QUINLAN & ASSOCIATES

BRANCHING OFF

THE OUTLOOK FOR HONG KONG'S VIRTUAL BANKS

THE AUTHORS

BENJAMIN QUINLAN
CEO & MANAGING PARTNER
BCom (Hons 1) / LLB (Hons), *Macquarie University*

EASHAN TREHAN
CONSULTANT
BEng (Computer Science and Finance) (Hons), *University of Hong Kong*

FINTECH ASSOCIATION OF HONG KONG

SPECIAL THANKS

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FOREWORD

As we approach the anniversary on 24th March[1] of the launch of the first of eight new virtual banks offering convenience, competition, and innovation to individuals and small businesses, The FinTech Association of Hong Kong would like to thank Quinlan & Associates and welcome this timely report focused on the outlook for Hong Kong's virtual banks.

Hong Kong has been fortunate that a forward-looking regulator, the Hong Kong Monetary Authority, has facilitated a series of policy (Smart Banking Initiatives – September 2017), infrastructure (Faster Payments – September 2018) and regulatory initiatives (new Stored Value Facility Licences from August 2016 and Virtual Banking Licences) benefiting both new entrants and existing financial services providers.

Hong Kong is uniquely positioned as a global financial centre bridging Mainland China (the world's largest and most innovative TechFin market) with the rest of the world's well established financial services organisations and global FinTechs.

Hong Kong has a tradition of digital innovation in financial services to support the community, including the homegrown Octopus card, which has pioneered world-leading ease of use across transport payment and low value payments since the late 1990s. Octopus exported its system and expertise around the world, including the Netherlands, Dubai, and New Zealand.

The three note issuing banks – HSBC, Standard Chartered, and Bank of China – have each responded to the rise of digital services with new innovations, such as HSBC's fully online IPO (MTRC) in 2000; the IDEO designed Standard Chartered Breeze Mobile Banking application in early 2010's, and Bank of China's BoCPay application allowing QR payment in the Greater Bay Area. These "incumbents" have proved remarkably nimble in launching PayMe, Mox Bank, and livi respectively to counter the new entrants from such TechFin leaders as Ant Financial, Tencent, Ping An, and ZhongAn.

The combination of a forward-looking regulator and a culture of professionalism and innovation has nurtured Hong Kong's retail and small business FinTech start-ups, with one 'unicorn' (a privately held start-up worth over USD 1 billion), WeLab. The WeLab Group sets a notable precedent of expanding from Hong Kong to Mainland China and into the region.

Following HKMA's issuance of first the new Stored Value Facility Licences and then the eight Virtual Banking Licences, Hong Kong individuals and small businesses have benefited from new financial service providers and improved existing banks' offerings, heralding, just as the Hong Kong Monetary Authority had hoped, a 'New Era of Smart Banking'.

In welcoming this report on the anniversary of the arrival of virtual banks, the FinTech Association of Hong Kong looks forward with positive anticipation to further innovation, collaboration, and benefits that such a vibrant and dynamic FinTech community will bring.

Board of Directors
FTAHK

[1] ZA Bank, 'Against the tide: ZA Bank launches ZA Savings Go recreating value for savings', 24 Mar 2020, available at: https://www.hkma.gov.hk/media/eng/doc/other-information/ac-opening/20200323e1.pdf

EXECUTIVE SUMMARY

In today's world, with a plethora of products and services being available at home at the touch of a button, stretching from e-commerce to streaming services, the banking industry has been comparatively slow to innovate. In addition to lengthy onboarding times, queuing in long lines, and completing reams of paperwork to access financial services and products, customers have long had to contend with poor remote servicing and a profound lack of personalisation.

In recent years we have witnessed the emergence of branchless banks, termed "virtual banks", aimed at accelerating innovation, improving customer experience, and making banking more inclusive. In 2020, Hong Kong saw the launch of eight virtual banks vying for a slice of the city's HKD 373.9 billion annual retail, commercial, and corporate banking revenue pool, which is currently being dominated by four leading banks with a combined 62% and 54% market share of deposits and lending, respectively.

