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Introduction

Technological advances and progressive regulatory environments are encouraging banks to develop open, collaborative ecosystems. These market dynamics have led to the growth of new digital banks and the related issuance of virtual banking licenses across Asia. As Asian banking customers have grown in wealth and connectivity, their sentiments towards new methods of banking have increased favourably. These dynamics create the perfect conditions to support the growth of digital banks and a move towards better banking.

However, success is not guaranteed unless incumbent banks and new virtual bank entrants can transform into data-driven, high-performance, and profitable organizations. Traditional banks face increasing competition in service innovation, which reinforces the need to re-design conventional banking models. These new banking models need to be built on open, cloud-based technology. Virtual banks may be nimble compared to the incumbents. Still, they face three immediate challenges: they need to demonstrate to regulators their ability to comply, they need to monetize data, and they need to turn compliance into a competitive advantage.

This paper outlines a brief history of Digital Banks and examines current examples of innovation Oracle has seen across banking. We will also look at new proprietary research from PwC exploring the digital banking consumer in three key Asian markets, namely Hong Kong, Singapore, and Malaysia¹.

¹ PwC Virtual Banking Survey

A Brief History of Digital-Only Banks

The first wave of 'internet banking' offered an innovative means of access to traditional banking services. For example, the internet bank Egg launched in the UK in 1998. It competed based on high savings rates and 0% rates on balance transfers. Reliance on a narrow range of services and consequent lack of scale led to the bank being sold to Citigroup in 2007.

Today, banking in Asia is experiencing fundamental disruption owing to the following dynamics:

- The growth of tech giants into the financial services space has led to the emergence of alternatives to traditional banks.
- New open banking regulations as mandatory requirements for existing banks to open up to non-banking 3rd parties.
- The issuance of virtual banking licenses.

These market dynamics increase competition from new entrants that could arise from adjacent non-banking industries, like e-commerce, telecommunications, and even ride-hailing.

In Asia-Pacific, Singapore, Hong Kong and Malaysia are leading the charge on Virtual Bank licenses. These, coupled with supportive regulatory frameworks on Open Banking, are fostering innovation and competition.

The lowered barriers to entry allow for new technologies to be implemented. These increase the range of products and services, to reach customer segments previously untouched. We detail some of these innovations below and consider their implications for better banking.





the World's First Full Scale Digital Banks

National Australia Bank (NAB) launched UBank a branchless Direct Retail Bank in 2008. It focuses on customer service and user-friendly front-end applications so that customers can always engage easily with the bank. It aims to offer real lifestyle banking, rather than a series of discrete transactions.

UBank has introduced several innovative products, including People Like U. People Like U is a social comparison tool that allows customers to see the anonymized spending and budgeting data of their peers. RoboChat is a Robo-advisory application that can grant loan approvals in minutes.

UBank achieved its two-year customer acquisition target within its first six months, signing up as many as 10,000 customers a month. It reduced a two-day customer on-boarding process for deposit accounts down to just five minutes. UBank has been the key driver behind NAB's expansion of its market share for deposits.

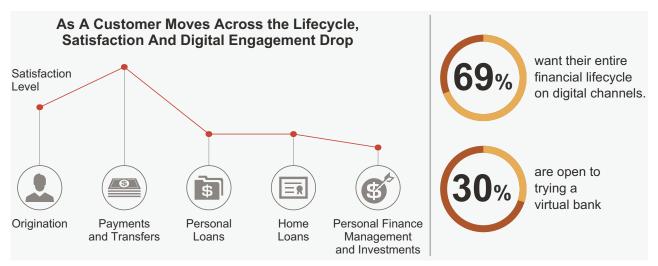


Figure 1: Customer Satisfaction across the Financial Lifecycle.

The Digital Customer Journey Across the Financial Lifecycle

Banks often struggle with the problem of attracting and retaining customers. An Oracle survey² found that customer satisfaction with traditional banks decreases as the customer relationship progresses across the financial lifecycle. Digital banking propositions globally have done a great job of the on-boarding process. They now must prove themselves across the customer lifecycle with complex products such as SME Banking, Mortgages, Investments & Finance Management, where satisfaction drops significantly.

