

THE RISE OF DIGITAL BANKING IN SOUTHEAST ASIA



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THE RISE OF DIGITAL BANKING IN SOUTHEAST ASIA

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EXECUTIVE SUMMARY

DIGITAL BANKING ADOPTION IS growing across Southeast Asia, driven by evolving customer expectations and enhanced digital penetration. The COVID-19 pandemic has accelerated this trend, as enforced digital transitions have embedded a more immediate impetus for change.

These drivers will see Southeast Asia's digital banking opportunity expanding significantly in coming years, reflecting a trend which has seen over 200 new digital banks established globally over the last decade. Since 2015, the number of digital banks has grown by 190%, supported by significant investment and positively evolving regulation.

Understanding Emerging Challengers

Institutional banks are now facing a new era of digital-first competition. Customers looking for more personalized and targeted offerings are turning away from incumbent operators towards a new breed of digital-first challengers, launched by financial technology (fintech) operators and non-financial institution (NFI) players. These operators are unified by a focus on superior customer experience, branchless design, and use of technology.

Emerging Digital Challenger Banks can be broadly slotted into two main categories — those with, and those without, a full banking license. Those institutions without full banking licenses are categorized as Neobanks. Those with a full banking license are identified as Challenger Banks. In this changing environment, traditional operators face a growing pressure to transform. These legacy incumbents must adapt if they are to defend, grow, and win in this evolving landscape.

Imperatives For Digital Banking Success

Despite this remarkable landscape of opportunity, profitability remains a major challenge for digital banks. Of the top 10 digital banks by users globally, just five have achieved profitability.

Boston Consulting Group has identified six key ingredients for success in building a profitable digital bank. It must be customer-centric and respond to evolving customer needs. It must have an operating model that leverages an effective digital ecosystem approach. It must be built on the right tech principles and strategic choices to innovate fast

and scale quickly. It should leverage big data and analytics to ensure an informed pathway to personalization. It should operate on a digital start-up culture and talent base rather than legacy banking culture. It should communicate with regulators to create competition and meet the needs of underbanked segments. These six key imperatives offer the most effective pathway to unlock the full value of this emerging opportunity.

CHAPTER 1

THE RISE OF DIGITAL BANKING IN SOUTHEAST ASIA

DIGITAL BANKING IS ENJOYING a period of remarkable growth in Southeast Asia. Evolving customer expectations combined with growing digital penetration are driving the accelerating adoption of these innovative new banking models.

Southeast Asia presents fertile ground for this banking revolution. The diverse but digitally-connected population of over 650 million citizens is ripe for disruption, as agile emerging banking players compete against incumbent operators striving to adapt to the rapidly evolving landscape.

The region's continued growth frames a lucrative environment of opportunity. Southeast Asia's population is projected to reach 542 million by 2030, positioning it behind only China, India, and the EU as most populous regional markets. Economic growth continues to outpace global averages in this dynamic emerging region. The combined gross domestic product (GDP) of major economies in the ASEAN 5 — Malaysia, Indonesia, Philippines, Singapore, Thailand — could reach an estimated USD4.3 trillion by 2030, positioning it as the sixth-largest global economic bloc.

By any measure, Southeast Asia is a growth success story. Regional GDP has expanded from USD2.02 trillion in 2010 to USD3.11

trillion today. Mirroring this impressive economic expansion has been growth within the region's digitally-connected population. There are now over 400 million internet users across the region, with a digital penetration of 63% set to rise rapidly in coming years. Smartphone penetration has also been central to this digital growth, with the region largely a mobile-first digital economy. More than 90% of the region's 400+ million internet users connect via mobile phones. Expanding 4G penetration, alongside emerging 5G opportunities, unlocks further potential for connected digital banking customers.

The COVID-19 pandemic undoubtedly presents challenges to Southeast Asia's decades of unbroken economic growth. Yet it has also delivered a remarkable catalyst for digital adoption both regionally, and globally. While a firm projection remains difficult to ascertain, we at Boston Consulting Group (BCG) estimate that the impact of the pandemic has accelerated digital adoption by several years globally.

This accelerator has been a clear driver of deepening digital banking adoption. In BCG's June 2020 REBEX Pulse survey of 17,600 respondents across 30 countries, 16% of those surveyed enrolled into online or mobile banking for the first time as a result of the COVID-19 pandemic. This period of

transformation has driven even reluctant digital adopters to embrace digital banking for the first time.

Use of digital channels increased significantly during COVID-19 restrictions, with one in three customers having used mobile banking more than they did prior to the crisis. This rises to one in two for the 18-34 age group. Digital channels were also seen to have delivered the highest satisfaction levels during the crisis, smoothing the pathway to sustained migration from physical to digital channels in the wake of COVID-19. One in four customers is expecting to use physical

branches less frequently, or stop visiting all together once the crisis is resolved. More than half of customers also noted a willingness to open an account digitally if branches were unavailable rather than delaying a purchase or opting for another provider.

Increasing connectivity, accelerating digital adoption, and expanding economic wealth offer the foundations for extraordinary market potential. While innovative disruptors are likely to trigger rapid market change, this fast-evolving landscape presents a picture of opportunity for incumbent and emerging players alike.

CHAPTER 2

CHARTING THE BANKING EVOLUTION

MORE THAN 200 NEW digital banks have been established globally since 2010, with uptake largely driven by growing customer expectations, digital familiarity, and evolving regional regulations. Southeast Asia is already deeply engaged in the early stages of a digital banking evolution.

Legacy operators have initially been slow to react to this changing landscape, with traditional financial offerings evolving far too slowly in this environment of rampant consumer expectation. Lack of personalized advice, high fees, and unattractive brand images have driven customer leakage away from incumbent operators towards emerging digital challengers.

This structural shift has given rise to a new breed of digital-first challengers, launched by financial technology (fintech) operators and non-financial institution (NFI) players. Emerging consortiums have also entered the market, adding greater competition for incumbent players looking to progress their own digital banking initiatives.

While the propensity towards a particular digital banking model varies by market, these digital banks are broadly united by key unifying traits — branchless design, superior customer experience, and use of technology.

These characteristics enable digital banks to reach untapped market segments at scale, a major factor in the growing penetration of these challengers. Since 2015, the number of digital banks has grown by 190%, in part thanks to encouraging intervention by regulators. Equity funding to start-ups in the space has reached USD7.7 billion. This has led to Digital Challenger Banks rapidly increasing customer bases, competing on lower cost to serve, speed of innovation, and differentiated propositions designed to meet the identified needs of the modern banking customer.

Evolving Customer Expectations

Evolving customer expectations have been a core driver of digital banking adoption. Customers are no longer content with simple financial products, and are increasingly looking to engage with banks that offer relationships and experiences as part of their banking journey.

The modern digital world breeds expectation of rapid resolution that digital banks have leveraged through smart product offerings. That landscape of consumer empowerment can be summarized in six key expectations:

- Targeted and personalized experiences

- Frictionless omnichannel interaction
- End-to-end two-way communication
- Consistent response, anytime, anywhere
- Authentic value-additive offering
- Transparency, anticipation, and protection against risks

The expectation of a customer-first approach has become deeply embedded in society, largely resulting from growing exposure to responsive technology companies. These tech players have raised the bar on customer service across multiple industries, including financial services. Amazon and Taobao have transformed the retail commerce experience, with the likes of Netflix and Facebook doing the same in the media landscape. Uber, Grab, Airbnb, Agoda, all represent tech-first innovators that have transformed an existing industry vertical to a more customer-centric approach.

In the banking space, incumbent players have largely operated on principles of a business or product-centric strategy oriented around supply. These revolve around key life events such as job promotions, marriage, or birth of

a baby, which trigger customers' engagement with product offerings and services.

Technology companies on the other hand have taken a more demand-oriented approach, where customer-centricity accelerates revenue growth above that of legacy institutions.

This changing customer landscape has generated significant demand for new banking experiences that are highly accessible and easy to use, particularly among millennials (Exhibit 1). Digital banking services represent the most important drivers for the millennial market, with customer-centricity and ease of account opening offering equally crucial considerations.

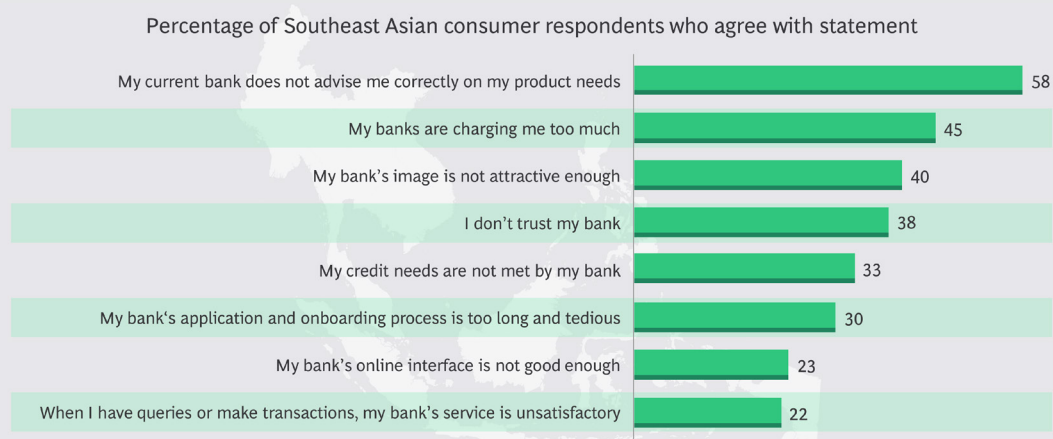
Across all respondents of BCG's REBEX Pulse Survey, social responsibility, mobile and internet banking offerings, and monetary considerations around cost and return on savings represent the top three drivers of digital banking adoption. The most notable change from legacy expectations is perhaps that three-quarters of respondents believe a bank actively contributing to society and exhibiting high moral standards is a major motivation for engagement.