The virtual banks have wasted no time in trying to appeal to local residents and businesses, including offering attractive deposit and savings interest rates, lucrative reward schemes, and a seamless onboarding experience. While most of the virtual banks have deployed innovative forms of technology across the customer value chain, we see a number of key challenges to their ability to disrupt brick-and-mortar incumbents, including a trust deficit felt by customers, profitability concerns, cybersecurity and data privacy risks, talent management shortfalls, and heightened competition from both the new market entrants and incumbents.

These challenges cannot be underestimated. To ultimately succeed, the virtual banks will need to put in place a clear strategy to win over customer hearts and minds – from creating maximum brand impact through well-targeted marketing campaigns to providing unique products and services and delivering an unrivalled customer experience. Given the suppressed Net Interest Margin ("NIM") environment and challenges around limited scale in the short term, we believe that a fee-based income model that leverages customer data across various touchpoints is critical; both in terms of enhancing product personalisation and driving cross-selling opportunities.

This "data advantage" held by the virtual banks may further be pressed home through the formation of third-party partnerships with financial and non-financial service providers, allowing them to carve out a powerful closed ecosystem that delivers end-to-end banking and lifestyle solutions for their customers. In the longer term, the Greater Bay Area may also open up considerable opportunities to tap into China's growing wealth pool, though the accessibility of this opportunity will ultimately depend on the evolution of the regulatory landscape between Hong Kong and Mainland China.

In addition to appealing to customers on the front end, the importance of data privacy and cybersecurity for the virtual banks cannot be underestimated in building credibility with customers. An appropriate cloud strategy – be it private, public, or hybrid – will also be critical in driving scalability and platform stability, as well as accelerating product launches. In addition, the virtual banks will need to double down their efforts on delivering an effective talent management proposition, given some early warning signs form current and former employees in relation to staff retention issues, challenges around double- or triple-hatting, and the absence of a clearly defined career path.

As part of their build-out efforts, it will be important for the virtual banks to draw relevant lessons from the success stories and failures in the West, especially Europe. Revolut, for example, serves as an exemplar of a bank that has built out a non-interest income-driven service proposition underpinned by a subscription pricing model, while Tinkoff Bank may serve as a success story of a virtual bank that has created an end-to-end lifestyle ecosystem that goes beyond financial services offerings alone. However, it won't be as straightforward as a carbon copy approach, given the need to consider local market dynamics in detail.

Looking closer to home, the virtual bank ecosystem in Southeast Asia is set to explode. In 2020, Singapore gave the green light for four virtual banks to launch in the city. A number of rapidly growing Asian economies, ranging from Malaysia to Indonesia and Vietnam, are also exploring opportunities to promote digital banking and online financial services through new licensing regimes. Admittedly, given many of these markets remain heavily unbanked, the value proposition of virtual banks will be markedly different from that of Hong Kong. However, valuable lessons can be learnt from the licensing application process in both Hong Kong and Singapore, including the need for a sound understanding of various strategic, operational, and financial hurdles that need to be crossed to not only secure a license, but achieve long-term profitability.

Speaking with all eight of the virtual bank CEOs, it is clear that rapid customer acquisition and differentiated product development are key priorities in coming years. Moreover, the use of innovative technologies and the ability to leverage customer data will be critical in building a path to success. We believe that to ultimately win, Hong Kong's virtual banks must craft a digital innovation strategy that provides customers with a distinctive value proposition focused on capturing a foothold in specific niches. By functioning as a more convenient and easier-to-use alternative than their brick-and-mortar rivals, we see a clear opportunity for the virtual banks to drive greater user activity and engagement, gradually winning over customer trust and, ultimately, wallet share.

While there may be lingering doubts around the prospects of the virtual banks in Hong Kong in the long-term, we see a meaningful opportunity for players that are able to successfully navigate the path ahead and estimate a total revenue opportunity of HKD 76 billion p.a. is up for grabs in Hong Kong by 2025, translating to a combined revenue market share of 19.3%.

The key question remains: will all eight virtual banks still be around in 2025 to capitalise on this opportunity?

In truth, we see scope for consolidation. However, for the handful of players who can successfully navigate their mission of branching off, both from their brick-and-mortar and virtual bank rivals, rich pickings await.

SECTION 1
HONG KONG BANKING LANDSCAPE

OVERVIEW

The emergence of virtual banks can largely be viewed as a global, secular trend.