The survey also points out that 69% of consumers want their entire Financial Lifecycle on digital channels, and 30% of consumers are open to trying a FinTech or virtual bank option. These data suggest that consumers are demanding sophisticated, smarter, and more relevant digital experiences.

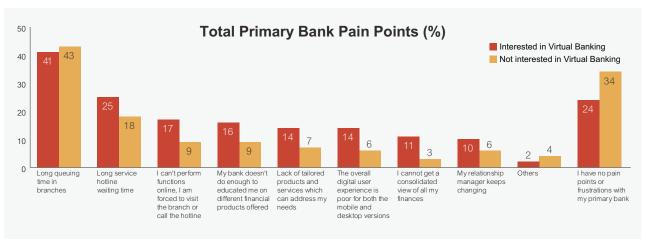


Figure 2: Customer pain points with their Primary (Traditional) Bank.

A separate study by PwC also reveals that customers who experience pain points with their traditional, primary bank are most open to digital banking.

Oracle report: The New demand in Digital Banking (2018) https://www.oracle.com/webfolder/s/assets/microsite/digitalbank/report/index.html

Growing at Scale – Customer Acquisition & Profitability

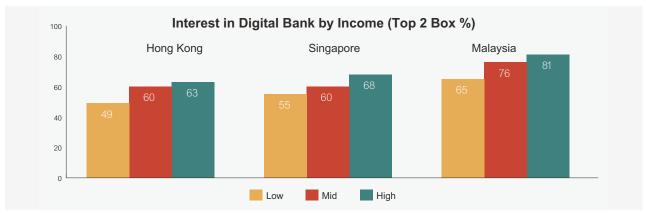


Figure 3: Customer (by Income Group) interest in Digital Banks.

PwC's research also suggests that higher-income groups, those with the highest expectations express the strongest interest in digital banks.

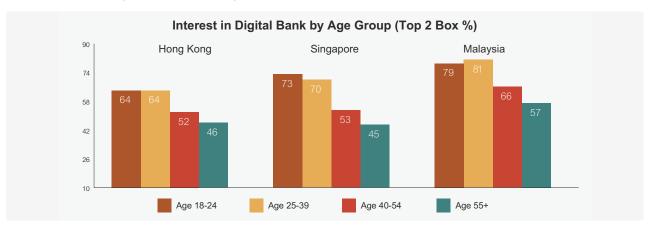


Figure 4: Customer (by Age Group) interest in Digital Banks.

Interest in digital banking is markedly stronger among the under-40s.

Customer sentiment is ripe for a new way of banking. Banks need to grow at scale, leveraging data insights to bring financial services products to market at a more competitive price point.

Traditional and virtual banks thus need to develop the ability to:

- · Respond with speed to new market developments;
- · Incorporate new products and processes rapidly onto banking platforms;
- · Offer more choices to the end-user for their profitability objectives;
- Easily connect with 3rd party products to offer a hyper-personalized service for the customer.

These capabilities are often developed in an open, cloud-based banking infrastructure. The key here is to adopt an agile, friction-free approach, through an ability to act on customer data insights and offer timely information.



In 2016, India's leading telecommunications company became the first payment bank in India. Payment banks are licensed by the Reserve Bank of India to accept limited deposits to promote financial inclusion. Using Oracle FLEXCUBE core banking platform, it provided accessible digital banking services (particularly for low-income groups) without the need for bricks-and-mortar branches. Oracle provides a flexible core banking platform for its innovative business model. Oracle's Core Banking enhanced the bank's mobile and payment capabilities, streamlined compliance, and helped with better business performance insight. With this solution, the bank was able to complete online customer onboarding with Aadhaar-enabled biometric authentication and provide paperless end-to-end customer onboarding with account opening.

Paperless onboarding is in line with India's strategy of developing a cashless, digital economy. The bank offers features tailored to the customer, such as using one's mobile number as an account number, providing free talk time, and insurance. It has also launched some non-traditional banking services for endto-end merchant management, including P2B payments handling and settlement, as well as conversion and management of physical cash into digital cash.

