

Digital Banking in
Indonesia:
**The Future of
The Industry**



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01. **BANKING IN** **THE DIGITAL AGE**

BANKING IN THE DIGITAL AGE

A. Timeline of Digital Banking

An early technology in the banking industry that was very popular was the ATM. The Barclays institute made the first ATM in 1967. At first, the machine was only able to withdraw cash. Until the period 1980-1990, more advanced ATM functions began to be implemented. Such as the use of a PIN, worldwide installation.

In the same year period, 1980-1990, traces of online banking also began to appear. For example, the Bank of Scotland uses the internet via television or monitor and telephone to pay bills and transfer money. At that time, people did not commonly use computers.

The system used was based on the UK's Prestel system. Prestel is an adapter that attains a keyboard. Prestel will show the data through television or desktop. This system came to be known as Homelink, which displays reports, bank transfers, and bill payments online. To get internet access, Prestel must be connected to a telephone system or television network.

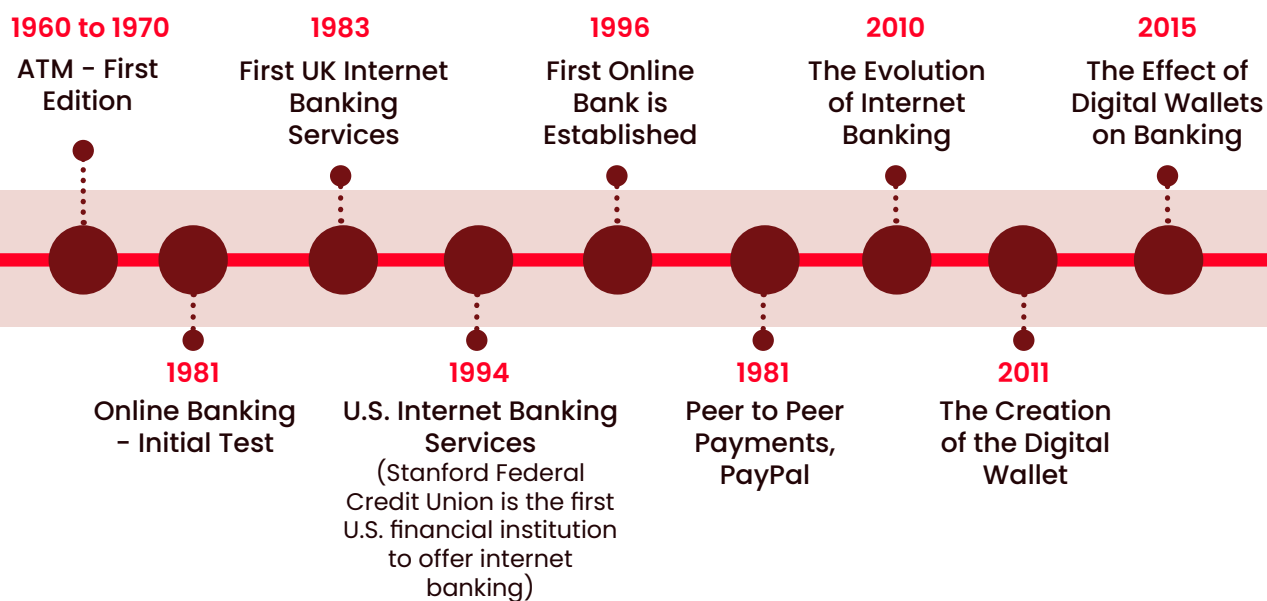
Written instructions are needed to provide details of bank transfers and bill payments. Soon the instruction will be sent to the Nottingham Building Society (NBS), which manages the details on the Homelink system. Typical recipient companies are gas, electricity, and telephone companies, and several banks.

The next period is internet banking. Stanford Federal Credit Union was the first US financial institution to offer internet banking. A year later, Presidential Bank provided customers access to their accounts online, starting a trend other banks followed. After more than a decade, internet banking has become mainstream. This development was aided by the rapid growth of the internet and cellular features.

During the growth period of internet banking, several innovations in the banking sector also emerged. 1996 The first online bank was founded, Netbank. In 1998 PayPal was founded, becoming the first independent online money transfer company. In exchange for transferring money electronically, PayPal charges a small transaction fee.