The term “neobank” has been in popular use since 2017 to collectively describe new-age FinTech companies and virtual banks that are rivalling brick-and-mortar incumbents. Unlike a digital bank, which functions as an online arm of a large traditional bank, a virtual bank is a completely separate, digital-only entity. From Revolut in the United Kingdom (“U.K.”) to Tinkoff Bank in Russia, neobanks are competing directly against traditional lenders across the world.

Amidst this global push towards digitalisation of financial services, Hong Kong has also joined the fray, with the introduction of virtual banks being touted by the Hong Kong Monetary Authority (“HKMA”) as ‘a key pillar in supporting Hong Kong's entry into the Smart Banking Era’, serving three key goals:

1. Promoting financial innovation;
2. Enhancing customer experience; and
3. Facilitating financial inclusion.

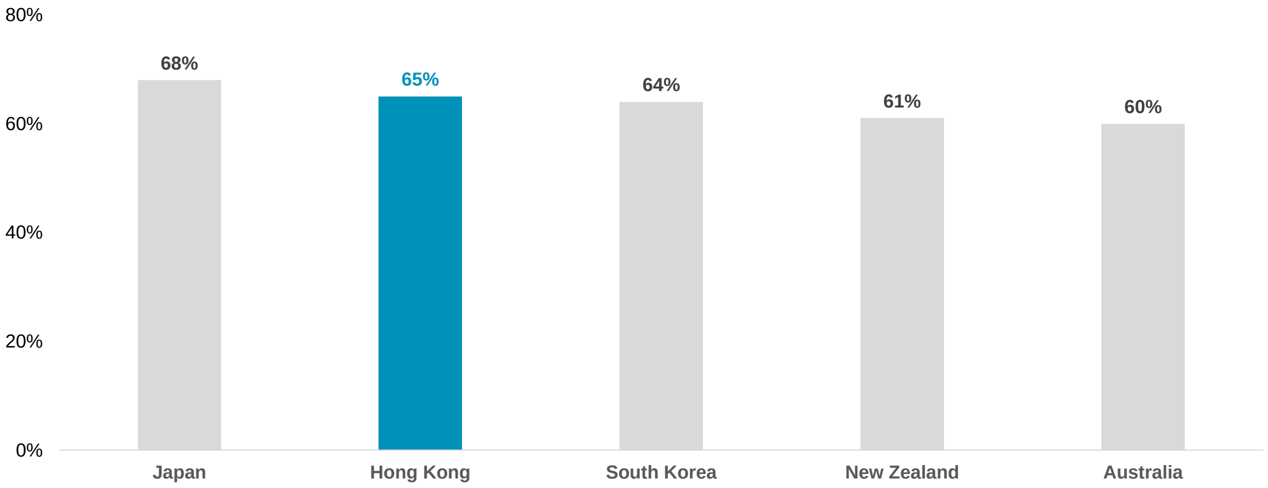
Supported by Hong Kong’s status as a global financial hub, robust internet access, and a high smartphone penetration rate, virtual banks are seeking to target the gaps left by the traditional incumbents. Designed to deliver their services through online digital channels and backed by a diverse group of heavyweights, ranging from Chinese technology giants to traditional banks, the Hong Kong virtual banks are looking to disrupt their brick-and-mortar rivals by offering a better customer experience and targeting underbanked client segments through digitally native delivery.

Given the absence of physical branches, virtual banks are seeking to attract new customers by passing on the benefits of lower operating costs through attractive rewards and deposits rates. Thereafter, by virtue of having access to considerable customer data, virtual banks are looking to leverage their knowledge of customer needs and preferences to extend tailor-made offerings on their digital platforms, thereby differentiating themselves from their brick-and-mortar rivals.

HONG KONG BANKING LANDSCAPE

Hong Kong is widely recognised as an international financial centre and a highly banked region. This is clearly reflected in the financial sophistication of its populace, with 94.4% of Hong Kong's residents having access to banking services,[2] boasting 2.63 credit cards per capita;[3] the second highest credit card penetration rate in Asia Pacific (see Figure 1).[4]

FIGURE 1: ASIA PACIFIC CREDIT CARD PENETRATION RATE (2020)