The bank has 285 channel touchpoints with 60 APIs that provide transport, lifestyle, and payment options in one seamless digital banking experience. It has a network of over 250,000 neighbourhood retail telco stores that function as banking points. The bank has also partnered with a network of 14,000 gas stations to offer ATM and remittance services for migrant workers.



HDFC Bank transforms itself with Oracle

HDFC, one of India's leading private sector banks, has worked with Oracle to adopt digital as a strategic advantage across its retail, corporate, and business banking offerings.

HDFC used Oracle FLEXCUBE core platform to innovate rapidly, launching digital products such as Smart Account Opening and 10 Seconds Personal Loan. The bank's digital transaction volume grew from 29% in 2009 to 92% in 2019 – reaching up to 10,000 transactions per second. It now handles 36% of India's daily payments via Oracle Core Banking.

In 2017, HDFC embarked on an omnichannel journey, breaking down silos to create a connected experience across all touchpoints and life moments. Oracle's Omni-channel Middleware runs on a cloud environment, supporting 60 million API calls per day.

HDFC was also able to use data & analytics as a core asset to drive business insights. Data analytics enabled HDFC to offer unique customer personalization, staying compliant with a best-in-class risk platform.

Oracle's tech innovations in analytics, blockchain, artificial intelligence, and digital are supporting HDFC vision to grow at scale.

Account Opening & Frictionless Onboarding

Cumbersome applications and complex account opening processes with multiple hand-offs spanning several days often leave customers frustrated, and banks end up losing good business. According to Forrester, abandonment rates for online banking applications are at 97.5%³. Multiple clicks, multiple screens, or multiple visits to the branch in person to complete the process, all contribute to these increased abandonment rates.

There is a shift towards customer-centricity owing to the rapid growth of digitally savvy customers protected by data privacy regulations. Banks can no longer rely on their legacy onboarding process to serve their customer's needs.

As data becomes one of the critical assets for the digital bank, it is paramount that important banking technology architectures are designed to include a frictionless process layer.

This foundational piece serves to orchestrate and automate the entire customer onboarding process by tapping into existing available customer data. It also reduces additional data inputs from the customer. The digital bank of tomorrow is adept at integrating existing customer datasets to bring about a seamless banking experience for the customer.

Genuine customer-centric solutions have features to enable a 'frictionless' origination process:

- Single platform for multi-product origination: Offers the ability to originate multiple products and bundled product offerings as part of a 'single submission', ensuring complete reuse of customer information and removing application complexity;
- Seamless multi-channel experience:
 Enables customers to seamlessly transition from one channel to another, thus delivering a 'channel agnostic' customer experience;
- Centralized pricing: Allows banks to price the relationship rather than the product;
- 3rd party integration via Open APIs: Enables integration with 3rd party vendors for credit scoring and collateral valuation;
- Process optimization: Maximizes automation with tailored workflows, automated document production and automated account opening.

 $^{{\}it ^3 Source: https://the financial brand.com/56792/bank_account-opening-application-improvement-scoring/account-opening-application-improvement-scoring/account-opening-application-improvement-scoring/account-opening-application-improvement-scoring/account-opening-application-improvement-scoring/account-opening-application-improvement-scoring/account-opening-application-improvement-scoring/account-opening-application-improvement-scoring/account-opening-application-improvement-scoring/account-opening-application-improvement-scoring/account-opening-application-improvement-scoring/account-opening-application-improvement-scoring/account-opening-acc$



Boosting Customer Experience: Hyper-Personalization

PwC's Retail Banking 2020 report⁴ showed that 61% of bankers say a customer-centric business model is "very important". Only 17% are "very prepared" for it. Loyalty rewards and generic offers not mapped onto customer demographics are unlikely to succeed in generating very much loyalty. A customer's spending patterns, subscriptions, and preferred brands create data that can help banks hyper-personalize rewards. Such rewards are more appealing to a given customer. Retail vouchers, free data roaming services, and better-personalized financing rates draw digitally savvy customers exposed to similar offers from Big Tech companies.