After the spread of internet banking, digital wallets began to appear, marked by Google developed it with limited access whereas the services only available on specific cell phone and merchants. Since then, digital wallet has become increasingly popular as more individuals are turning to banks or third parties that offer digital wallet. More banks are implementing their versions of digital wallets that allow their consumers to carry out almost any type of transaction at the touch of their fingertips.

Figure 01. Timeline of digital banking



B. Global Digital Landscape

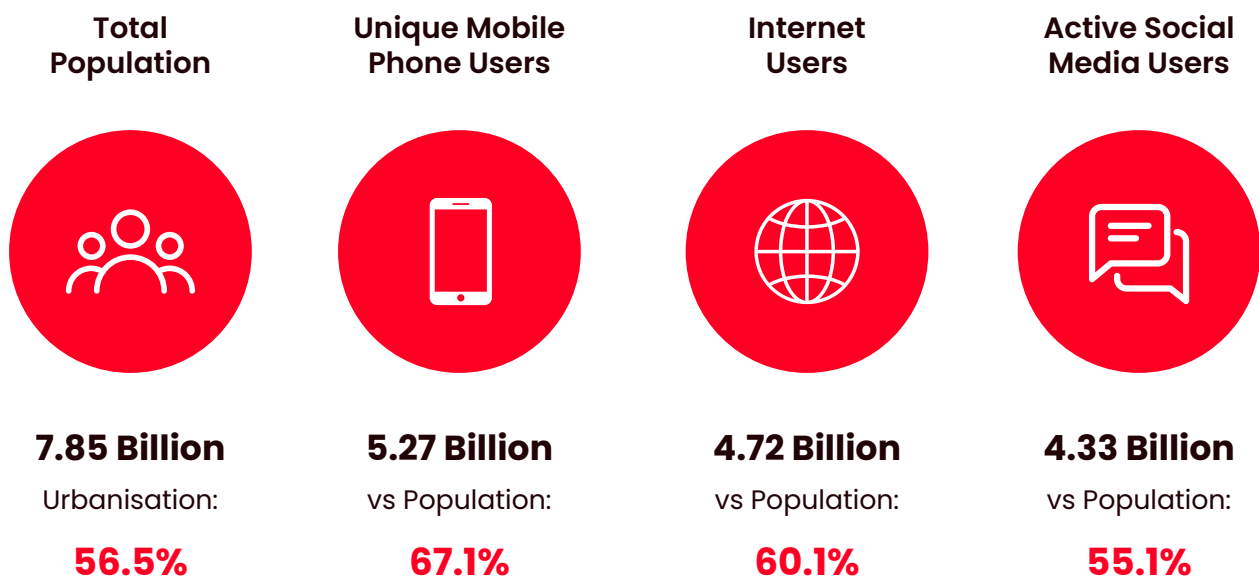
Many people are connecting to the internet for the first time as they adapt to the challenges of Covid-19. As a result, many indicators in the global digital landscape have experienced remarkable growth rates over the past 12 months. Social media delivers some of the most impressive numbers, with users increasing by more than 13% since the Global Digital Landscape 2020 report.

Nearly half a billion users joined social media in the last year and reached 4.33 billion by Q1 of 2021. However, growth is not just about the number of users. Mobile users in today's world spend more time on their phones than watching television. Smartphone users are positioning the smartphone as the 'first screen' nowadays.

E-commerce is another area that is experiencing rapid growth in 2020. Many people are turning to shop online to reduce the health risks associated with Covid-19. However, research shows that people's adoption to e-commerce usage during the lockdown will last well beyond the pandemic. More than three-quarters of the world's internet users say they buy something online every month, with the value of these purchases adding up to trillions of dollars in e-commerce revenue in 2020 alone.

Figure 02. Digital around the World (Apr 2021)

Essential Headlines for Mobile, Internet, and Social Media Use.



Source: Hootsuite

The way people discover new brands and make decisions about what to buy has also evolved. Seven out of 10 internet users say they now go beyond search engines when searching for information about products and services to buy. Meanwhile, internet connection speeds have accelerated to meet the world's growing digital demand, with the average mobile connection now nearly 50% faster than last year.