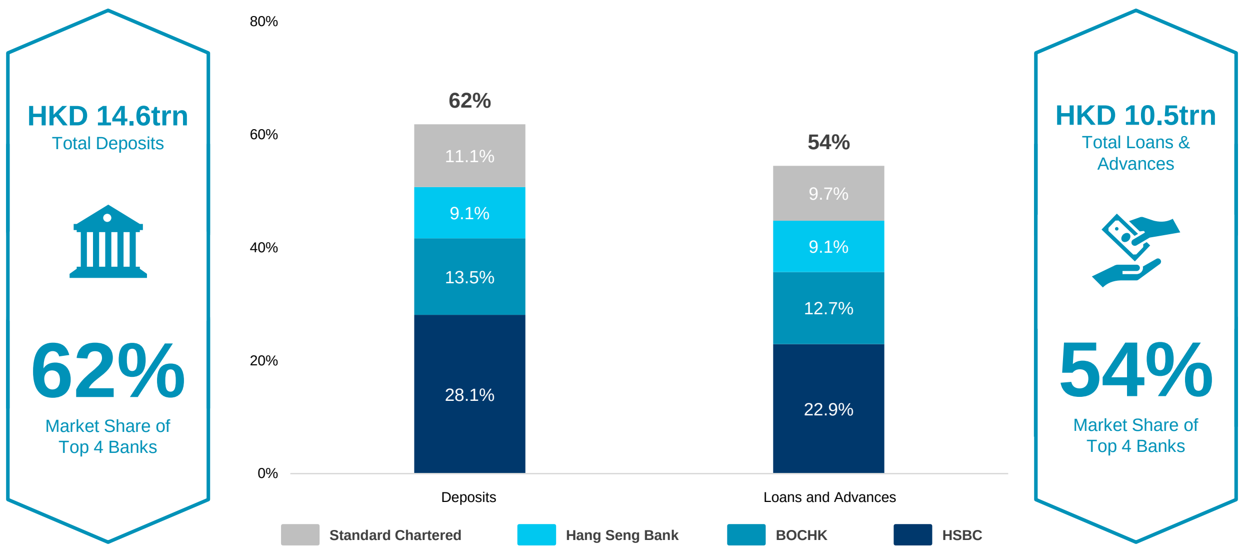
Source: Statista, Quinlan & Associates analysis

GIVEN THE ABSENCE OF PHYSICAL BRANCHES, VIRTUAL BANKS ARE SEEKING TO ATTRACT NEW CUSTOMERS THROUGH ATTRACTIVE REWARDS AND DEPOSITS RATES

[2] Euromonitor International, 'Unbanked Population - Consumer Finance in Hong Kong, China', accessed 8 Dec 2020, available at: https://www-portal-euromonitor-com.lib.ezproxy.ust.hk/portal/StatisticsEvolution/index
[3] Euromonitor International, 'Market Sizes - Credit Cards in Hong Kong, China', accessed 8 Dec 2020, available at: https://www-portal-euromonitor-com.lib.ezproxy.ust.hk/portal/StatisticsEvolution/index
[4] Statista, 'Credit card penetration APAC 2020 by country or region', 22 October 2020, available at: https://www.statista.com/statistics/1040602/apac-credit-card-penetration-by-country/

Authorised financial institutions in Hong Kong hold HKD 14.6 trillion worth of customer deposits, with HKD 10.5 trillion circulating in the form of loans and advances.[5] While the city is home to 2,300 lenders,[6] the majority of Hong Kong's banking industry has been cornered by 172 licensed banks,[7] with a select group of legacy institutions controlling the lion's share of various lending activities. We estimate that the top four banks – namely, HSBC, BOCHK, Hang Seng Bank (62.14% owned by HSBC), and Standard Chartered – account for 62% of total deposits and 54% of the total lending market (see Figure 2).