For traditional banks, customer data is commonly used to produce monthly statements and static balances. Digital banks, however, will deploy technology to generate dynamic data that can, for example, track your spending against savings goals.

For example, foreign exchange services are a significant source of friction for both leisure and business travellers, as well as for businesses trading cross-border. Bank cards that offer a multi-currency wallet function are increasingly common. The next step could be to offer multi-currency accounts, where customers can effortlessly change their currency mix with full visibility of the costs incurred.



Use Case 4:
Oracle Banking
APIs Helps
Weatherbys Bank
Jump-start Open
Banking Initiatives
to Build Faster,
Better Services

Weatherbys Private Bank in the United Kingdom was founded on the premise of excellent personal service and reliability in private banking and financial transactions in the horse-racing industry.

With an increase in open banking regulatory requirements (in the form of PSD2) coming from Europe, the bank embarked on a digital transformation. Weathersby Bank leveraged Oracle Banking APIs solution, which provides more than 1,500 ready, functional APIs for payments, retail, and corporate banking. It was able to build faster, better services to move up the value chain and create a brand-new customer journey.

The APIs enabled them to provide tailored services while managing customer consent, protecting identities, and future-proofing security. APIs allowed the bank to maintain its time-tested values while re-inventing itself for the digital age.

Under-Served Customer Segments: Small & Medium Enterprises (SMEs)

The issuance of virtual banking licenses creates a more inclusive banking environment, especially for underserved market segments. These include SMEs, the unbanked, millennials, or those without a credit history. Traditional banks are also finding the sweet spot when it comes to cash management and other transaction banking services targeting SMEs with rising regional ambitions.



A report by PwC and the Open Data Institute⁵ found that SMEs had a better grasp of the usage of Open APIs and the benefits they can bring. **71% of SMEs are expected to adopt open banking by 2022** for services such as integrated accounting, tax services and fast access to capital by giving providers real-time access to account information, instead of filing paperwork.

SMEs are demanding rapid funding from banks. While individuals can open a digital account within hours, businesses continue to face onerous regulatory hurdles in many markets for account opening. The average 'Time to Decision' for SME onboarding within traditional banks ranges anywhere between 5 days to 1 month, depending on the loan size and complexity of the deal. In Hong Kong, it takes an average of 38 days to open a business account with a traditional bank⁶. 'Time to Cash' can take between 25 and 55 days. These time-frames are a push factor to encourage SMEs towards faster offerings from Big Techs or FinTechs. Traditional banks must focus on how to reduce turn-around times and deliver a better end-to-end experience to their customers.

Leveraging data can drastically reduce origination turn-around times. It can also lower the cost to originate and improve credit quality across the end-to-end origination process – from application capture, assessment to fulfilment.

When data is harnessed through analytics and enabled with the right APIs, banks can become empowered with insights and agile processes to improve SME experiences.

API enablement goes beyond merely providing the customer with an online form to complete an application. It aims to enable customers and bank staff with secure and consistent access. Such access delivers transparency into the data and its related processes at every stage of the origination life-cycle, all the way to supply chain finance, and executing payments. When implemented appropriately, this dramatically improves 'Time to Decision' and 'Time to Cash' for SME customers.

⁵ The future of banking is open https://www.pwc.co.uk/industries/financial-services/insights/seize-open-banking-opportunity.html

⁶ Refinitive Report: https://www.refinitiv.com/content/dam/marketing/en_us/documents/reports/kyc-compliance-the-rising-challenge-for-financial-institutions-special-report.pdf (Pg. 17)



Progressive **Data-Decisioning** for SME Lending

servicing and collections. Getting a mortgage, or re-mortgaging can be a

complicated and stressful process of document gathering, coupled with lengthy delays. For the lenders, legacy platforms inhibit a 360-degree view of the customer.

Oracle is helping banks and building societies transform residential, buy-to-let and SME mortgage origination. Using the design principles of open architecture, progressive data decisions and complete process automation, Oracle enables lenders to process mortgage applications more efficiently.

The solution features more than 200 originationcentric open APIs to create a single, seamless experience for customers.