EXHIBIT 1 | Changing User Expectations Demands for a New Banking Experience



Source: BCG REBEX Customer survey

EXHIBIT 2 | Lack of Personalized Advice, High Fees, and Unattractive Image Are Top Reasons for Shifting from Traditional Banks in SEA



Source: BCG Center for Customer Insight 2019 payments and digital banking survey of 3,250 consumers and 1,350 merchants in Indonesia, Malaysia, Singapore, Thailand and Vietnam

Turning Away From Traditional Operators

The transformation of consumer expectations is creating significant challenges for incumbent operators who have been slow to meet evolving consumer needs (Exhibit 2).

Banks face a number of hurdles in fulfilling changing customer demands. Traditional mindsets have hampered evolution, as evolving operational understanding is outpaced by the rapid transformation in customer expectations. Changing mindsets is only part of this challenge, with rigid and complex operating models presenting an equally intractable force. Changing the course of incumbent banks is somewhat akin to turning an oil tanker, with the inexorable pace of forward motion presenting a significant challenge in charting a new course. A highly regulated market and analogue governance structure create additional barriers for agility in transformation, embedding rigid approval pathways that limit speed of change.

Lack of digital talent has furthered hampered this transition, as incumbent operators struggle to manage transformation projects with existing talent, and are faced with complex hiring needs in a notably competitive talent landscape.

At the same time as incumbent operators are wrestling with these challenges, emerging structural changes are generating even greater complexity. Technology evolution continues at a pace that rivals changing consumer expectations. Cloud infrastructure allows IT systems to be simple and scalable, which challenges legacy in-house systems that traditional operators once relied on. User-interfaces (UI) are becoming ubiquitous — you can now interact through large screens, small screens, voice, and even gestures. The ability to process big data brings new insights, making it possible to introduce heavily personalized product offerings.

Regulation is also changing, with mechanisms such as open banking now threatening to replace traditional models. New types of licensed players are emerging. Regulation for competition continues to evolve to fit the changing landscape.

The final piece in this puzzle comes from our modern digital world itself. Digital life is now mainstream, and with it the expectations of instant gratification inherent in our digital world. Society is used to queries being answered at the end of a Google search. A taxi is just a button tap away through Grab, Gojek, Uber,

or any one of these major on-demand economy players. Directions are available at the swipe of a screen through Google Maps. The emergence of fresh technology offerings provides a background excitement to all that is 'new', creating an inherent marketing burden for 'old' institutions appealing to a modern audience enthralled by exciting new trends.

While this modern environment undoubtedly offers challenges, it also presents an unprecedented opportunity to expand banking access and provide vital financial services to wider populations across Southeast Asia. That is an opportunity which can be best unwrapped in partnership.

“Banks, governments, and tech players need to work together to digitize economies and increase financial inclusion.”

— Caesar Sengupta, General Manager & VP, Payments and Next Billion Users, Google.

CHAPTER 3

UNDERSTANDING EMERGING CHALLENGER BANKS

NEW DIGITAL BANKS ARE emerging to aggressively challenge for market share in this disrupted landscape. Since 2010, more than 200 Digital Challenger Banks have been established globally, with 46 of them founded in the Asia Pacific region. In its report Southeast Asia: Coming of the Digital Challenger Banks, BCG Expand Fintech Control Tower, a subsidiary of the Boston Consulting Group, identified four main types of Digital Challenger Banks (Exhibit 3).

Emerging Digital Challenger Banks can be broadly slotted into two main categories — those with, and those without, a full banking license. Those institutions without full banking licenses are categorized as Neobanks. Those with a full banking license are identified as Challenger Banks.

- **Neobank. Partnership.** These are fintech start-ups that partner with incumbent banks. They provide financial services via a sponsored banking license
- **Neobank. Independent.** These are fintech start-ups that operate without a legacy banking sponsor. These independent operators rely on their product license and/or marketplace strategy to provide ‘bank-like’ services to their customers

- **Challenger Banks. Fintech Start-ups.**

These are fintech start-ups that have navigated their way towards attaining a full banking license. Some of these operators will have started out as a Neobank

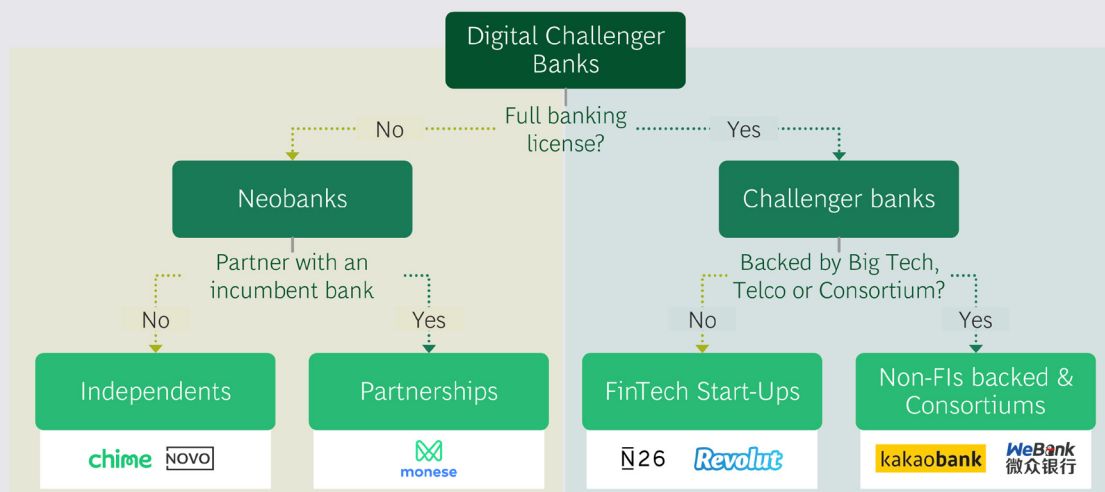
- **Challenger Banks. Non-FIs Backed, and Consortiums.**

These challenger banks emerge from non-financial institution players, and predominantly originate from big tech companies, telecom companies, and consortium-led players. They operate with a full banking license

While the possession of a full banking license and route towards market might vary, these Digital Challenger Banks share some unifying traits that reflect their particular market proposition:

- **Branchless.** Customers can complete all of their everyday banking needs online, via web or mobile, with 100% digital delivery covering all products and services. This includes electronic know your customer (KYC) capabilities which allow customers to sign up without visiting a physical branch
- **Customer-focused.** Superior customer experience is at the heart of their offering.

EXHIBIT 3 | Four Types of Digital Challenger Banks



Source: BCG x Expand FinTech Control Tower

State-of-the-art user experience (UX) design, instant and hassle-free service, and responsive customer service are core to delivery

- **Tech-driven.** New players utilize modular technology design, advanced analytics, and agile governance, providing a service which can rapidly respond and scale as demands change. Cloud-native focus, open architecture, and data-driven processes all complement this approach

These core principles enable digital banks to reach a wide range of customer segments rapidly and at scale. Revolut and KakaoBank provide examples of digital banks serving millennial segments, with strong personal financial management (PFM) tools focused on budgeting and saving. Monese and WeBank offer solutions such as cash deposits at convenience stores to reach underbanked customers. Novo and Penta offer integrated accounting tools and tax tracking for small and medium enterprises (SMEs).

These digital banks are offering a range of differentiated services, utilizing a set of strategic approaches that engage with core customer segments:

- **Innovative value-added products.** Neobanks are offering a number of innovative value-added products directly within their application such as insurance, cryptocurrency purchases, and investment products
- **Niche and underserved markets.** Digital banks are offering banking services to SMEs, freelancers, and sole traders. These areas are underserved by incumbents, enabling challengers to generate revenue through fees charged on these accounts. Players are targeting specific niches such as migrants, young people, and the underbanked
- **B2B banking-as-a-service (BaaS).** Players who have built their own infrastructure are now offering their platforms to be used by other challenger banks, incumbents looking to expand to new markets, and financial institutions who need banking services for their customers
- **Marketplace integration.** Some challengers are offering marketplaces for financial or lifestyle products. These allow customers to compare and purchase products easily and securely from within their banking application as part of a lucrative ecosystem approach

The Changing Face Of Competition

Digital Challenger Banks are fundamentally changing the face of banking competition. The success of this evolution has demonstrated impressive results to date. There has been a 190% increase in the number of Digital Challenger Banks since 2015, initially spurred by pioneering changes in regulation in the UK and Japan. Other countries have followed suit, with 45% of digital banks now based in the Europe and Middle East (EMEA) region, 35% in the Americas, and 20% in the APAC region.

Investment trends paint a revealing picture of growth. More than 70% of equity funding rounds have been funneled to early stage firms, with Digital Challenger Banks dominating equity funding in EMEA and APAC in the two decades between 2000 and 2020. This reflects an encouraging investment landscape for digital banking players.

Charting the growth of Digital Challenger Banks reveals impressive early growth after launch, typically acquiring customers rapidly and leading to an exponential growth in their customer base. Korea's KakaoBank onboarded 300,000 customers on its first day of launch, and 1.5 million in its first week of operations. Revolut's users nearly tripled between 2018 and 2019, up from 3.5 million to 10 million, with daily active customers growing by 231%. These two players reflect a trend seen throughout the digital banking space.

There is a clear propensity towards certain digital banking models in different jurisdictions, reflective of, and encouraged by, the particular local market and regulatory factors. American markets are dominated by Neobanks leveraging partnerships with legacy banking institutions. The EMEA is driven by fintech start-up challenger banks.

