability during revenue fluctuations.
   - The analysts calculate the risk using ratios like contribution margin, operational leverage effect, financial leverage effect, and total leverage effect.
   - Dynamic risk management happens when organizations reset their risk objectives and establish agile practices to navigate unpredictable environments. Understanding and managing business risk is essential for sustainable growth and resilience.

Systemic risk is the probability that a company-level catastrophe will cause serious instability or possibly collapse a whole sector or economy. It is similar to a domino effect; when one component falls, it can trigger a chain reaction that affects the entire system. Systemic risk means the possibility of a whole system failure rather than simply individual component failure. In the financial context, it refers to the danger of a cascade collapse in the financial sector caused by links within the financial system, which might lead to a severe economic downturn.

Companies that are considered "too big to fail" pose systemic risk. These institutions are either enormous in comparison to their particular industry or contribute significantly to the general economy. Additionally, highly interconnected companies can also be sources of systemic risk. For instance, during the 2008 financial crisis, Lehman Brothers' collapse had ripple effects throughout the financial system and economy. AIG, another example, suffered from serious financial problems due to its interconnectedness with other institutions.

The federal government often intervenes during turbulent economic times to minimize the ripple effect of a company-level event. However, sometimes, it chooses not to intervene, allowing the market to stabilize naturally. Balancing government intervention and market forces is crucial. The Dodd-Frank Act of 2010 introduced regulations to limit systemic risk by tightly regulating key financial institutions. These reforms aim to prevent another Great Recession by addressing systemic vulnerabilities. Every country has its own regulations to prevent systemic risk. In summary, systemic risk is like a delicate balance—ensuring stability without stifling growth.

Challenges in banking digitalization include the need for significant investment in technology infrastructure, ensuring data security and privacy, addressing regulatory compliance issues, and overcoming internal resistance to change. To overcome these challenges, banks can implement solutions such as

DOI: https://doi.org/10.20473/jraba.v9i1.56487

Jurnal Riset Akuntansi dan Bisnis Airlangga Vol. 9. No. 1 (2024) 74-94
ISSN 2548-1401 (Print) ISSN 2548-4346 (Online)

partnering with technology providers, adopting robust cybersecurity measures, collaborating with regulatory authorities, conducting employee training and awareness programs, and establishing a culture of creativity and adaptation within the company. As digital banking continues to evolve, cybersecurity and risk management become increasingly crucial. Banks must invest in strong cybersecurity safeguards and risk management frameworks to safeguard client data, prevent fraud, and assure the overall security of digital transactions.

Fintech businesses are important in pushing digital change in the banking industry. These companies often collaborate with traditional banks to introduce innovative digital solutions and services. Banks can accelerate their digital transformation by leveraging fintech expertise and remain competitive in the ever-changing financial sector. By addressing these aspects, organizations can create a conducive environment for successful DT. It is not just about technology but about people, processes, and culture working harmoniously toward a digitally transformed future.

Case of The Financial Services Authority (OJK) and Bank Indonesia

The Financial Services Authority (OJK), an independent entity tasked with regulating and monitoring the banking industry and protecting banking customers, is interested in improving bank performance. Indonesian banking growth must be properly managed so that banks may grow healthily and sustainably while also providing significant advantages to national economic development and public welfare (Otoritas Jasa Keuangan 2021).

The banking industry must embrace a digital transformation. The need for digital acceleration has increased in recent years owing to growing public expectations for financial services that are fast, efficient, safe, and accessible from any location. Under such conditions, banks must prioritize digital transformation as one of their methods for increasing competitiveness. Along with numerous advances in the banking industry involved in digital business strategies, the Financial Services Authority (OJK) believes that certain existing arrangements, particularly rules linked to information technology in the banking sector, require further strengthening.

The Indonesian Banking Development Roadmap 2020-2025 includes one of the pillars that will serve as policy direction: advancing digital banking transformation. This pillar is further detailed in the Banking Digital Transformation Blueprint in Tables 4 and 5. The Blueprint for Digital Banking Transformation is being produced with the notion of balance between digital banking innovation and prudential factors in mind in order to preserve sensible, safe, and sound financial performance. Furthermore, this Blueprint adheres to the technology-neutral concept, which prohibits the regulation of technical elements of technology.