It thus relieves the stress associated with gathering countless documents by aggregating data from trusted 3rd party sources and financial institutions. It deploys a complete lending lifecycle approach: from origination to







Decision' in auto-decision **Minutes**

'Time to Cash' at less than

As a result, Oracle customers are achieving 'Time to Decision' in minutes and a 70% improvement in auto-decision with a 'Time to Cash' at less than 24-hours.

One bank has been able to halve the number of required customer documents and dramatically improve time to offer – seeing a 25% reduction in the cost of origination.

Building Data into the Blueprint of New Banks

A well-planned and executed data strategy is essential. Both digital and traditional banks need to leverage data insights via agile technology stacks (including cloud databases, middleware, Software-as-a-Service) to reshape their business models and achieve hyper-personalization.

To ensure long-term profitability, banks should use data-driven tools from an agile technology stack to optimize capital allocation and mitigate risks. This applies to virtual banks with a growth trajectory to ensure that risk and profitability are aligned strategically. Data-driven tools enable the mastery of data, which is needed across all levels and departments to get a real-time picture of the bank's business.



66% of global banking executives consider aligning financial performance and risk data very important or critical to success.

- Research from Oracle and Asia Risk⁷

A common analytics platform allows for the alignment of finance, risk, and performance management strategies. Intelligent analytical applications can autonomously connect outcomes, deriving insights from data across business functions, platforms and channels.

To build such a modern data infrastructure incorporating robust analytics and AI entails migrating data from silos to a streamlined ecosystem with robust data governance frameworks. Such a move towards a unified data foundation to manage, monetize, and mobilize data, along with the use of open APIs, can boost customer value by increasing choice. A unified data foundation enables cross-product and cross-function access to a "single source of truth" about clients.

Use Case 6: A Tier-1 US bank aligns Risk and Finance under a common data-decisioning engine

Business objectives

- Create a shared data architecture that builds a single source of truth
- Make reconciled customer and ledger data available for risk, finance, treasury, compliance and customer insights
- Build the data foundation for Regulatory Reporting and Risk & Finance applications

Results

Business benefits

- Enabled a combined decision framework for Risk, Finance, and Profitability.
- Optimized analytical process and decision making, modelling & visualization
- Provided flexibility in scenario testing

Operational Benefits

- Met regulatory requirements
- Improved data quality and governance structure
- Mitigated operational risks
- · Reduced operational expenses
- Streamlined Risk & Finance systems and processes





Turning Risk & Regulatory Compliance into a Competitive Advantage

Digital banks will need to consider how they can ensure compliance with less headcount and no physical presence. One of the critical design considerations of a digital bank is how it can design and automate processes to achieve compliance by design.

Automation and straight-through processes must be enabled to ensure ongoing compliance. Scalability is also a critical factor: without a scalable, robust infrastructure, digital banks will encounter problems – thus risking the trust of customers and regulators.

Towards Safer Societies: Fighting Financial Crime from Day 1

Money-laundering and fraud are significant problems for the banking industry, and traditional banks have strict Know Your Customer (KYC) processes to ensure the identity of customers and curtail risks. With a new banking regulation required every twelve minutes somewhere in the world, there is an increasing requirement for banks to deliver continuous compliance. Continuous compliance places tremendous strain, particularly on virtual banks. They encounter a fundamental dilemma in trying to identify customers they may never see.

Anti-Money Laundering (AML) technologies such as graph analytics and machine learning applied to transaction histories can help digital banks curtail criminal flows of capital that threaten customers.

The business, technology and regulatory landscape is ever-increasing in complexity. New digital banks need to make use of KYC, risk or compliance data associated with running a new bank to gain business insight.

Building Ecosystems through Open APIs

New ecosystems present a significant opportunity to respond faster and more accurately to new demands and give consumers fewer reasons to explore alternatives outside of the bank's ecosystem. Open data sharing with strategic partners helps you better understand consumer needs at all stages of their financial lifecycle. Open banking assists banks with new revenue models and adds value to the customer.

PwC's research reveals a strong appetite for non-financial services from bank customers in the region.