In the APAC region, initial signs are that NFI players are leading the digital banking charge. More than half of established players in Southeast Asia fit into this category, and almost two-thirds across the wider Asia region.

Counting The Benefits Of Digital Banking

Alongside meeting changing customer expectations, digital banking is providing other key benefits that are driving customer adoption. All four of these key drivers are enabled by wider trends in expanding digital adoption and digital technology capabilities.

Accessibility continues to be a critical factor in the rise of digital banking. Digital banks are able to provide affordable and accessible services to traditionally underbanked population segments — for example 75% of WeBank's customers are blue-collar workers that have traditionally been unbanked or underbanked in the Chinese market.

This ability to tap underserved segments is a major benefit in Southeast Asia, where financial access varies significantly across the region. In its 2019 report on digital payments — [Southeast Asian Consumers Are Driving A Digital Payment Revolution](#) — BCG revealed that while 90% of Malaysian consumers and 98% of Singaporeans own bank accounts, only 61% of Indonesians and 40% of Vietnamese actively utilize these services. Equally revealing is that while 85% of Singaporeans have credit cards, the figure drops to 30% in Thailand, 11% in Vietnam, and a mere 6% in Indonesia. While 42% of respondents in Malaysia take out loans from banks, only 27% do so in Singapore, and just 14% in Thailand. This reveals the stark differences in financial engagement across the region.

Digital banks not only potentially offer better access to bank accounts, but also digital payment channels which can unlock greater accessibility where credit card uptake is low. Credit card penetration across Southeast Asia is estimated at ~4%. The COVID-19 pandemic has also revealed how tech resilience can further enable accessibility in scenarios or geographies where physical branch access is challenging. The more digital the landscape is, the more accessible banking products are for a greater share of the population.

Value realization is another key benefit of digital banks, which typically generate better unit economics than more traditional

operators. Through better product pricing, digital banks are often able to pass that value on to customers. Examples include Digital Challenger Banks leveraging new data sources to define better credit scores, reducing risks when handling out loans.

Product features also present an important draw for customers. Digital banks offer heightened personalization, largely enabled by the technology focus of these operations. This wider variety of product features is likely to be further enhanced as the market expands, with a growing number of players strengthening the proposition for users. These include smart saving solutions that allow personalized and responsive features.

Customer experience is also a key benefit, and particularly when considering the expanding expectations of customers highlighted as a catalyst for the changing landscape. Digital banks are heavily focused on customer experience, leading to enhanced ease-of-use and convenience, making offers increasingly accessible to users regardless of their digital confidence. This is evidenced through frictionless onboarding processes without any need for hard copy documentation, as well as mechanisms such

as adaptive credit limits on cards, and instant feedback through chatbot features.

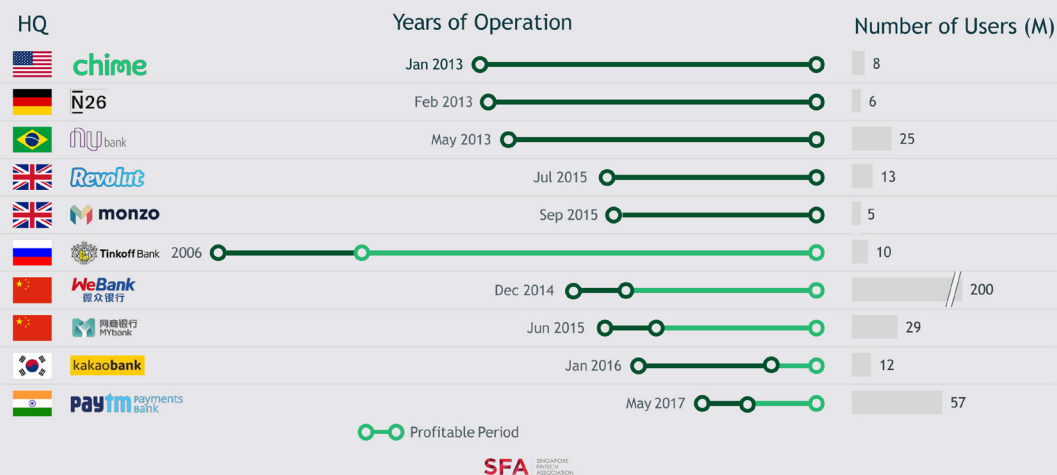
Risks And Challenges Of Digital Banking

Digital banking is an exciting and valuable emerging opportunity, but it is not without its risks. Consumer protection is perhaps the most prominent of these challenges, particularly in light of the rapid evolution of the landscape.

Financial regulations on fintech players tend to be less restrictive than on the heavily-regulated established institutions. Many founders come from non-banking backgrounds, and may not fully understand the market risks. Fintech customers also disproportionately belong to previously-unbanked segments, where financial literacy tends to be lower. This can mean they are less informed on how to independently negotiate risks.

Cybersecurity breaches present an inflated risk to these tech-heavy offerings, with significant potential disruption from successful attacks. Data protection is also a major concern, with multiple consumer data

EXHIBIT 4 | Few Digital Challenger Banks Globally Are Profitable Today



1. Top 10 Digital Challenger Banks in terms of users (Consumers)
Note: Indicative timelines and not to scale
Source: BCG FinTech Control Tower

points and large volumes of data used for service personalization. This raises questions of appropriate and secure data storage and usage.

The potential for long-term value erosion in a competitive market presents a further risk. Many digital banking players are competing on price, potentially triggering a race to the bottom style approach which leads to large-scale value erosion in banking markets.

This value erosion feeds into a larger point around business sustainability. Digital banks focus on building scale through customer acquisition. Profitability is typically achieved only after 5-7 years of operations. Business sustainability is not guaranteed, and there are as of yet limited successful examples in the Asia region. Many players are oriented to success metrics based on achieving higher valuations or greater volume of app downloads, which may not necessarily transition into financial sustainability.

The Digital Challenger Banks Reference Guide analysis undertaken by Singapore FinTech Association and BCG Expand FinTech Control Tower shows that profitability remains a real hurdle for these

emerging digital players. Of the 10 top Digital Challenger Banks globally by user base, just five have achieved profitability (Exhibit 4).

We estimate that since 2000, there have been approximately 150 new digital banks established in developed markets. Of those 150 banks, we identify seven which have started to generate profit. If we expand our analysis beyond developed markets, we assess that there have been 212 new digital banks established globally since 2015. These include both licensed and unlicensed operators. While major APAC players such as WeBank, Mybank, Kakao, and PayTM offer inspiration for success, there is still a long way to go for most digital banks on the road to profitability.

The key drivers to profitability are a combination of fee-based and interest-based revenue streams, together with a lower cost structure due to their app-centric approach. This ensures lower operational costs due to elimination of manual processing steps, and reduced customer communication commitments. The absence of costly legacy IT infrastructure and branchless setup are also important differentiators.

CASE STUDY KAKAOBANK, SOUTH KOREA

South Korean digital banking player KakaoBank has been a notable winner amongst digital banks, meeting customer needs, creating financial viability, and maintaining a competitive edge that positions it as an exemplar in the space.

South Korea is a highly mature banking market, with an average of two bank accounts per person. Credit cards are widely used, with an average 3.6 per person in circulation in the country. Just 20% of payment value is transacted in cash. Crucially, it also boasts 95% smartphone penetration, making it ripe for digital disruption.

KakaoBank achieved 25% market penetration within just two years of launch, reaching 10 million users by June 2019. On the first day of launch, more than 300,000 accounts were created, USD5 million deposited, and over 652,000 app downloads undertaken. The bank now has an asset base of over USD12 billion. What sets KakaoBank apart is a model which quickly achieved break-even, with projections suggesting the bank achieved a profit of over USD20 million in 2019.

Crucial to KakaoBank's strategy has been leveraging an ecosystem approach to digital banking (Exhibit 5). The bank targeted the

50 million users of partner platform KakaoTalk, and 22 million of payment solution KakaoPay, addressing a significant pool of users with limited marketing investment requirements. Familiar UI/UX from existing platforms also provided simple engagement for transitioning customers, with the design of the KakaoBank app incorporated as part of the existing ecosystem app interfaces.

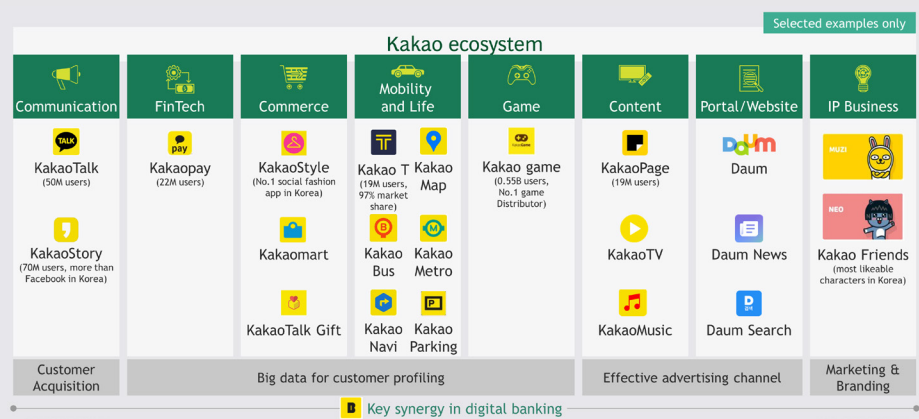
KakaoBank also took a unique approach to branding, extending brand engagement into the banking market with Kakao Friends. This popular group of cartoon characters helped engage audiences in an industry that’s not traditionally known for accessible branding, particularly appealing to millennial groups.