DOI: https://doi.org/10.20473/jraba.v9i1.56487

Jurnal Riset Akuntansi dan Bisnis Airlangga Vol. 9. No. 1 (2024) 74-94
ISSN 2548-1401 (Print) ISSN 2548-4346 (Online)

Table 4. Master Plan for Indonesia's Financial Services Sector 2021-2025

Master Plan for Indonesia's Financial Services Sector 2021-2025	
Digital Transformation Acceleration	Driving innovation and accelerating SJK's digital transformation
	Develop arrangements that support the digital financial sector ecosystem
	Increase human resource capacity in SJK in line with the development of the digital industry
	Strengthening the role of research to support SJK's innovation and digital transformation
	Accelerating the implementation of IT-based supervision at OJK and the use of regtech by FSIs
	Conduct business process reengineering to improve the quality of licensing, regulation, and supervision

The Banking Digital Transformation Blueprint provides the Financial Services Authority's (OJK) proposed policy for accelerating Indonesian banking's digital transformation. This Blueprint is anticipated to serve as the framework for the development of digitization in national banks, making them more robust, competitive, and contributive.

The Banking Digital Transformation Blueprint includes five major factors that must be addressed during the banking digital transformation process: data, technology, risk management, cooperation, and institutional order. The Banking Digital Transformation Blueprint will serve as a more specific reference for future banking digitalization, accelerating digital transformation, as well as a policy response to numerous issues and hazards associated with banking digital transformation. Implementing this blueprint is designed to help national banks become more robust, competitive, and contributive.

Table 5. Framework for Drafting a Blueprint for Banking Digital Transformation

No	Drafting Framework Banking Digital Transformation Blueprint	Information
1	***Studies related to Banking of the Future***	In the future, the development of information technology is predicted to be able to bring the bank to evolve very quickly to can keep pace with changes in people's expectations in using banking services. Banks are predicted to experience Rapid evolution in aspects of data, business models, regulations, and technology.

DOI: https://doi.org/10.20473/jraba.v9i1.56487

Jurnal Riset Akuntansi dan Bisnis Airlangga Vol. 9. No. 1 (2024) 74-94
ISSN 2548-1401 (Print) ISSN 2548-4346 (Online)

2	***Banking Digitalization Conditions***	-Strategic Environment Analysis -Digital Maturity One of the foundations for preparing the Digital Transformation Blueprint Banking is a strategic environmental analysis and level analysis of the maturity level of digitalization and technology application information on the Indonesian banking industry, which is measured using DMAB. The results of the strategic environment analysis provide information regarding the driving factors and challenges of digital transformation. The results of the DMAB assessment can provide information on aspects that banks need to improve to accelerate digital transformation.
3	***Principles of Blueprint Preparation***	-Balance innovation and prudent, safe and sound banking -Technology neutral This Blueprint was prepared by prioritizing the main principles: "Balance" and "Technology Neutral". Balance means that this Blueprint intends to balance digital banking innovation and prudential aspects to maintain prudent, safe, and sound banking performance. Technology Neutral is not focused on the use of certain technology so that it can follow developments in the future.
4	***International Standards***	-International standards in the field of Information Technology -Regulation in various countries The Banking Digital Transformation Blueprint was prepared with pay attention to the implementation of international standards, especially in The field of Information Technology and Security includes the International Organization for Standardization (ISO), Control Objective for Information and Related Technology (COBIT), National Institute of Standards and Technology (NIST), The Open Group Architecture Framework (TOGAF), Organisation for Economic Co-operation and Development (OECD) Principle, and other international standards. In addition to referring to international standards, the preparation of Print Blue Digital Transformation Banking also adopts regulations and frameworks implemented by supervisory authorities in other countries such as Australia and the European Union with fixed adjust to the conditions and characteristics of national banking.
5	***Best Practices***	Banking Industry Practices The preparation of the Banking Digital

DOI: https://doi.org/10.20473/jraba.v9i1.56487

Jurnal Riset Akuntansi dan Bisnis Airlangga Vol. 9. No. 1 (2024) 74-94
ISSN 2548-1401 (Print) ISSN 2548-4346 (Online)