The demographics of the digital audience have also increased. Users over the age of 65 were the fastest-growing Facebook users over the past 12 months, while women aged 55 to 64 are now more likely to make online purchases than men aged 16 to 24.

C. Digital Transformation in Banking

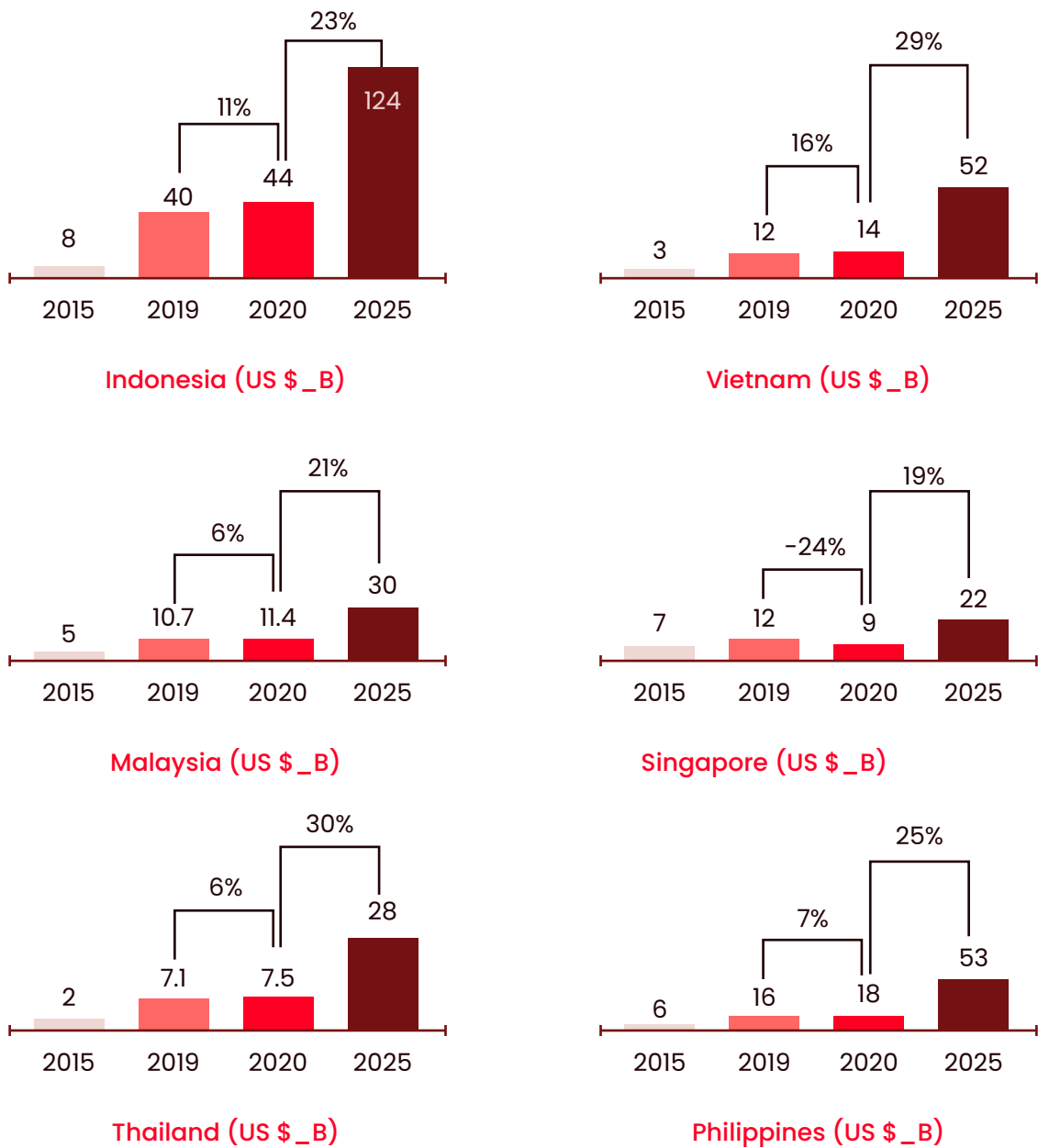
Digital growth that is almost evenly distributed throughout the world is the direct provision for the development of digital banking, including in Indonesia. However, the expansion also became a driving force for banks to innovate.