An aggressive pricing strategy rounded off this successful launch. Savings accounts

typically delivered better returns than existing major banks. Easy loan applications were offered with lower interest rates, such as emergency loans allowing users to borrow emergency cash in as little as one minute.

KakaoBank succeeded by combining this robust ecosystem approach with directly controlled governance, creating an agile institution that could rapidly on-board new customers. It incorporated clear communication, an existing ecosystem user base, and simple and effective product offerings to generate rapid growth. This led to per user acquisition costs of less than USD25, reaching over 20% market penetration and break-even by the third year of operations.

EXHIBIT 5 | Kakao Has a Huge Ecosystem That KakaoBank Could Leverage



Source: BCG x Expand FinTech Control Tower, company press releases and publications

CHAPTER 4

TRADITIONAL INCUMBENTS REACT AND RESPOND

WHILE INITIALLY SLOW TO react, traditional incumbents across Southeast Asia are gaining momentum as they seek to penetrate the growing digital banking market, protecting market share against incursions by emerging challengers.

Incumbents are transforming to meet changing customer expectations in the rapidly evolving landscape, catering for a marketplace where digital is increasingly mainstream. These operators are aiming to create their own low-cost operating models that can win in a low-growth future environment.

The number of digital banks launched by incumbents globally has doubled over the last decade, with offerings largely driven by mobile-first digital banks. One example is Union Overseas Bank's (UOB) TMRW, which operates a mobile-first approach with a full suite of banking solutions, looking to engage the essential millennial market segment. Players such as mBank, ING, and Openbank all represent existing players transforming to a new digital-first model.

Digital banking is self-evidently not a passing phase, and incumbents are facing increasing pressure to build their own home market digital challenger. These pressures can be summarized with three key imperatives, with

each imperative framing a particular banking model:

- **Defend.** Defend market position in an increasingly competitive landscape that comprises traditional banks, established digital banks, Neobanks, and possible platform players. This applies predominantly to digital banks and direct banks seeking growth
- **Grow.** Tap into new demand spaces arising from changing customer expectations that are not currently being met by offerings from traditional banks. Digital-only subsidiaries are the segment primarily driven by this imperative
- **Win.** Create a low-cost model that can win in a low-growth environment with more stringent compliance requirements. This reflects the partnership relationship between existing incumbent banks and emerging fintech operators

Incumbent players are typically taking one of three different paths towards a digital banking model. Digital bank or direct bank models have been adopted by players such as HSBC and ING. Digital-only subsidiaries have been established by others, with examples such as UOB's TMRW, and Bank Leumi's Pepper. Partnerships between incumbent

banks and fintech operators are the third strand, demonstrated by the likes of Chime and Up.

This is not the first period of digital disruption experienced by incumbent banks. The first such wave emerged with the advent of widespread internet use in the late ‘90s and early ‘00s, offering an important learning template for incumbents as this new wave of digital transformation hits (Exhibit 6).

The first wave of digital disruption triggered a scramble for new market share. Many incumbent operators transitioned towards internet-based offerings. Some of these offerings were successful, while others faded away over time.

The new wave of digital banks are increasingly mobile-first, driven by rapid global mobile adoption. While the first wave of digital disruption emerged in a broadly level playing field, the new wave of digital banking sees technology and technical capabilities being an increasingly important differentiator of success.

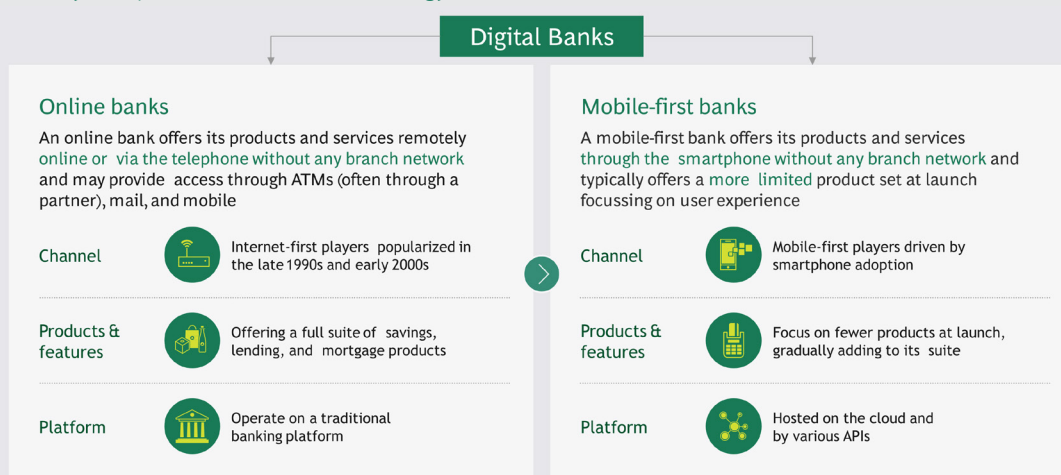
Global and regional banks led early adoption in the period 1990-2008,

comprising 90% of all digital banks launched by incumbent operators. Over the last decade that story has changed, with domestic banks driving growth. Of the 38 digital banks launched by legacy operators over this decade, 14 have been launched from domestic banks, and 16 from regional banking operators.

Regional banks are commonly launched by players who are already leaders in their home market such as DBS and UOB. Their core market tends to be targeted at disrupting themselves to address an emerging pool of digital native customers. A second approach can be seen in those regional banks challenging local incumbents despite having a more limited physical presence in identified target markets.

Domestic banks however tend to launch smaller domestic players, typically in less developed markets. Digital banks such as EON Bank, ME, and Timo are examples of this strategy. These incumbent domestic players digitize in order to compete with local leaders by targeting the growing digital and youth customer segments.

EXHIBIT 6 | Early Innovators Launched Online Banks in Response to the Internet While Recent Players Immediately Adopted a Mobile-first Strategy



Source: BCG x Expand FinTech Control Tower

Three Approaches For Success

Broadly speaking, incumbent operators are taking one of three distinct approaches to successful launch of digital banking operations:

- **Acquisitions.** Acquiring and investing in existing tech assets to build up digital reach and digital capabilities. BBVA utilized this strategy by acquiring Simple in 2014 for USD117 million, going on to invest in a 39% stake in UK-based Atom Bank in 2015. In 2016 they acquired Finnish bank Holvi, and invested in German SolarisBank in 2018
- **In-house builds.** Leveraging tech providers to power digital capabilities for a new digital bank. Singaporean legacy operator UOB embraced an in-house build to successfully launch its TMRW digital bank in Thailand in 2019. It plans to roll-out across other markets in Southeast Asia in coming years, thanks to the underlying architecture and personalization capabilities powered by tech providers Personetics and Meniga
- **Partner.** Providing banking licenses to create a joint digital bank with technology partner(s). European VPBank partnered with Timo to offer banking license and core banking systems, as well as KYC functionality as part of a revenue sharing agreement. In turn, Timo enabled VPBank to experiment with building a new technology stack, as well as adopting new on-boarding methodologies

CASE STUDY UOB TMRW, THAILAND



Singaporean UOB bank is an incumbent operator with over 90 years of banking legacy behind it. In 2019 it launched digital banking subsidiary TMRW, a mobile-only bank designed to tap into the lucrative millennial segment of emerging banking markets through a core focus on customer-centricity.

UOB's TMRW offers a full suite of banking solutions through a smart mobile-only app, leveraging the parent company's extensive industry experience through a digital-only model.

The TMRW offering is based around a user-friendly app that directly appeals to the millennial market segment. It boasts a focus on a good on-boarding experience, with users able to open a TMRW account in just seven minutes. The TMRW app includes features that analyze and predict cash flow in accounts and patterns of upcoming payments. Spend tracking allows simple budgeting and payment and spend

notifications. Smart saving functionality offers personalized saving advice, and gamifies savings through a virtual city game which grows as savings increase. Customer service is complemented through a 24-hour chatbot. This smart functionality is enabled through partnership with AI experts Personetics and Avatec.ai, as well as tech company Meniga.

TMRW leverages Personetics as a technology solution which supports digital banks through an assist, act, engage approach. The advanced AI provides an assistance chatbot that can interact in natural language, with deep financial domain proficiency, incorporating customer data to provide both a reactive and proactive solution. It can engage customers through analysis that flags unusual transactions, offering smart saving alerts and financial guidance. It acts through defined decision pathways to automatically move funds or pay credit card balances based on cash flow needs and predicted

human behavior, offering unique benefits to customer-centricity at the heart of the TMRW offer.

This advanced technology approach has contributed to TMRW delivering impressive early results, tripling its customer base in Thailand in six months from August 2019

to February 2020. TMRW's future plans are to achieve a 35% cost-to-income ratio within five years, with a customer base of up to five million across that same timeframe.

CASE STUDY
BANK BRI, INDONESIA

With more than 10,000 offices across Indonesia, Bank BRI has the largest physical network of banks of any bank in the Southeast Asia region. Now Bank BRI is transforming its legacy operations with a digital banking solution designed to increase financial inclusion in Indonesia through smart use of a cloud-based API approach.

Bank BRI launched a digital banking operation as part of a target to achieve 84% banking system participation by 2022. Its innovative digital strategy has seen it leapfrog fintech competition, with indications that it has achieved 70% financial inclusion across the country by the end of 2019.

Bank BRI utilized a web-native approach using open application programming interfaces (APIs) to create and monetize products. Adopting this cloud-based API

approach enables the bank to on-board new partners in less than an hour, compared to up to six months for previous legacy technology systems. Partners can use the Bank BRI Apigee developer portal to register, browse APIs, conduct testing within a sandbox, and produce new products.