		Transformation Blueprint refers to the Best International Banking Industry Pratices for Get a broader picture of practices best banking industry especially in countries that have experience in digital transformation of banking industry By taking into account national banking conditions.
6	***Stakeholder Feedback***	In the process of preparing the Digital Transformation Blueprint Banking, discussions, and discussions with various parties and all relevant stakeholders to capture aspirations or obtain constructive input that is then used for the preparation of the initial design of the main point of the Blueprint. Next, the initial concept of the Blueprint The Digital Banking Transformation that has been prepared is discussed again with all relevant stakeholders, to obtain input in order to improve and finalize this Blueprint.
7	***Harmonization with Policy/ Regulation of relevant authorities***	Digital transformation of the Indonesian economy, especially transformation of The digital financial and banking services sector, involves several relevant regulators/authorities who have the appropriate authority his duties and responsibilities. For example, Bank Indonesia is interested in drafting regulations related to the system's temporary payments. The State Cyber and Encryption Agency has Interest in developing national security-related strategies cyber. Banking as part of the digital ecosystem. Of course, it is necessary to comply with various regulations issued by these various regulators/authorities. Thus, harmonizing policies issued by various regulators/authority with policies to be set forth in Print Blue Banking Digital Transformation becomes necessary to implement this Blueprint smoothly.

The strategic area of Digital Transformation in Bank Indonesia is categorized into three main aspects: digitalization, end-to-end data management, and modem and user-centric technology. The main strategic is explained in Table 6 below.

DOI: https://doi.org/10.20473/jraba.v9i1.56487

Jurnal Riset Akuntansi dan Bisnis Airlangga Vol. 9. No. 1 (2024) 74-94
ISSN 2548-1401 (Print) ISSN 2548-4346 (Online)

Table 6. Strategic Area and Main Strategic of Digital Transformation in Bank Indonesia

Strategic Area and Main Strategic	
Digitalization	Policy & Institutional
Digital Business Platform supports	1. Development of SP and FMI Infrastructure that is 3i ready (domestic and cross border) 2. Digital Rupiah Development 3. Development of Digital Process Reengineering and Hybrid Working Platform 4. IS development supports the digitization of business processes, policies and other institutions
End to End Data Management	
Omni Data Intelligence	1. Development of content and data services 2. Development of analytical applications Use Case Solutions supporting the Decision-Making Process 3. Development of infrastructure for data analysis facilities 4. Strengthening Effective, Efficient, Govern (2EG) Data Governance 5. Development of data literacy competencies
Modem & User Centric Technology	
Resilient Digital Infrastructure	1. 3-DC infrastructure development: Active-Active-Passive 2. Agile, Resilient, Intelligent infrastructure development 3. Provision of Digital Workplace infrastructure that Supports Hybrid Working 4. Development of an integrated SI security infrastructure based on analytical data 5. Provision of Sandboxing Infrastructure

Strategies for Successful Digital Transformation in Banks

Successful digital transformation in banks requires a multipronged approach that addresses various aspects of the business. Firstly, banks need to prioritize customer-centricity by understanding and meeting the evolving needs of digital-savvy consumers. This involves developing intuitive digital banking products and services that provide seamless user experiences across different channels.

Additionally, Adopting a new technology in the banking business is critical to remain ahead in the digital world. This might involve investing in new technologies like blockchain for solid transactions, artificial intelligence for customized services, and cloud computing for scalability and flexibility.

DOI: https://doi.org/10.20473/jraba.v9i1.56487

Jurnal Riset Akuntansi dan Bisnis Airlangga Vol. 9. No. 1 (2024) 74-94
ISSN 2548-1401 (Print) ISSN 2548-4346 (Online)

Evaluating the security aspects of digital banking is paramount. Banks must ensure that robust cybersecurity measures are in place to protect customer data, prevent unauthorized access, and mitigate potential threats and vulnerabilities. Furthermore, exploring case studies of success stories in digital banking transformation can provide valuable insights for banks. Banks can gain practical knowledge and best practices to apply within their organizations by studying how other institutions have navigated their digital transformation journey. Incorporating these strategies will enable banks to adapt to the changing landscape of digital banking, thrive, and excel in delivering innovative and secure financial services to their customers.

Digital Barrier

Digital Transformation in Society 5.0 allows the development of new systems and processes. These include technological, economic, geopolitical, and psychological shifts. By integrating cyber and physical places, digital transformation will significantly impact several sectors of society, including private life, public administration, industrial structure, and employment. Integrating physical and the internet involves storing vast amounts of information (big data) from sensors in physical environments in cyberspace. Big data is evaluated using AI algorithms and displayed to users via audiovisual devices like screens or speakers (Cabinet Office, 2015).