There are at least two significant aspects that drive the growth of digital banking in Indonesia. First, the growth of the digital economy led by the growth of e-commerce. Second, the development of fintech in the whole Indonesian financial ecosystem. Fintech activities have made traditional institutions such as banking participate in digital utilization.

Figure 03. SEA internet economy GMV (US \$ _B)

Vietnam and Indonesia's digital economies still growing double digits

- CAGR



Source: Google, Temasek, Bain 2020

Google, Temasek, Bain in the economy SEA 2020 record the growth of the digital economy in Southeast Asia. Indonesia is the largest market, with an average growth of 23% per year (CAGR). Despite the pandemic, this report projects that Indonesia's internet economy will reach \$124 billion by 2025. It shows the digital economy is a large ecosystem that involves contribution from many parties including banking.

The following fact is the development of e-commerce as a major contributor to the digital economy. Quoting from Katadata, there was a nominal increase in e-commerce transactions in Indonesia from 2020 to as much as 29.6%. The year 2019 recorded a figure of Rp205.5 trillion, increasing to Rp266.3 trillion in 2020. This digital-based trading business is projected to grow 33.2% from 2020, which reached Rp253 trillion to Rp337 trillion this year. The number was conveyed by the Governor of Bank Indonesia Perry Warjiyo in a virtual discussion, Friday (22/1/2021).

Based on the 2020 Dailysocial Fintech Report, the survey recorded that 70.7% of 661 respondents in Indonesia used digital wallet services, followed by paylater (45.2%), investment (28.4%), insurtech (13.0%), payday loan (12.0%), crowdfunding (5.0%), and remittance (3.8%).

The role of fintech in the financial ecosystem is a momentum for banks to innovate. Banks are heavily involved because fintechs are required to use banking services in their business processes. This is because banks are the only institutions that have existed since and have rigid regulations within the broad macro-economic framework. Several banks in Indonesia are aggressively developing their digital products to keep in track with fintech. Most major banks now provide open saving account through their mobile and digital banking application.

While digitization in banking takes place, the path of digital banks in Indonesia is starting to grow. Several major banking players and other related ecosystems are now also considering a form of digital banks instead of digitization only.

By definition, digital banking is different from banking digitization. The concept of Digital bank is generally referred to as a neobank which has been popular since 2017. While citing the article "Neo Bank and the Future of Retail Banking in Indonesia", the term digital bank is often defined as a challenger bank.

A digital bank or neobank is a bank that operates online without any physical branch offices. Digital bank offers easy access with user-friendly UI/UX. With an internet connection and a smartphone, anyone can open an account and access other financial services.

In Indonesia, digital banks are widely associated with Jenius (2016) and Digibank (2017) services. Both are often cited as pioneers of the first digital bank. However, some people also call it a spin-off product, considering that both are still under the auspices of BTPN and DBS Bank as the primary entities.

With Akulaku invested in Neo Commerce Bank (BNC), then Gojek invested in Bank Jago, and also Sea Group with its acquisition in Bank Kesejahteraan Ekonomi shows that digital banking market is not just for incumbent banking players but also for the related ecosystems outside banking. For this reason, digital banks such as Bank Jago and BNC carried out a massive transformation by changing faces and new branding to strengthen their position as digital banks. Bank Jago is a new identity from the previous name Bank Artos, while BNC was previously named Bank Yudha Bhakti (BYB).

D. Tech Stacks behind Digital Banking Platform

Banking has several specific technologies to develop products internally as well as get closer to customers. For example, API plays an essential role in the concept of open banking in Indonesia. Through the available banking scheme, banks are more flexible in reaching their market. Various collaborations with cross-industries have also been carried out as a form of user acquisition and a financial inclusion purpose. The following are some of the technologies that are familiar to banks in Indonesia.

1. API for digital banking

The API service allows banks and financial institutions to disclose financial data and information related to payment transactions from their customers on a reciprocal basis or using the principle of equality. The connectedness means the three parties will implement this API, the customer as the data owner and the bank.

Indonesian banks have used the open API to collaborate with many other institutions. Such as marketplaces, fintech, ride-hailing, universities, non-digital companies, to government agencies.