FIGURE 2: HONG KONG BANKING INDUSTRY MARKET SHARE (2020E)



	Deposits	Loans and Advances	Non-Interest Income*	Revenue*
HSBC	HKD 4.1 trillion	HKD 2.4 trillion	HKD 40.8 billion (42.8%)	HKD 95.35 billion
BOCHK	HKD 2.0 trillion	HKD 1.3 trillion	HKD 10.3 billion (28.0%)	HKD 36.80 billion
Stan Chart	HKD 1.6 trillion	HKD 1.0 trillion	HKD 20.7 billion (44.7%)	HKD 46.23 billion
Hang Seng	HKD 1.3 trillion	HKD 1.0 trillion	HKD 25.2 billion (52.2%)	HKD 48.22 billion

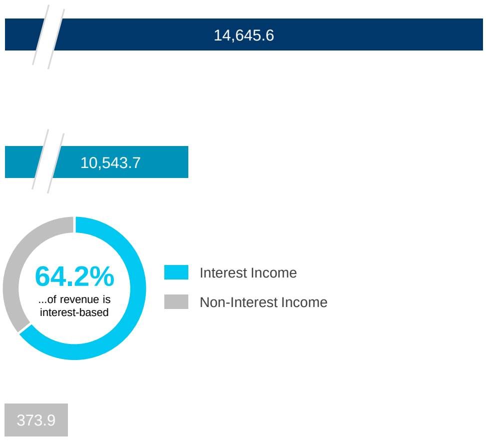
*Estimated non-interest income and total revenue includes Retail (wealth management and personal banking), Commercial (SME), and corporate (excluding investment banking and global markets) banking segments only
Source: HKMA, company annual reports, Quinlan & Associates analysis and estimates

[5] HKMA, 'Monthly Statistical Bulletin', accessed 29 January 2021, available at: https://www.hkma.gov.hk/eng/data-publications-and-research/data-and-statistics/monthly-statistical-bulletin/
[6] Stephenson Harwood, 'Money lending in Hong Kong - pitfalls for lenders and protections for borrowers', 17 Feb 2020, available at: https://www.shlegal.com/insights/money-lending-in-hong-kong---pitfalls-for-lenders-and-protections-for-borrowers
[7] HKMA, 'List of Licensed Banks', 30 November 2020, available at: https://www.hkma.gov.hk/media/eng/doc/key-functions/banking-stability/banking-policy-and-supervision/list_of_lb.xls

Given their market dominance, Hong Kong's four leading banks raked in HKD 226.6 billion in combined retail (wealth management and personal income), commercial (SME), and corporate (excluding investment banking and global markets) banking revenues in 2020. Based on these lending and deposit statistics and our forecast growth rates for the market in light of the Covid-19 pandemic and rising non-performing loan ("NPLs"), combined with revenue and market share estimates of the four leading Hong Kong banks, we estimate the overall size of Hong Kong's combined retail (wealth management and personal income), commercial (SME), and corporate (excluding investment banking and global markets) banking market in 2020 to be worth HKD 373.9 billion, with 64.2% originating from interest income (see Figure 3).

FIGURE 3: HONG KONG BANKING INDUSTRY MARKET SIZE (2020E, HKD BILLION)

	TOP 4 BANKS	OVERALL MARKET
Deposits	• We estimate that the leading banks hold HKD 9.06 trillion worth of deposits, with a 62% market share	• Authorised financial institutions in Hong Kong hold deposits worth HKD 14.65 trillion
Lending	• We estimate that the top four banks extended HKD 5,74 trillion in loans and advances, with a 54% market share	• Authorised financial institutions in Hong Kong extended HKD 10.54 trillion in loans and advances
Revenue Split	• An estimated 57.2% of revenues* are to be generated from interest-based income, with 42.8% from non-interest income	• Estimated average blended split of 64.2% interest and 35.8% non-interest income across leading banks plus broader market
Market Size	• We estimate that the combined annual banking* revenues of the leading banks amount to HKD 226.6 billion	• Scaling the leading banks' market share, we estimate an annual revenue pool of HKD 373.9 billion



*The estimated revenues include retail (wealth management and personal banking), commercial (SME), and corporate (excluding investment banking and global markets) banking segments only
Source: HKMA, company annual reports, Quinlan & Associates estimates

WE ESTIMATE THE SIZE OF HONG KONG'S RETAIL, COMMERCIAL, AND CORPORATE BANKING MARKET IN 2020 TO BE WORTH A COMBINED HKD 373.9 BILLION

CUSTOMER PAIN POINTS

Despite the size and maturity of Hong Kong's banking industry, there are lingering customer pain points that incumbents are failing to address, opening gaps that can serve as pockets of value for new players entering the industry. In particular, these are felt most by retail customers and small and medium-sized enterprises ("SMEs") (see Figure 4).