In Society 5.0, social processes and data must be distributed in manners that would allow for developing smarter solutions, designing living methods, and establishing a society where diversity is valued. However, there are some digital barrier in Indonesia to apply the digital transformation in banking. For example, in the cities and regions in Java Island has fast and great infrastructure in ICT, yet the infrastructure in ICT for Sumatera have limitation for infrastructure in ICT. Some regency often has limited access for internet and limited network.

The Indonesian government faces various challenges in upgrading its physical infrastructure to serve the banking sector. This situation necessitates a significant investment in expanding internet networks, increasing data transmission device capacity, and implementing high-speed communication regulations. Indonesia is a broad region; thus, wireless communication technology, such as 5G technology or satellite communication, is ideal for developing and strengthening high-speed data communication networks (Santosa & Sumantyo, 2021).

The technological leap from 4G to 5G in Java Island is growing rapidly. However, some regencies in Sumatera Island do not get a signal to access the internet. Suppose the Quick Response Code Indonesian Standard (QRIS) system for payment is applied in some regencies that do not have the signal to access the internet, so it could not be applied. QRIS system uses QR Codes. Rural areas usually still use a cash system for payment. The process is complex and requires significant improvements.

DOI: https://doi.org/10.20473/jraba.v9i1.56487

Jurnal Riset Akuntansi dan Bisnis Airlangga Vol. 9. No. 1 (2024) 74-94
ISSN 2548-1401 (Print) ISSN 2548-4346 (Online)

Conclusion

The digital transformation models in the banking sector are related to implementation. There are still challenges to adopting and steps to take to succeed in digital transformation. The result of the internal factors, external factors, and risks could determine whether the implementation of the digital transformation model succeeds. There are still many improvements to integrate overall and work. The key to digital transformation is to provide an effective, efficient, accountable, and transparent system with high accuracy and speed for flexibility in all processes.

References:

António Porfírio, José, José Augusto Felício, and Tiago Carrilho. 2024. "Factors Affecting Digital Transformation in Banking." Journal of Business Research 171 (January). https://doi.org/10.1016/j.jbusres.2023.114393.

Apostolik, Richard, Christopher Donohue, and Peter Went. 2009. Foundations of Banking Risk: An Overview of Banking, Banking Risks, and Risk-Based Banking Regulation. New Jersey, US: John Wiley & Sons, Inc.

Bank Indonesia. 2023. "Dari Visi Menjadi Realitas: Akselerasi Transformasi Digital Menuju Bank Sentral Digital Terdepan Untuk Indonesia Maju." Jakarta.

Cabinet Office. (2015). "Report on The 5th Science and Technology Basic Plan." https://www8.cao.go.jp/cstp/kihonkeikaku/5basicplan_en.pdf. Japan.

Chanias, Simon, Michael D. Myers, and Thomas Hess. 2019. "Digital Transformation Strategy Making in Pre-Digital Organizations: The Case of a Financial Services Provider." Journal of Strategic Information Systems 28 (1): 17–33. https://doi.org/10.1016/j.jsis.2018.11.003.

Diener, Florian, and Miroslav Špaček. 2021. "Digital Transformation in Banking: A Managerial Perspective on Barriers to Change." Sustainability (Switzerland) 13 (4): 1–26. https://doi.org/10.3390/su13042032.

Eisenhardt, Kathleen M, and Melissa E Graebner. 2007. "Theory Building from Cases: Opportunities and Challenges." Academy of Management Journal 50 (1): 25–32.

Eisenhardt, Kathleen M, and Jeffrey A Martin. 2000. "Dynamic Capabilities: What Are They?" Strategic Management Journal Strat. Mgmt. J 21: 1105–21.

Filotto, Umberto, Massimo Caratelli, and Fabrizio Fornezza. 2021. "Shaping the Digital Transformation of the Retail Banking Industry. Empirical Evidence from Italy." European Management Journal 39 (3): 366–75. https://doi.org/10.1016/j.emj.2020.08.004.

Joseph, Mathew, Cindy Mcclure Graduate, In Marketing, and Beatriz Joseph. 1999. "Service Quality in the Banking Sector: The Impact of Technology on Service Delivery." International Journal of Bank Marketing 17 (4): 182–91. http://www.emerald-library.com.

Khairina, Najwa. 2022. "Bank's Digitalization and Financial Performance during Pandemic in Indonesia." International Journal of Entrepreneurship,

DOI: https://doi.org/10.20473/jraba.v9i1.56487

Business and Creative Economy 2 (1): 1–13. https://doi.org/10.31098/ijebce.v2i1.722.