In Indonesia, the development of open banking through API has been implemented by several banks, including BCA, BRI, Permata Bank, BNI, CIMB Niaga, and Mandiri. 2016 was the first moment for banking to open up to the ecosystem in the form of API.

BCA, through Finhacks 2016, made efforts to accelerate Indonesia's digital innovation in the field of financial technology (fintech). It aims to introduce an API available to the developer community in Indonesia.

Furthermore, BRI API allows business consumers to make transactions and access BRI products directly from the application. BRI API opens payment features via virtual accounts and Direct Debit, features BRIZZI balance refills, and features checking Branch Offices and BRI E-Channel locations.

Bank Mandiri also introduced the Mandiri Application Programming Interface (API) service that targets the digital business market, such as financial technology (fintech) and e-commerce. Mandiri API has 13 sandboxing features and three-by-call features for e-money top-up, direct debit, and seller financing.

In addition, the open API also speeds up the interlinking process between banks and other financial services such as payment fintech, P2P lending fintech, or different types of fintech.

2. Biometrics

Biometrics is a form of measuring physical characteristics to verify one's identity with options including voice, fingerprints, face, retina, or iris of the eye, vein infrared thermogram, or a combination of these identifiers. The platform can use each unique and distinctly human characteristic to verify identity. Today's biometric experience has been found in many mobile phones, such as fingerprint and facial recognition capabilities. Biometric technology is considered an excellent solution for the banking industry due to its security and simplicity. A 2018 survey from GlobalData revealed that 67% of global customers would be happy to see a form of biometric used to secure payment details.

A bank can use biometric technology at any time to confirm a customer's identity. For example, they can use biometrics when opening an account. If in a physical office, usually, the bank will ask prospective customers to be photographed or scanned for fingerprints. A more advanced version of biometrics has been used for account opening without coming to the branch office. The requirement becomes a video call which the system will then record.

Jenius, for example, uses video calls to facilitate account opening without coming to a physical office. Prospective customers simply download the Jenius mobile apps for registration and follow a series of registrations, including video calls.

3. Cloud computing

The increase in digital transactions has an impact on the ability of a server system. The server system here is not only the performance of banking transaction systems such as mobile banking or virtual accounts but also improvement server capabilities to anticipate delays or congestion when there are peak transactions. Currently, the right solution to overcome this problem is to use a private cloud. The goal is to anticipate digital transactions that have increased sharply, considering that most transactions turned digital during the pandemic.

Cloud computing technology is the process of computerizing an internet-based technology. Cloud computing systems allow users to store and process data virtually. Cloud computing systems support computerization processes, run applications, and store and process data virtually with an internet network connection to the server. All data and information held will be stored on one server. Users can access the data anytime and as long as it is connected to the internet network.

Cloud services also play a major role in creating a fully digital bank. One example of application in Indonesia is the collaboration between Bank Jago and Mambu Cloud Banking Technology and its partnership with Google Cloud. This partnership gives rise to one big mission, to introduce a composable banking architecture in Indonesia.

Composable banking is a form of design and implementation of financial services by combining various systems with their respective uses and advantages. The combination of these systems is flexible and fast, enabling banks to provide modern and adaptive customer experiences in today's digital era.

4. E-KYC

The eKYC (electronic know-your-customer) consists of various integrated components to assist businesses in customer journeys through digital customer onboarding. The eKYC's target sectors include banking, financial/money services such as mobile wallets, remittances, loans, and telecommunications, where customer identification forms a high priority function in the customer registration process.

Electronic KYC is considered to be able to help increase financial inclusion. The e-KYC component is composed of other technologies such as AI, machine learning, and even biometrics. Through e-KYC, financial institutions can carry out KYC checks and due diligence processes without the need for physical verification.

It becomes more critical today when the world is trying to eliminate the Covid-19 virus. The e-KYC service allows customers to access financial services without endangering their health. Digital processes also reduce room for human error and better allocate resources for other customer experience improvement activities.

Citing to Asian Banking and Finance, almost half of the applications submitted through the e-KYC platform in Indonesia were successfully processed within three minutes. When compared to the traditional manual review process will take at least two hours.