This cloud-based API approach provides automation and agility which allowed Bank BRI's offering to integrate with platforms such as the Indonesian Government's ID database, providing automatic verification and rapid on-boarding while tackling important fraud or identity concerns, enabling quicker, more confident lending decisions. An open API marketplace makes it easy to serve fintech operators, with more than 50 monetized open APIs and 70 ecosystem partners benefiting from the bank's wealth of big data insight and financial experience.

CHAPTER 5

SOUTHEAST ASIA'S DIGITAL BANKING OPPORTUNITY

INCUMBENT BANKS AND DIGITAL Challenger Banks are both seeking to access a remarkable opportunity in Southeast Asia's growing market.

Southeast Asia's population is expected to grow from 487 million today to reach 542 million by 2030, positioning it behind only the EU, India, and China as most populous regional markets. Indonesia alone — the largest regional market — is the fourth largest country globally by population, with a population of nearly 300 million.

The gross domestic product (GDP) of major economies the ASEAN 5 — Malaysia, Indonesia, Philippines, Singapore, Thailand — is expected to grow to reach USD4.3 trillion by 2030, up from around USD3 trillion today. That positions the ASEAN 5 as the sixth-largest economic bloc globally, a figure which grows further when the economies of Brunei, Cambodia, Laos, Myanmar, and Vietnam are added to the total.

The Evolving Financial Landscape

Southeast Asia and the wider APAC region are in the midst of a banking evolution. There are now more than 40 Digital Challenger Banks across APAC, largely driven by backing from tech giants, NFIs, and consortium operators. These style of NFI and consortium-backed operating models account for half of

the total Digital Challenger Banks in the region.

In Korea, KakaoBank represents a successful NFI approach with over 10 million users. China's WeBank is an NFI/consortium player which generated USD570 million profit and served 300 million customers in 2019. MyBank is another Chinese challenger following a similar path, serving 12 million users in 2018.

The volume of investment in fintech operators reveals a real appetite for funding innovative financial models. Analysis by BCG indicates there are currently 1,587 fintechs operating in Southeast Asia, which have attracted a cumulative total of USD4.8 billion of equity funding. By far the greatest share of those start-ups emerged in Singapore.

A breakdown of investment figures reveals that fintech funding is largely driven by retail banking. Retail banking fintechs represent 35% of total businesses, and 60% of equity funding.

Innovation-enabling regulation has been fundamental for this expanding tech-driven financial landscape, with important implications for fintechs such as Digital Challenger Banks. Singapore and Malaysia introduced privacy regulations in 2012 and 2010 respectively, laying the groundwork for

a digital finance landscape. Both e-money regulation and open banking reform were introduced in following years. Thailand meanwhile introduced E-KYC regulations in 2016. These three countries have been regional pioneers in adopting activity-based and digital-enabling regulations over the last decade. Recent regulations introduced in Philippines, Vietnam, and Indonesia offer an encouraging outlook in other key regional markets.

Southeast Asia approaches a seminal moment in its digital banking journey in

coming years, as first-mover Singapore is set to grant five digital banking licenses for operation in its banking markets by the end of 2020. Bank Negara Malaysia recently released its own draft framework for licensing digital bank operators. Thailand, Indonesia, and Vietnam have all indicated that further enabling digital banking regulations will likely be introduced in the next 12-24 months. These enabling regulations will be important in ensuring the region can leverage the greatest possible value from emerging digital banking opportunities.

CHAPTER 6

SHIFTING ATTITUDES TO E-ADOPTION

SOUTHEAST ASIA'S DIGITAL BANKING opportunity is energized by a wider trend of digital adoption witnessed in recent years. This is now a dynamic and digitally-connected region, with digital channels forming a central part of everyday life.

A consumer might wake up in Kuala Lumpur, call a taxi with the tap of a button through Grab, and during transit log in to their online check-in booked through Traveloka for a flight to Indonesia. While awaiting their plane they order some gifts for a family member through Lazada, or browse Facebook or Instagram to check in with friends. On the flight they use Google to search the location of their hotel, identify nearby attractions, and assess local weather conditions. Upon arrival they use the Gojek app to hail a ride, digitally check-in at the hotel, and book dinner through restaurant booking app Qraved.

This digital mindset is an essential part of the fertile landscape for digital banking players. Central to this growth has been the accelerating penetration of smartphones and 4G data services. Southeast Asia is a mobile-first digital ecosystem, with 90% of the region's 400+ million internet users connecting via mobile phones. The prevalence of 4G-connected smartphones ranges from 116% of the total population in

Singapore to 14% in Vietnam. Expansion of this coverage will accelerate digital adoption further.

Growing smartphone penetration has led to significant growth in e-payment solutions, revealing a strong regional appetite for digital financial products. This is a global trend with significant regional ramifications. BCG estimates that up to USD23 trillion of global payments are set to shift online within the next 10 years. Between 2017 and 2019 the number of e-wallet users globally exploded from 500 million to 2.1 billion. Crucially for digital banking, e-payments provide a gateway opportunity to digital financial products which can have a lasting impact on digital banking adoption.

E-wallets such as Boost in Malaysia and Ovo in Indonesia are now household names. The gross transaction value (GTV) of electronic and mobile payments is expected to reach USD130 billion by 2023. At least 10% of the adult populations of Malaysia, Vietnam, Thailand, Indonesia, and Singapore already use e-wallets, and penetration rates are well ahead of those in advanced economies. Just under half (49%) of urban consumers in the region who are commercial bank customers use e-wallets, with that figure expected to rise to 84% by 2025.

COVID-19 has accelerated this transition globally, with digital payment usage expanding by more than 20%, and cards by more than 10% during this period according to analysis from BCG's REBEX Pulse survey. The role of regulation in enabling this opportunity is an important lesson for the digital banking space. Several governments in Southeast Asia have released policy documents or frameworks to increase non-cash usage in the economy. For example, Malaysia introduced its Financial Sector Blueprint 2011-20. The Philippines crafted a national strategy for financial inclusion in 2015, and Thailand introduced its National e-Payment Master Plan in December 2015.

E-wallets aren't the only area of digital life which shows impressive growth in Southeast

Asia. The value of the region's internet economy is expected to triple in coming years, from USD100 billion in 2019 to USD300 billion in 2025. E-commerce is a major driver of that growth, with active e-commerce users growing from 49 million in 2015 to 150 million in 2019. The substantial growth value of the market for ride hailing, online media, online travel, and e-commerce all reveal deep and significant trends towards growing digital usage in everyday lives.

Southeast Asia is ripe for digital disruption, with rising digital preparedness and low penetration of traditional financial products. This positive customer sentiment towards digital journeys is compelling, and one which has major implications for the digital banking industry.

CHAPTER 7

FIVE ENABLERS OF DIGITAL BANKING ADOPTION

DIGITAL BANKING ADOPTION IS poised to benefit from growing digital acceptance across Southeast Asia. While this journey is encouraging for operators, there remain several key pre-requisites which ecosystem stakeholders should both recognize and nurture in order to further enable this opportunity:

- **Unmet customer need.** The rise of digital banking is enabled when traditional incumbents are unable to consistently meet consumer needs
- **Smartphone and internet penetration.** High smartphone and digital penetration generate wider accessibility, and a greater addressable market. The presence of digital payment systems offers a platform on which wider digital banking engagement can be built
- **Cloud availability and acceptance.** Supporting regulation that allows operators to host banking systems on the cloud is essential. This opportunity is contingent on cloud providers having sufficient presence in a country or region to comply with relevant data sovereignty regulations
- **Technology adoption, and talent.** Cloud adoption and the presence of technology talent are key enablers of growth for digital banks
- **National digital ID system.** Presence of a national digital ID system can be a strong enabler through easing verification and KYC processes, further boosting transparency

The Critical Role Of Digital Id

Digital ID is a particularly crucial enabler of digital banking opportunity. This mechanism provides a foundation to trusted identity services which allow operators to quickly identify and assess customers. The role of digital ID offers a boost to four core areas of service:

- **Enrolment and verification.** Providing identity while on-boarding to a new product or service, enabling rapid ID for later interactions
- **Authentication.** Providing identity in order to simply and securely access an existing product or service through a variety of channels

- **Delegation.** Providing authority for a third-party to act on another's behalf
- **Notification.** Proving identity in order to update identity information such as data sharing or service provision

The existence of a digital ID framework can greatly enhance digital banking adoption, providing a crucial accelerator for a cashless society that feeds into a wider digital financial system. Security and trust obviously offer an important part of this. Digital ID reduces the burden on financial institutions for KYC processes, allowing trusted real-time authentication through a highly secure network. Secure digital ID also reinforces consumer confidence in digital transactions, increasing use of products such as e-payment and digital banking while at the same time tackling key fraud concerns.

Digital ID offers an important contribution to critical anti-money laundering (AML) efforts, increasing transparency in financial systems

and boosting the all-important regulatory compliance for operators. Consumers benefit through more traceable digital cash transactions that reduce their exposure to losses, as well as a more transparent tax system. There do however remain privacy concerns which should be tackled in implementing such measures.

Simplifying authentication and financial onboarding also makes transactions a more accessible and seamless experience. This can have important implications around financial accessibility for underbanked populations.

There are a range of national ID frameworks in operation or testing across Southeast Asia. Thailand is exploring a blockchain-based database that offers real-time identification verification alongside facial recognition technology. Meanwhile Singapore's digital ID program looks to build on existing frameworks such as SingPass and MyInfo with introduction of its National Digital Identity (NDI) program.