Khan, Noureen A., and Mudeer Ahmed Khattak. 2024. "Digital Transformation and the Banking Market: Friend or Foe? A Country-Level Study." Journal of Central Banking Law and Institutions 3 (1): 129–52. https://doi.org/10.21098/jcli.v3i1.167.

Kitsios, Fotis, Ioannis Giatsidis, and Maria Kamariotou. 2021a. "Digital Transformation and Strategy in the Banking Sector: Evaluating the Acceptance Rate of e-Services." Journal of Open Innovation: Technology, Market, and Complexity 7 (3). https://doi.org/10.3390/joitmc7030204.

———. 2021b. "Digital Transformation and Strategy in the Banking Sector: Evaluating the Acceptance Rate of e-Services." Journal of Open Innovation: Technology, Market, and Complexity 7 (3). https://doi.org/10.3390/joitmc7030204.

———. 2021c. "Digital Transformation and Strategy in the Banking Sector: Evaluating the Acceptance Rate of e-Services." Journal of Open Innovation: Technology, Market, and Complexity 7 (3). https://doi.org/10.3390/joitmc7030204.

Li, Feng. 2020. "The Digital Transformation of Business Models in the Creative Industries: A Holistic Framework and Emerging Trends." Technovation 92–93 (April). https://doi.org/10.1016/j.technovation.2017.12.004.

Narvaez Rojas, C., Alomia Peñafiel, G. A., Loaiza Buitrago, D. F., & Tavera Romero, C. A. (2021). "Society 5.0: A Japanese concept for a superintelligent society." Sustainability (Switzerland) 13(12). https://doi.org/10.3390/su13126567.

Otoritas Jasa Keuangan. 2021. "Cetak Biru Transformasi Digital Perbankan."

Rahimi, Mohamadtaghi, Pranesh Kumar, Mahdieh Moazzamigodarzi, and Arunodaya Raj Mishra. 2022. "Digital Transformation Challenges in Sustainable Financial Service Systems Using Novel Interval-Valued Pythagorean Fuzzy Double Normalization-Based Multiple Aggregation Approach." Environment, Development and Sustainability. https://doi.org/10.1007/s10668-022-02719-3.

Santosa, C. E., & Sumantyo, J. T. S. (2021). Digitalization in Smart Education, Society, and Workplace : A Case Study in Indonesia and Japan. The Journal of Institute of Electronics, Information and Communication Engineers, 104(9), 965–969.

Verhoef, Peter C., Thijs Broekhuizen, Yakov Bart, Abhi Bhattacharya, John Qi Dong, Nicolai Fabian, and Michael Haenlein. 2021. "Digital Transformation: A Multidisciplinary Reflection and Research Agenda." Journal of Business Research 122 (January): 889–901. https://doi.org/10.1016/j.jbusres.2019.09.022.

Vial, Gregory. 2019. "Understanding Digital Transformation: A Review and a Research Agenda." Journal of Strategic Information Systems. Elsevier B.V. https://doi.org/10.1016/j.jsis.2019.01.003.

Wolfswinkel, Joost F., Elfi Furtmueller, and Celeste P.M. Wilderom. 2013. "Using Grounded Theory as a Method for Rigorously Reviewing

DOI: https://doi.org/10.20473/jraba.v9i1.56487

Jurnal Riset Akuntansi dan Bisnis Airlangga Vol. 9. No. 1 (2024) 74-94
ISSN 2548-1401 (Print) ISSN 2548-4346 (Online)

Literature." European Journal of Information Systems 22 (1): 45–55. https://doi.org/10.1057/ejis.2011.51.

Yip, Angus W.H., and Nancy M.P. Bocken. 2018. "Sustainable Business Model Archetypes for the Banking Industry." Journal of Cleaner Production 174 (January): 150–69. https://doi.org/10.1016/j.jclepro.2017.10.190.

Zuo, Lihua, Jack Strauss, and Lijuan Zuo. 2021. "The Digitalization Transformation of Commercial Banks and Its Impact on Sustainable Efficiency Improvements through Investment in Science and Technology." Sustainability (Switzerland) 13 (19). https://doi.org/10.3390/su131911028.

DOI: https://doi.org/10.20473/jraba.v9i1.56487

Jurnal Riset Akuntansi dan Bisnis Airlangga Vol. xx. No. xx (xxxx) 974-991
ISSN 2548-1401 (Print) ISSN 2548-4346 (Online)

DOI: https://doi.org/10.20473/jraba.v9i1.56487