E-KYC technology can also help defend banks against such attacks by detecting more identity fraud patterns at the outset, during transactions, and by monitoring portfolios. Digital interaction with customers in e-KYC is currently not only for onboarding. However, it has also led to other customer services, such as implementing e-KYC for chat features in an application or platform.

E. Why it will be Significant

It is recorded that the time hours of people using the internet are constantly increasing. Various aspects of daily life began to be accompanied by digital support, including the financial part. The increasing use of the internet and smartphones has also opened up more opportunities to use online banking facilities. The pandemic that restricts movement automatically makes physical activities, including shopping, switch to online. Digital payments have ample space to replace all forms of physical transactions.

Use of online and mobile banking is estimated to increase steadily between 2020 and 2024, with the Asian market being the largest. At the same time, this habit shift is the right moment to introduce or even launch digital financial and banking products. Moreover, industrial players also have the right moment to capture market segments.

Along with the number of digital-supported facilities, the banking function is also increasing. The use of digital payment in online streaming, transactions in the marketplace, and QR payments. Even online investments and loans that require banking to be involved.

E-commerce has become a strength for the financial industry. The business process covers many aspects of transactions. For example, seller or merchant activities include receiving funds, withdrawing, and storing user payments and top ups. In addition to the primary transaction aspects, such as lending for sellers/merchants. This loan belongs to productive funding, which is quite interesting to consider for the banking process business.

In the e-Economy SEA Report by Google, financial institutions are an industry that is experiencing acceleration. There are at least four factors that accelerate industrial growth. First, the habit of online transactions

that lasts a long time. The accelerated shift from cash to digital transactions. Increase the trustworthiness of online transactions. The more products reviewed, the more people trust to buy online. Along with countless digital activities, a digital footprint that is also getting more serves for a better credit rating.

Second, the potential to increase customer engagement. Customer acquisition, education, and engagement efforts have made switching to online financial products easier. There is a new urgency for financial service to digitize their business processes, especially incumbent players. Financial services become a competitive driver for online platforms.

Third, from a business perspective, there is a migration of online traders and SMEs. The pandemic has lowered barriers to digital payment adoption—the shift to online transactions, including e-commerce and delivery services. More digitally recorded transactions enable better credit scoring.

The last, support and innovation from the government. There is encouragement and support from regulators for consumers to adopt digital financial services. Continuous innovation from regulators can further accelerate growth, such as digital bank licensing, e-KYC infrastructure, and many more.

The significance of banking is limitless, considering the above mentioned factors still stand above the views of users who are already digitally literate. In Indonesia, internet and smartphone penetration continue to increase, considering that the population is still city-centric. Long before industrial players promoted digital banking, fintech had already started to reach the unbanked.

02.