FIGURE 4: CUSTOMER PAIN POINTS

RETAIL

Physical Travel	Physical travel to branches for account opening procedures, including submitting paperwork
Queuing Up	Queueing up at branches in cases of heavy customer traffic, staff shortages, or the lack of an appointment
Onboarding Process	Slow onboarding process, with paper-based application forms and tedious requirements
Lengthy Waiting	Long waiting periods between requests / applications for usage of products and services, and their approval
Insufficient Digital Offerings	Inability to access numerous banking services through online channels or digital means
Poor Personalisation	Lack of personalisation of products and services, rendering the customer experience generic / unsuitable
Lack of Integration	Offerings may not be well integrated with each other, making it difficult for a customer to keep track of everything
Unsatisfactory Remote Service	Remote service experience offered by chatbots and call centres may not always be satisfactory

SME

Physical Travel	Physical travel to branches for submitting paperwork for loan applications
Queuing Up	Queueing up at branches in cases of heavy customer traffic, staff shortages, or the lack of an appointment
Onboarding Process	Slow onboarding process, with paper-based application forms and tedious requirements
Lengthy Waiting	Long waiting periods between requests / applications for usage of products and services, and their approval
Collateral Requirements	SMEs are often unable to post collateral, such as a cash deposit and / or real estate assets
Risk Appetite Mismatch	Banks may not be willing to take on an SME's credit risk, owing to their small size, nascent nature, AML risk, etc.
Partial Success	SME loans may at times only be partially approved, failing to address their complete funding needs
Long Wait For Disbursement	Even once approved, disbursement of the loan can be extremely slow and inefficient

Application   Usage   Outcome

Source: Quinlan & Associates analysis

1. RETAIL CUSTOMERS

The slow pace and in-person nature of the customer onboarding process, marred by scores of complex paperwork and disclosures, is a major pain point for customers. While the typical retail onboarding process can take a few days, average turnaround time to onboard wealth management / private banking clients is approximately 37 days. [8]

Moreover, once onboarded, Hong Kong retail customers have for long had to physically travel to branches and wait in lengthy queues to access their banking services, given the online user experience offered by brick-and-mortar lenders is relatively cumbersome, poorly designed, and lacks sufficient functional applications. The lack of personalised digital offerings by traditional banks has made it difficult for many customers to navigate their individual financial needs and preferences.

Examining reviews submitted by mobile banking app users of incumbent banks, it is apparent that the weighted average rating submitted by App Store users is 4.6/5.0, while Play Store users have given a weighted average rating of 3.4/5.0, suggesting a sense of dissatisfaction amongst users of mobile banking apps of traditional banks in Hong Kong, particularly for Android smartphone users (see Figure 5).

DESPITE THE SIZE AND MATURITY OF HONG KONG'S BANKING INDUSTRY, THERE ARE LINGERING CUSTOMER PAIN POINTS THAT INCUMBENTS ARE FAILING TO ADDRESS, OPENING GAPS THAT CAN SERVE AS POCKETS OF VALUE FOR NEW PLAYERS ENTERING THE INDUSTRY

[8] KPMG, 'Hong Kong Private Wealth Management Report 2019', October 2019, available at: https://assets.kpmg/content/dam/kpmg/cn/pdf/en/2019/10/hong-kong-private-wealth-management-report-2019.pdf

FIGURE 5: INCUMBENT BANKS APP REVIEWS

APP STORE

VIRTUAL BANK	RATING	NO. OF REVIEWS
HSBC	4.7	88,261
Hang Seng	4.6	54,489
Stan Chart	3.4	1,636
BOCHK	2.1	791

4.6
Weighted Average Rating

PLAY STORE

VIRTUAL BANK	RATING	NO. OF REVIEWS
Hang Seng	3.6	11,316
HSBC	3.5	11,585
BOCHK	3.2	1,809
Stan Chart	3.0	4,468

3.4
Weighted Average Rating

Note: ratings and number of reviews accurate as of 1 March 2021
Source: App Store, Play Store, Quinlan & Associates analysis

Retail customers may also have to travel to branches to resolve their grievances, as phone and chat-based customer service can prove to be frustrating and inadequate. As such, while it is hard to say that Hong Kong customers are "underbanked", with 95% of adults in Hong Kong possessing a bank account,[9] we believe they have long been "underserved".