CASE STUDY SOUTH KOREA



South Korea offers a valuable case study of success in enabling the rise of digital banks in its market. Financial system reform and supportive infrastructure were introduced that provided a strong enabling atmosphere for digital banking adoption and growth:

- **National ID system.** Korea rolled out a national digital ID system that began with a photo-based ID in 2015. This enabled digital enrolment, authentication, and led to a rise in online transactions. It reduced the risk of ID fraud and thus increased confidence in digital banking solutions
- **Open banking.** Korea implemented an open banking approach to accelerate innovation and boost banking services. This included elements such as account

portability that incorporated aggregated GIRO payment information across multiple accounts offered by 18 banks and 54 fintech operators. Any citizen with a mobile phone was instantly able to access open banking services. This tackled issues around funds left in dormant bank accounts, providing full consolidation and control by enabling a centralized infrastructure for open banking. This open banking spurred innovation, creating a seamless bank account transfer process that deepened competition. Open banking provides a convenient and consolidated view of accounts that further empowers personal finance management that benefits customers, at the same time enabling digital banks to more rapidly innovate PFM solutions. Emerging challengers are also now better able to

integrate new offers and services thanks to an open API, at the same time reducing costs and eliminating market access barriers

- **Coinless Korea program.** Bank of Korea launched a coinless society pilot

program in 2017, with the aim to become coinless by 2020. This program generated increased awareness of digital payments and banking solutions, and helped further promote adoption

CHAPTER 8

IMPERATIVES FOR BUILDING A SUCCESSFUL DIGITAL BANK

UNLOCKING SUCCESS FOR DIGITAL banks remains challenging in a complex operating environment. While there is no defined recipe for success, BCG's analysis reveals that there are a number of key ingredients which are essential in ensuring a digital bank can prosper. These six imperatives represent a valuable framework for a successful digital bank (Exhibit 7).

Customer-Centricity

Digital ID is a particularly crucial enabler of digital banking opportunity. This mechanism provides a foundation to trusted identity services which allow operators to quickly identify and assess customers. The role of digital ID offers a boost to four core areas of service.

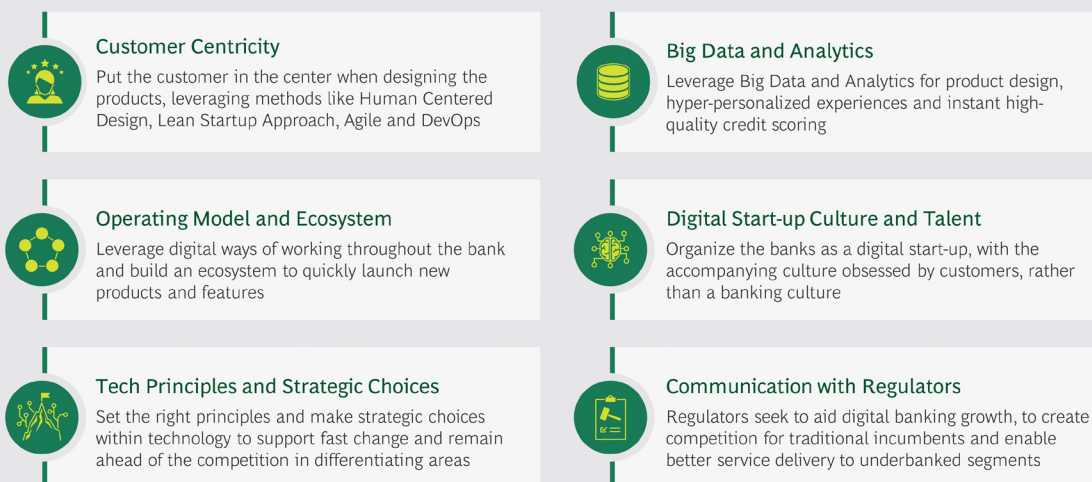
Customer-centricity is at the heart of our modern digital world. Digital technology leaders have nurtured an environment of rapid convenience, where products and services are designed to deliver frictionless customer experience across a broad range of day-to-day activities. Global tech giants such as Apple, Alibaba, Tencent, and Google are exemplars in this digital journey, with integrated offerings spanning from communication and entertainment to mapping, augmented reality information services, and e-payments.

Digital banks can look to these leaders in the technology field in order to understand and adapt their own customer experience focus. An organization like Google provides an aspirational template, with a wide range of products offered across a user base of more than 1 billion global customers.

Building solutions that are customer-focused is a core component in the rise of digital banking. Offerings should be designed to address unmet customer needs, remove friction in processes, promote interaction, and offer a unique or differentiated product. These benefits represent some of the key ways in which leading digital banks are differentiating from incumbents, building significant traction through key functionalities:

- **Low friction app downloads and rapid on-boarding.** Customers can sign up for a bank account from anywhere in a matter of minutes. On average it takes just five minutes to open a typical digital banking account
- **Engaging user experience.** Well-designed apps allow customers to effortlessly carry out their banking needs and gain insight into their spending behavior. All leading digital players offer PFM tools with their current account products

EXHIBIT 7 | Imperatives for Building a Successful Digital Bank



- **Key ‘anchor products’.** Products such as commission-free FX provide customers with more competitive services than traditional banks
- **Value-added services.** A data-rich relationship and added services such as PFM tools and integrated marketplaces create platforms that provide an enhanced but personalized banking experience. Value-added services can be easily purchased, saving users time and effort searching alternative providers. Marketplace platforms also offer instant choice and financial lifestyle products directly within the app

Digital bank Revolut offers an example of an emerging digital bank driving growth through this proposition. Commission-free FX helped simplify travel and address an unmet need. Simple and fast on-boarding and free accounts were designed for frictionless user experience. Unique card branding and innovative cryptocurrency exchange offers a unique attraction for customers. An online community and daily banking needs added that element of interaction.

KakaoBank and TMRW showcase two other digital banks employing customer experience as an important differentiator. Both banks seek to leverage the idea of customer obsession and engagement as a model to drive adoption. KakaoBank’s Eat Lover Club

and shared social payment account allows members to easily share and track funds, while also offering quirky reminder messages for outstanding transfers. TMRW utilizes PFM tools and smart savings, alongside a 24-hour chatbot, to ensure frictionless and customer-focused functionality.

Excellent user experience (UX) and user interfaces (UI) are critical prerequisites of a digital bank offering, not a differentiating factor. Simple, user-friendly design is fundamental in effective delivery.

Customer obsession is realized by leveraging human-centered design, developed through a lean start-up approach that embraces agile sprints and a DevOps mentality, enabling digital banks to build and maintain solutions that customers want across all stages of the product lifecycle. Explore what customers want, experiment and understand, build the right thing, and ensure continuous support for the end product.

Operating Model And Ecosystem

Digital banks need to leverage digital ways of working and build a proprietary ecosystem in which they guard their freedom to operate. Banks without these propriety ecosystems or assets are at risk of being replicable, and eventually supplanted by emerging new challengers.

Operating models should be based on an end-to-end digital process that ensures a fully-digitized pathway for both internal and external user experience (Exhibit 8).

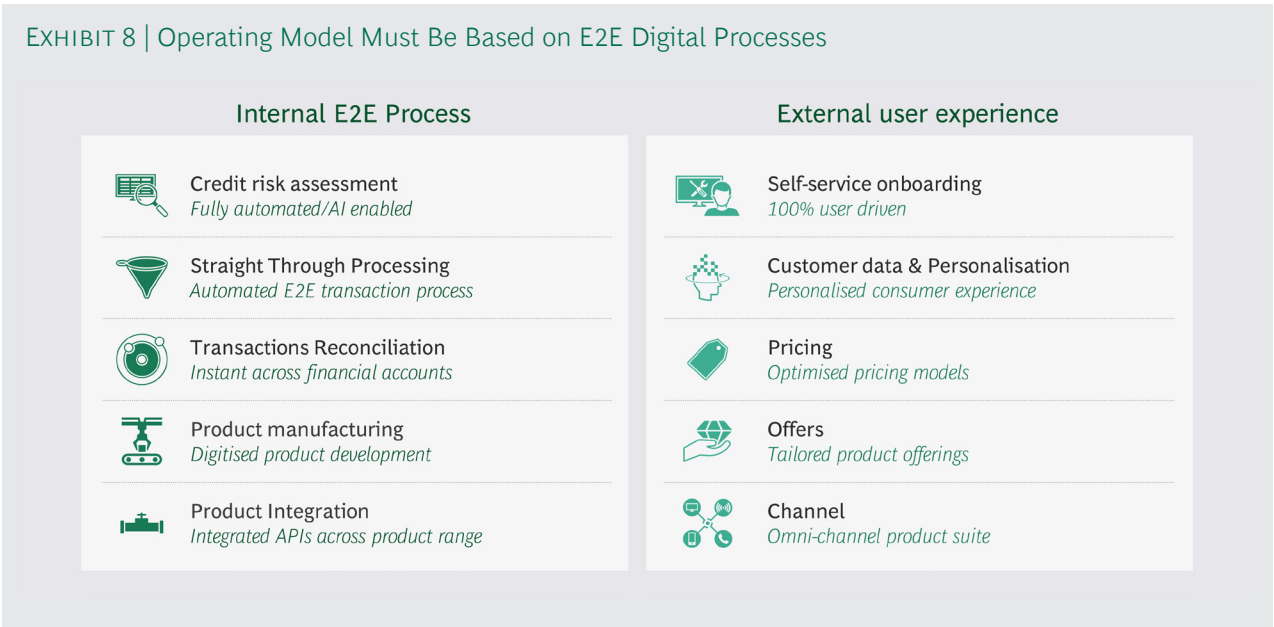
A best-practice approach means internal users would be enabled to perform credit risk assessment and application processing through automated and AI-enabled processes. Transaction reconciliation will provide instant access across accounts. Product manufacturing and integration is fully digitized, with integrated APIs providing an open access pathway across the product range. External users are enabled through digital self-service on-boarding. Customer data delivers personalization, as well as providing adaptive and optimized pricing models and tailored product offerings. Products will be accessed through an omnichannel product suite.