BANKING IN INDONESIA

BANKING IN INDONESIA

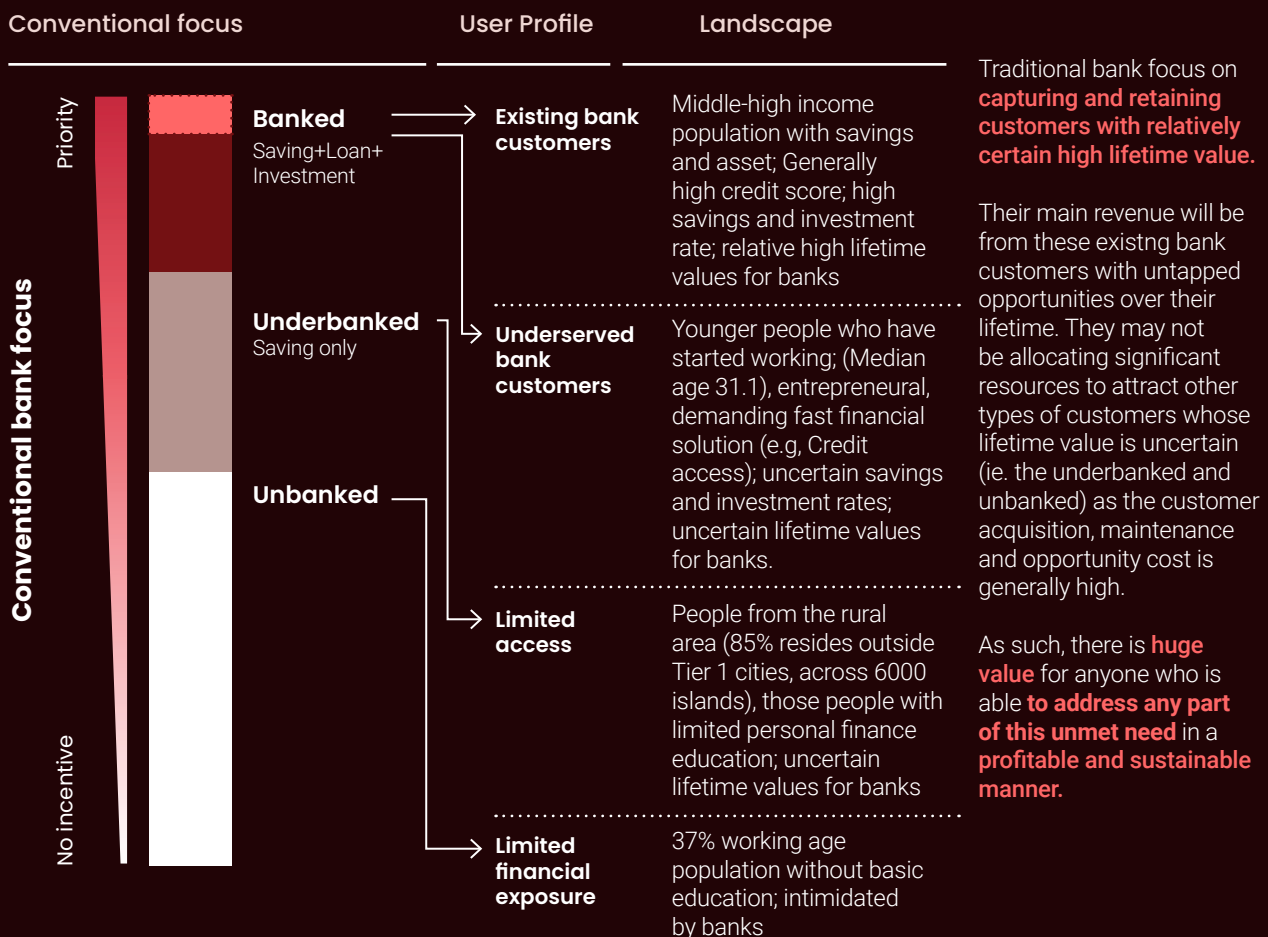
Banking industry and unbankable problem

Indonesia’s banking sector has been rising continuously in the past several years. The growth of the middle class and overall population resulted in the ongoing development of the financial sector in Indonesia. Accelerated lifestyle as the pace of life sped-up by technology, media and globalization has penetrated the consumer digital adoption, particularly in the financial sector. On the other hand, numbers of unbanked population still remain large, especially in rural areas. Indonesia has the fourth largest population globally and has the third largest unbanked population in the world. According to a 2019 report by Google, Temasek, and Bain & Company, Indonesia still has around 47 million underbanked and 92 million unbanked adults. The majority of households without access to financial solutions live in rural areas and in provinces outside Java with sparse internet connectivity, as the majority of

Indonesia’s over 150 million internet users are heavily concentrated in Jakarta and the country’s secondary cities in Java and Sumatra.

However, Indonesia has also experienced the biggest increase in bank account ownership in the region, growing from 20% in 2011 to 36% in 2014 and became 49% in 2017. It also has the most vigorous savings behavior among other emerging economies, with usage of accounts registering at 10% higher than the developing world average. This increase was due to two key factors. The government, through its National Strategy for Financial Inclusion, set an aggressive goal to have 90% of Indonesians equipped with official bank accounts by 2024. It linked the national biometric ID—which 90% of Indonesians already have—to its payment system, allowing financial institutions to digitize processes like authentication and payments.