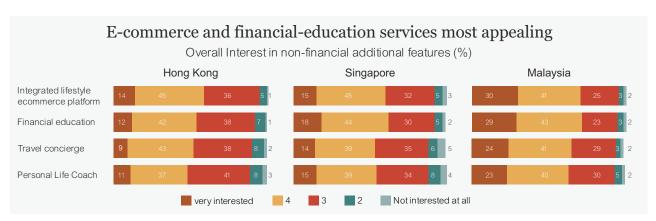


Figure 5: Customer appetite for non-financial services.

Healthcare and wellness top the list of non-financial services sought on e-commerce platforms.

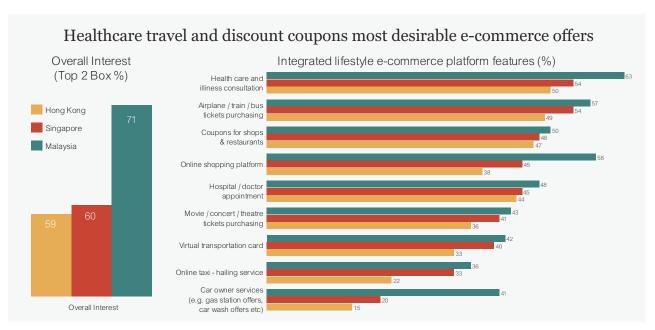


Figure 6: Most desirable e-Commerce offers for Customers.

Customers expect the right services at their fingertips without fuss. The ability to tie options for e-commerce, transport and lifestyle into one seamless digital banking experience is critical. By adding value, banks can avoid being a commodity service provider.

Redesigning banking services around the customer through open APIs means creating experiences that attract, delight and retain the customer. Banks need to be embedded in the customer journey across devices and interfaces, responding to the customer at the right moment and recommending financial products only when they add value.

With the right technology infrastructure, traditional and digital banks can scale and react with speed and agility to incorporate new products and processes onto their platform. Digital banks can then easily connect with 3rd party products – offering more choice to the end-user.

Becoming an Indispensable Partner

The experiences delivered by digital banks will force the traditional players to re-think the way they address customers and their lifetime needs. The banks who fail to adapt by using data effectively will lose customers, while the innovators will deepen their share of the customer wallet by delivering a more relevant experience.

Uncertainty about the new players, but customer inertia will not last forever.

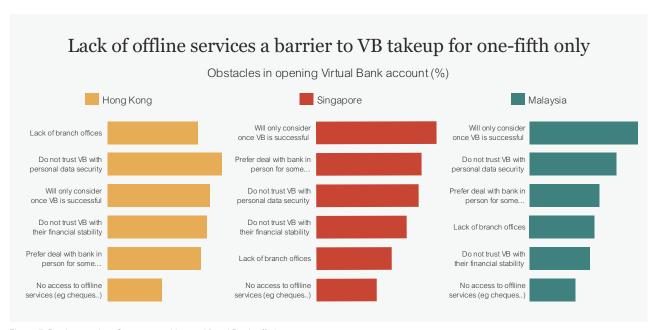


Figure 7: Barriers against Customers taking up Virtual Bank offerings.



Traditional banks have long relied on interest income to drive growth. They have used technology only as an enabler to run the business. By using technology and Open APIs as a core driver to provide the most compelling value proposition to the customer, they can respond to market demands with greater speed and agility.

Traditional banks need to move from being relevant to being integrated into the customer's life. Integration means revamping offerings to include in-depth advice on buying a first property, on education options for their children, and how best to downsize post-retirement. These interactions have been traditionally exclusive high-cost concierge services for private banking clients. However, they can be democratized through technology and an appropriate selection of partners.

Digital banks will need to demonstrate that they can manage relationships with SME customers involving multiple products and transaction types. The key lies in whether they can embrace open banking technology to redesign the customer journey. Redesigning entails an API strategy, front-end customer-facing applications to the back-end platforms, data governance, and operating model. Once an SME becomes a banking client, there is a wide range of 3rd party services that the bank can facilitate so that it becomes an indispensable partner. These include bookkeeping, payroll, corporate secretarial services, and legal advice.

Successful banks of the future will give customers choice across their financial lifecycle while complying with regulatory demands.

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