Polish digital bank mBank was launched as a branchless online-only offering in 2000, with an end-to-end digital journey as a core element of its operating model. In 2013, mBank relaunched online and with mobile offerings through e-commerce and digital advertising channels. Continuous investment in a lean, flexible, agile business model and technology has seen it positioned as the third biggest bank in Poland today, and is one of the most profitable and successful digital banks globally.

Operators should look to ways to benefit from an ecosystem approach, leveraging the data from a wide range of functionalities to feed into an increasingly personalized product and service offering. For example, leveraging a telco ecosystem offering will provide a rich vein of data around payment modes, mobile behavior, address verification, and KYC insight. An e-commerce ecosystem solution will deliver insight on spend and transaction history, demographics, and rating and review preferences.

There are numerous examples of successful technology ecosystem players across global markets. In Southeast Asia, ride hailing unicorns Grab and Gojek represent platform players which have rapidly scaled to become household names, moving from early operations in ride hailing to a range of adjacent and non-adjacent areas. These two operators reflect a trend by ecosystem players in entering the e-wallet space as a gateway to financial services, with Gojek’s Gopay and Grab’s Grabpay offering a valuable entrance point for early customer insight. These operators then go on to expand into further financial product offerings in areas such as lending, insurance, wealth management, and retail banking.

Chinese giant Alipay is an impressive example of ecosystem success, leveraging the value of its extensive ecosystem to penetrate



into a wide range of consumer activities. It boasts product and service offerings in a diverse range of areas, from traditional mobile wallet and marketplace applications, transportation and ride hailing, dining and delivery, discount vouchers, entertainment and movie tickets, to bricks and mortar retailers. Through leveraging mobile apps, Alipay has created a payment platform present across many verticals, with high customer adoption. 40% of customers use Alipay in four or more active scenarios, and 78% in two or more active scenarios.

Successful Neobank players are establishing marketplaces for third-party products to quickly expand offerings. This is a fast and affordable way to add product offerings, retain customers, and diversify revenue streams. It enables operators to easily translate their user base into profit. Players such as Revolut, N26, Monese, and Atom Bank have all adopted this approach to boost revenue opportunities.

Revolut partners with pension disruptor PensionBee, insurance provider Lending Works, and many others to diversify its product offerings. N26 takes a similar approach through partnership with payment companies Barzahlen and TransferWise, insurance company Clark, and others. This approach also highly values monetizing data through charging for its use, or selling it on to

others such as fintech partners.






















Digital Challenger Banks are leveraging partnerships to reduce time-to-market and quickly launch new products and features. (Exhibit 8.) Examples include instant P2P loan approval in partnership between Revolut and Lending Works, international transfers with transparent fees in partnership between N26 and TransferWise, and fraud and AML monitoring features through partnership between Featurespace and Contis (Exhibit 9).

Tech Principles And Strategic Choices

Traditional incumbent banks often struggle to rapidly adapt to change, in contrast to digital banks where agile delivery remains a fundamental part of their DNA. Establishing a successful digital bank requires a commitment to this agile approach, supported by smart strategic choices in building the right technology foundations to flourish.

IT stacks need to be effectively organized in order to support rapid change, providing a responsive and scalable solution. This requires a comprehensive approach to technology capability throughout a business, incorporating applications and platforms with clear ownership and control.

EXHIBIT 9 | Digital Challenger Banks Leverage Partnerships to Reduce Time-to-market and Quickly Launch New Product and Features

		Example partner	Used by	Details
Products	Consumer credit			To extend their loan offerings beyond creditworthy employees, to all borrowers
	Personal loans			To offer loans with instant approval from P2P lenders
	Savings			To offer their customers the highest interest rate savings through raisin's marketplace
	Investment			To offer customers seamless access to moneybox's range of savings and investing tools
	International transfers		  	To offer international transfers with fair and transparent fees
Features	AML/ compliance		 	To monitor for fraudulent transactions and AML
	KYC		 	To carry out identity verification for e-KYC
	PFM chatbot		 	To offer spending insights and investment options through a

Source: BCG x Expand FinTech Control Tower

Cloud is a valuable enabler which all digital banks use to some degree. It provides a flexible opportunity to trial new functionalities with limited investment, offering both scalability and reliability. The level of innovation by public cloud providers is remarkable, with new modules such as artificial intelligence or machine learning capabilities allowing banks to innovate faster. Banks benefit from the latest technologies at their fingertips, with limited effort. Developers are currently concentrated around public cloud technologies, with professional training programs offered by providers to keep them up to date. These tend to be offered through a self-service model, allowing small multi-disciplinary teams to deliver real value.

Assessing the role of technology in successful digital banks reveals some core commonalities. They tend to use open source software, libraries, and frameworks. This open architecture enables easy integration and avoids potential bottlenecks in integrating bespoke design. They often utilize microservices, and containerize to make components portable, reliable, scalable, and easy to maintain. Cloud is often a core part of deployment, on either public or private cloud infrastructure. Simple, high performant, standard integrations are the norm. Agile development and deployment is critical.

Technology stacks are often standardized to current technology offerings. These features outline a checklist of key lessons which operators should recognize:

- Architecture is owned by the bank, and represents an important competitive edge
- Open source is safe to be used in a bank when properly governed and supported. It should be used to safeguard costs and to access a larger developer pool. Support and expertise can be outsourced
- Infrastructure is virtualized and automated, so that developers can self-provision infrastructure for their needs
- Build vs. buy is considered as a strategic decision. Building or using open source products is often preferred over buy
- All processes are automated and paperless
- Technology is always current. Legacy technology is discouraged or not allowed
- The software development lifecycle (SDLC) is agile and automated
- Integration is based on industry standards

CASE STUDY REVOLUT



Revolut is a digital bank which has enjoyed significant success through placing technology at the heart of its growth. Since its launch in 2015, Revolut has grown to handle over 230 million transactions, and on-boarded more than three million customers. It has gradually incorporated more features into its offering, leveraging scalable architecture to include integration of more than 50 applications through its platform.

Revolut built its core infrastructure through compute engine virtual machines, giving its engineers the perfect balance between

ease of use, automated deployment, and control over security. The company also adopted comprehensive use of cloud APIs with third-party automation to achieve a fully automated infrastructure-as-code provisioning and platform management solution. This has enabled Revolut's developers to accelerate deployment of features and functionality, while enabling easy rollback of features if necessary.

Through integrating use of cloud identity and access management tools, Revolut was able to easily set up highly secure, compartmentalized infrastructure that

enables it to assign resources simply and quickly. That's particularly important for digital banks, with the security of Revolut's large dataset a key part of its technology decisions. The cloud-based solution allowed Revolut to ensure backup of data in a secure but less resource-intensive fashion.

Revolut's use of this cloud-based approach has allowed them to build infrastructure that can scale at speed without sacrificing stability, automate deployment without compromising control, and help maintain the security standards that are required of a financial services company.

Big Data And Analytics

Big data and analytics provide the strategic backbone to decision making for successful digital banks. This incorporates elements from product design right through to customer service and satisfaction. Understanding and incorporating this data is critical to personalized, customer-centric approaches that are crucial to digital banks. There are three key components of a personalization strategy — platform, features, and data (Exhibit 10).

Data is the foundation for personalized intelligence, with advanced analytics on transaction, customer, and other data types allowing digital banks to build understanding of customer desires and expectations.

Features can be adapted to deliver personalized services based on this data, ensuring that customers are served with hyper-relevant content, products, and offers. A data-driven platform then offers a personalized user experience, with intuitive interface that provide both positive engagement and simple ease of use, alongside an adaptive approach that builds insight from data.

Financial technology companies typically target different behavioral segments to offer behavior-based personalization. As a result, they often differ in data required, features enabled, and the platform enhancements possible through analysis of that data.

Utilizing more traditional behavioral data such as purchasing insights is enabled through transaction data, which feeds into standard personalization tools such as personal financial management, balance warnings, and automated savings. This can be

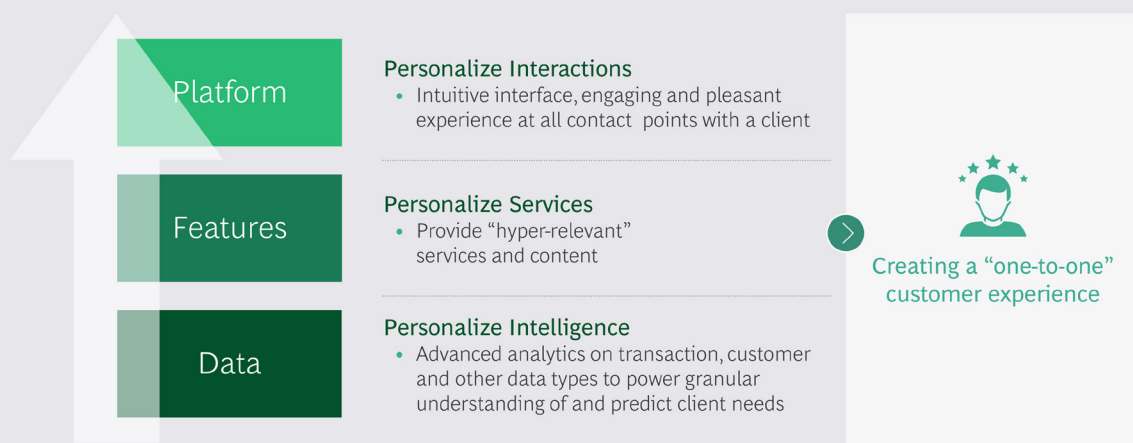
enabled through a platform which engages with use of chatbots or virtual assistants, automated notifications, and dashboards.