Figure 04. Conventional banking leaves huge gap of unmet needs



Source: World Bank, Google, Temasek, Bain & Company, 2020

Recent dynamics have seen another major player entering the market—financial technologies or fintech. With the immense penetration of mobile and internet usage in Indonesia, the platform has enabled the Indonesian customers to get easier access to lending (borrowing). Besides lending platforms, payment services also grew significantly during the past years. Some two-thirds of surveyed fintech companies were already serving both the unbanked and underbanked population, including in rural areas, according to a 2020 survey by the Indonesia Fintech Association (Aftech), which has 362 members offering various financial services. However, 75% of the fintech companies reported they were still facing low financial literacy among the target market, 57% reported facing basic infrastructure problems and 44% reported facing limited capital or resources challenges.

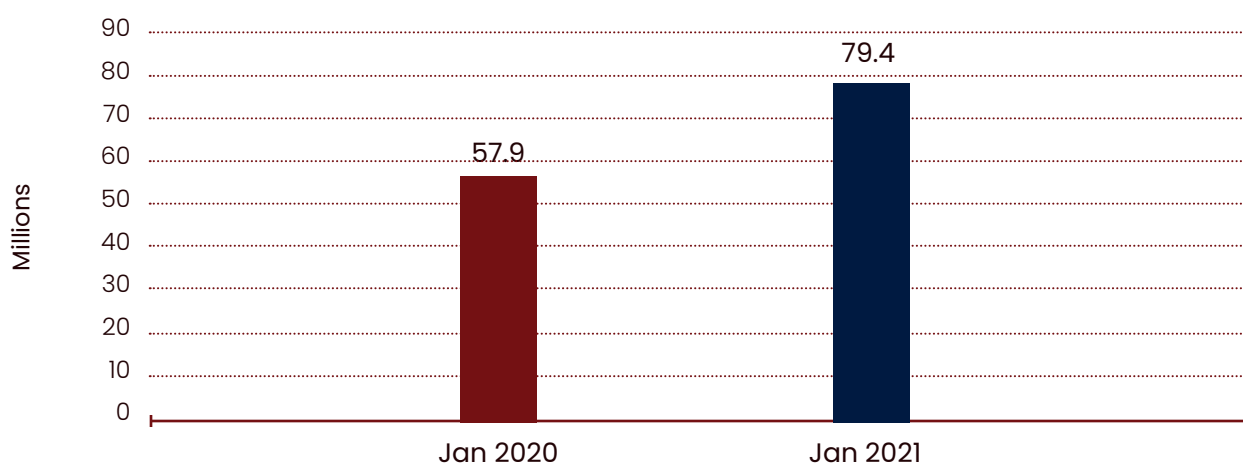
Pandemic Acceleration

Smartphones and the internet play an important role in transactions during the pandemic. Users find it easier to complete tasks that require more attention, such as paying bills or paying deposits. Covid-19 requires many people to bank online rather than in person. Consumers also recognize that digital payment tools make it easy to track expenses in a contactless and convenient way.

Bank Indonesia Deputy Governor Destry Damayanti said using digital money would continue to increase in 2021. The use of electronic money is also expected to increase. Bank Indonesia estimates it will increase by 32.3% to Rp266 trillion from the previous year in 2020 of Rp201 trillion. Meanwhile, digital banking transactions will increase by 19.1%, from Rp27 trillion in 2020 to Rp32.2 trillion in 2021.

Banking apps users increased 37% during the pandemic time from 57.9 million users in January 2020 to 79.4 million users in January 2021.

Figure 05. Banking application users in Indonesia



Source: We Are Social & Hootsuite

Banks are now in a race to provide digital banking services to their customers. Disruption from financial technology startups only makes banks more eager to compete in digital services.

Banking the unbanked (urban and rural) will become a primary policy objective, as governments seek to reap the economic benefits of broader access to financial services for their population. This push will drive new products and business models, and will become the primary focus of governmental or state-sponsored institutions, particularly where the private sector is unable to fulfill the need.

The report made by the World Bank shows that Covid-19 has accelerated the inclusion of the mass public into the digital economy. Especially in Indonesia, the acceleration is driven by several factors such as awareness of digital products and financial products. In 2019, the working population with primary education was recorded at 63%, which was 61% in 2016.

Access to the internet and smartphone penetration is also increasing, which is predicted to reach 81% in 2020. Since the pandemic, time spent online has increased from 3.6 hours/day to 4.3 hours/day. The next component of behavior for online shopping is increasing. The report recorded that in August 2020, the number of digital transactions had reached Rp124.6 trillion.