[9] Asian Banking and Finance, 'Chart of the Week: Check out which countries have the largest unbanked populations', 24 April 2018, available at: https://asianbankingandfinance.net/retail-banking/news/chart-week-check-out-which-countries-have-largest-unbanked-populations

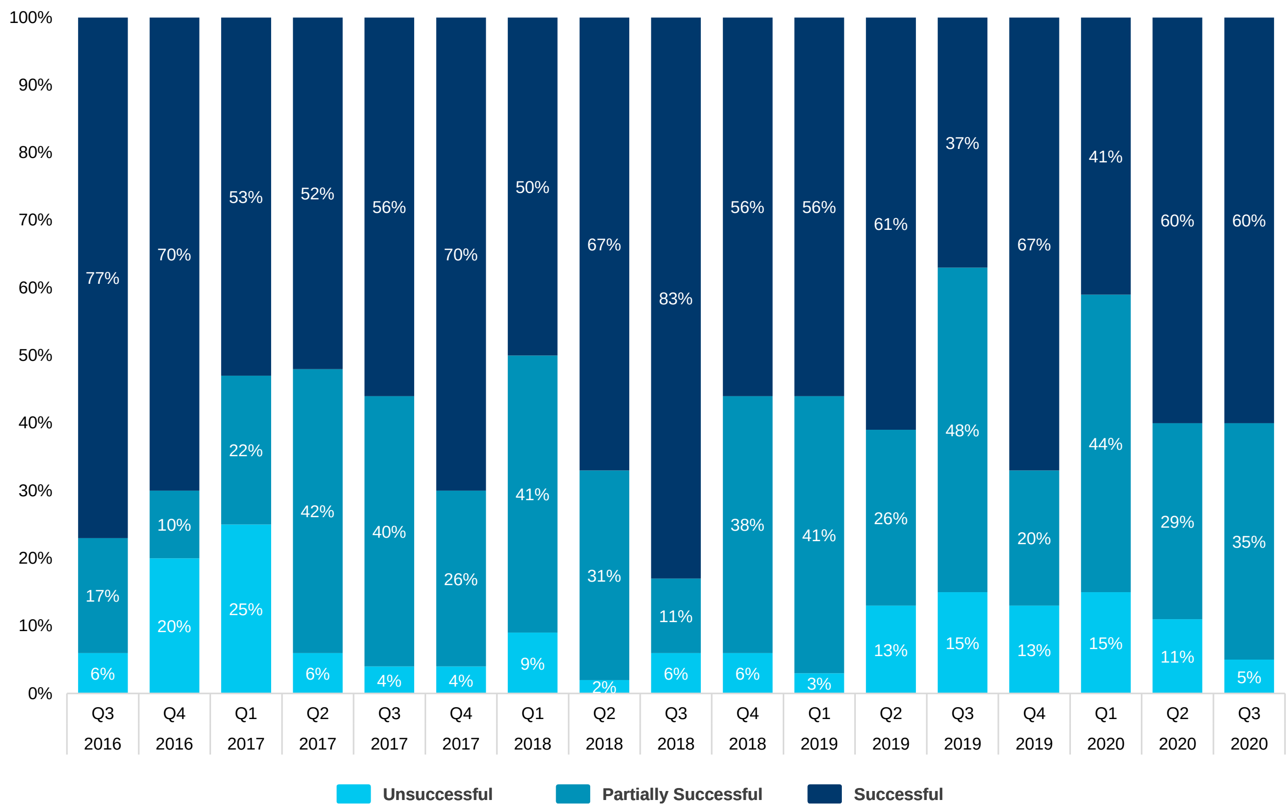
2. SME CUSTOMERS

Many SMEs in Hong Kong face an extremely time-consuming onboarding process, with companies often waiting weeks to set up a bank account. For more complex firms such as trusts or corporates with multiple layers of beneficial ownership, average onboarding times are, on average, one to three months and, in some cases, much longer. These KYC checks are also highly duplicative in nature: banks in many jurisdictions are required to conduct independent KYC checks on prospective accounts, even when the account has been comprehensively vetted by another bank. This duplication of effort also occurs to a great extent within a single firm, with banks maintaining highly duplicative KYC processes for onboarding the same client across different departments and jurisdictions.