The potential of modern data analytics however goes beyond this more traditional approach, and unlocks potential around usage behavior, time-sensitive decision making, and even interests, motivation, and psychology of customer journeys. This can inform even greater use of features provided by digital banks, with aspects like smart credit decision making, time-sensitive offers, third-party promotions, and a range of other product and lifestyle features. This also forms part of an optimized platform design that has UX personalization as a core functionality.

Data and analytics capabilities may be built in-house, or acquired through partnerships with third-party providers. There are numerous examples available on the market today, for example The Waay, Persado, and Flybits all represent third-party operators which have engaged in successful partnership with digital banks.

The Waay is a third-party partner which boasts an ability to help banks understand individual customers, analyzing and presenting insight into their particular traits and values. That enables digital banks to target particular features or products, as well as align promotions with content that engages what's important to customers. AI-powered technology partners Persado applies its understanding of language to create compelling messages for digital banks, providing personalized messaging on landing pages, apps, notifications, and customer communications that constantly evolves to enhance engagement. That personalized

EXHIBIT 10 | There Are Three Key Components to a Personalization Strategy



Source: BCG x Expand FinTech Control Tower

approach builds emotional engagement through language that boosts success for digital banks. Flybits is another technology partner that engages through data, using its advanced analytics capabilities to provide a comprehensive insight into consumer demands and desires. That enables banks to incorporate contextualized offers and promotions that speak to immediate needs of customers.

Digital Start-Up Culture And Talent

Embedding an appropriate start-up culture is essential to create a successful digital bank, a particular challenge for incumbent players transitioning into the space. This strategy should embrace a customer-obsessed approach, and seek to avoid traditional elements of a legacy banking culture.

This approach is about remaining agile and responsive, and being able to quickly add, change, and improve products and services. The ability to react rapidly with speed and flexibility, enabled by a horizontal organizational structure, is essential. Innovation culture has been critical to success at tech giants like Google. Even during its rapid growth, this global giant has scaled innovation culture with focus on eight key pillars (Exhibit 11).

Such a start-up approach can present a real clash of ideals for incumbent operators transitioning to digital banking. The management team is critical in steering the right trajectory, with a real need to recruit appropriate management talent early on to steer the journey. Gather an appropriate pool of leadership team candidates before finalizing the consortium or organizational approach where possible. Leaders must be comfortable with, and indeed enthusiastic about, this customer-centric approach. That means avoiding becoming tangled in a culture of meetings in favour of an operational focus on customers. Bureaucracy, once an unflinching reality of banking, is toxic to a truly effective start-up culture.

A horizontal organization structure is critical to agility. This should incorporate a strong IT team as key, and should not be siloed away from operational teams. Avoid fleshing out organizations with team members from existing consortiums or operational areas where possible. Digital banks will thrive by taking a new approach to banking, not by swamping positions with traditional mindsets. It is also crucial to have a good balance of technology experts and financial experts. The more bankers you bring into your fresh, exciting digital bank, the more it will look like the legacy operation which businesses are attempting to transition away from.

EXHIBIT 11 | The Eight Pillars of Innovation



Have a mission that matters

Work can be more than a job when it stands for something you care about



Think big but start small

No matter how ambitious the plan, you have to roll up your sleeves and start somewhere



Strive for continual innovation, not instant perfection

An iterative process of testing and acting on the feedback teaches invaluable lessons



Look for ideas everywhere

Get ideas from everyone, your customers, your partners, and your own employees



Share everything

By sharing everything, you encourage the discussion, exchange and re-interpretation of ideas, which can lead to unexpected and innovative outcomes



Spark with imagination, fuel with data

Encourage blue-sky thinking, beginning with intuition, and then fuel by insights using data



Be a platform

Open technologies enable anyone to apply their unique skills, perspectives and passions to the creation of new products and features



Never fail to fail

It's okay to fail as long as you learn from your mistakes and correct them fast

Source: Susan Wojcicki, CEO of YouTube

Obtaining talent in a competitive marketplace may not be easy. Digital skills are in high demand, with digital disruption now pervasive across all industries and geographies. Digital banks may have to look to recruit outside traditional backgrounds or markets. In BCG's 2019 study [Decoding Digital Talent](#), Singapore was the only city within the Southeast Asia region to achieve a top-20 spot in most attractive global destinations. Crucially however, a good work-life balance, learning and training opportunities, and career development possibilities reflected the most important work preferences identified in the study. Those are all features which an emerging digital bank could potentially leverage to attract digital talent.

How a digital bank staffs and governs is critical. As they scale up, it's important to think of traditional functions such as risk and compliance differently. These digital banks will need to combine technology and people, to provide the right balance of automated risk and compliance against the need to constantly evolve and transform. The human factor will still be critical, with banks, operators, and regulators equally unprepared for a truly fully-automated compliance vertical.

Communication With Regulators

The value of agility can only truly be enabled within an appropriate regulatory framework. Digital banks must work with regulators to unlock the full potential of this remarkable opportunity, ensuring that guide rails can steer transformation without limiting innovation.

Regulators are seeking to assist digital banking growth, driven by two key imperatives. The first is to create competition for traditional incumbents, amplifying the need for better and more effective products and services. The second is the fundamental desire to drive better service delivery to underbanked segments. The latter is a particular focus in Southeast Asia. Regulators are likely to examine five key factors in assessing the suitability of candidate digital banks:

- **Path to profitability.** Regulators will wish to see a convincing path towards profitability for candidate digital banks. Many operators have shown impressive user growth, without truly achieving a breakeven which will be fundamental to the sustainable success of digital banking. Many players have unproven business models, showing that innovation still requires recognition of financial demands

- **Key differentiation.** With the priority around reaching underbanked segments foremost in mind, regulators are likely to want to understand what differentiates a digital bank's proposition, and how unique it is in the marketplace. It is crucial for digital bank candidates to communicate how they are different from incumbents, and how they might employ transparent, robust technology approaches and design to cater to the demands of a customer-centric landscape
- **Adherence to regulation.** While enabling digital banking opportunity requires freedom to innovate to scale, it must also cater to the underlying need to meet existing banking regulation. That includes those which apply to existing incumbent operators, as well as any evolving regulation which may apply to digital banks
- **Consumer protection.** Regulators will wish to see how consumer protection will be ensured, cybersecurity risks mitigated, and data protection robustly implemented
- **Ability to serve underserved.** Regulators are likely to want to understand underbanked and underserved customer segments will be served by proposed digital banks

Technology platforms can be important partners in ensuring regulatory compliance. These platforms have extensive experience building solutions that meet regulatory standards. In Singapore for example, Google supported cloud adoption solutions for partners that were uniquely designed to meet the requirements of the Monetary Authority of Singapore (MAS) guidelines on outsourcing, creating a detailed mapping between MAS guidelines and Google Cloud operations. These partnership approaches leverage industry expertise from both sides of the technology and banking equation to design a solution that meets critical national and regional standards.

SUMMARY

NOW IS THE TIME TO ACT

DIGITAL BANKING OFFERS HUGE POTENTIAL to the Southeast Asia region. Digital adoption has grown rapidly in recent years, with the region now home to a digitally-connected population of over 400 million citizens. This figure is likely to grow substantially in coming years, as mobile penetration and 4G coverage expands in a region with a population expected to reach 542 million by 2030.

This growing digital penetration, combined with wider economic growth, reveals a pressing need for innovation in banking services. Digital banking provides an opportunity to meet the demands of modern customers who are increasingly turning away from traditional banking products and services. This era of banking innovation also provides an important avenue to on-board unbanked or underbanked populations, in a region where bank account adoption varies significantly across geographies.

While Digital Challenger Banks are emerging to disrupt the status quo, there is increasing evidence of incumbent operators effectively entering the expanding digital banking market. In doing so they face pressures to transform, moving away from legacy structures to a more agile form of operations. These transitions should be inspired by the success of major technology companies such

as Google, Apple, AliBaba, and Tencent — organizations which have shown how substantial success can be leveraged from the ability to adapt and rapidly scale to meet the needs of a diverse customer base.

Customer-centricity is at the heart of a successful evolution. That will require incumbent and challenger banks alike to ensure user experience is central to both their business, and their unique technology offering. Embracing the right operating model and ecosystem is critical to steering this course, ensuring that the tools and functionality are enabled by the underlying architecture and platforms. Selecting the right technology is also fundamental to enabling this ethos of continual change. Equally important however is embracing the right data analytics and understanding to ensure that such evolution is built on sound strategic reasoning. This data-driven approach is also essential to unlocking the hyper-personalized products and features that can rapidly adapt and appeal to a modern digital banking audience.

Culture will be a major determiner of success. Digital transformation cannot succeed without embedding an appropriate start-up culture. Digital banks must think agile, and act agile. That creates a particular challenge for incumbent banks, which will have to

navigate the clash of new ideas against legacy expectations. In all of this, digital banks should be careful to manage, monitor, and respond to the regulatory environment in which they operate. Working in collaboration with technology partners can provide a valuable opportunity to inform those choices in a smart and effective manner.

With markets across the region exploring pioneering digital banking licenses in coming years, there has never been a more important time to act for challengers and incumbent operators alike. The region is banking on innovation to unlock greater access to a future of customer-focused, personalized banking experiences.

FOR FURTHER READING

Southeast Asian Consumers Are Driving A Digital Payment Revolution

A report by Boston Consulting Group,
May 2020

[Read the report](#)

Decoding Digital Talent

A report by Boston Consulting Group,
May 2019

[Read the report](#)

NOTE TO THE READER

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