On the lending side, although SMEs comprise 98% of all businesses in Hong Kong,[10] a worrying percentage of firms are either unsuccessful or only partially successful in receiving bank credit. According to the HKMA's "Survey on Small and Medium-Sized Enterprises (SMEs)' Credit Conditions for Third Quarter 2020", 40% of SMEs that submitted bank credit applications were either rejected or only partially successful (i.e. granted under less favourable conditions than initially requested, such as lower amounts or higher rates) (see Figure 6).

[10] Trade and Industry Department, 'Support to Small and Medium Enterprises', 7 October 2020, available at: https://www.tid.gov.hk/english/smes_industry/smes/smes_content.html

FIGURE 6: SURVEY ON HONG KONG SME BANK CREDIT APPLICATIONS



Source: HKMA, Hong Kong Productivity Council, Quinlan & Associates analysis

SMEs in Hong Kong are often required to pledge collateral, in the form of cash deposits or real estate assets, and frequently fail to match the risk appetite of traditional lenders. SMEs that do get approved for loans must also regularly contend with long waiting periods before receiving funds. As a result, many SMEs rely heavily on retained earnings for financing. This lack of sufficient access to external capital often results in considerable working capital constraints.

INCUMBENT ROADBLOCKS

In addition to their lacklustre customer experience, legacy banks across the world continue to suffer from a number of key stumbling blocks.

The currently prevalent low interest rate environment is squeezing NIMs and impacting profitability, while the cost of maintaining physical branches continues to be a white elephant amidst a pandemic that has stonewalled mobility and deterred physical interactions. Despite considerable advancements in technology, the continued reliance on physical branches is weighing on costs, while legacy IT systems are further stymieing meaningful digital transformation efforts, making incumbent banks a target for disruption (see Figure 7).

FIGURE 7: KEY PAIN POINTS FOR LEGACY BANKS

Headwinds	Description	Impact
Increasing Margin Pressure	*A dovish central bank interest rate environment and the cost of maintaining physical branches is impacting margins*	• Squeezed net interest margins ("NIMs"), hitting interest income for banks • Growing prospects of a sub-zero interest rate environment will weigh on returns
Costs of Physical Branches	*Legacy banks maintain a network of physical branches to provide their products and services to customers*	• Banks need to incur higher real estate costs to maintain their physical locations • Additional expenses related to staff costs are also incurred to run physical branches
Outdated IT Systems	*Low reinvestment of retained earnings into technology has resulted in outdated technology and IT infrastructure*	• Legacy IT systems slow down innovation and the integration of new technology • Banks may be at risk of being disrupted by FinTechs and other digital players
Evolving Customer Preferences	*Customer expectations are rapidly evolving, especially in light of COVID-19, requiring banks to adapt*	• There is growing demand for remote, digital banking services • The clamour for more personalised, integrated offerings is getting louder
Resistance to Change	*There is a deeply ingrained internal resistance to change and failure, both of which are crucial parts of innovation*	• Heightened risk of disruption from more innovative peers and FinTech start-ups • Inability to keep pace with key industry trends and evolving customer needs
Introduction of Digital Currencies	*The introduction of digital currencies, with the HKMA also exploring Central Bank Digital Currency (CBDC)*	• Hong Kong's three prominent note issuing banks may lose some of their prestige • Note issuing banks may no longer receive publicity by appearing on notes

Key Driver

Source: Quinlan & Associates analysis

2020 also witnessed a marked shift in customer expectations towards remote, digitally enabled services. With COVID-19 resulting in widespread global lockdowns and social distancing norms, the lack of digital capabilities has impeded the ability for many traditional banks to efficiently serve their customers and meet their needs, pushing them towards more digitally adept rivals. The rapid emergence of e-wallets and payment service providers in recent years offer a prime example of the antiquated nature of the financial services provided by banks.

There are also early signs that the industry is coming under increasing pressure, with Hong Kong banks' profits dipping by an estimated 29.4% in 2020, NIMs narrowing to 1.18%, and the classified loans ratio (i.e. the ratio of bad and doubtful loans) rising to a four year high of 0.84%, compounded by a 6.1% decline in the city's Gross Domestic Product ("GDP") during the year.[11] For instance, in its 2020 annual report, HSBC cited a 26 basis points ("bps") drop in NIM to 1.32%.[12]

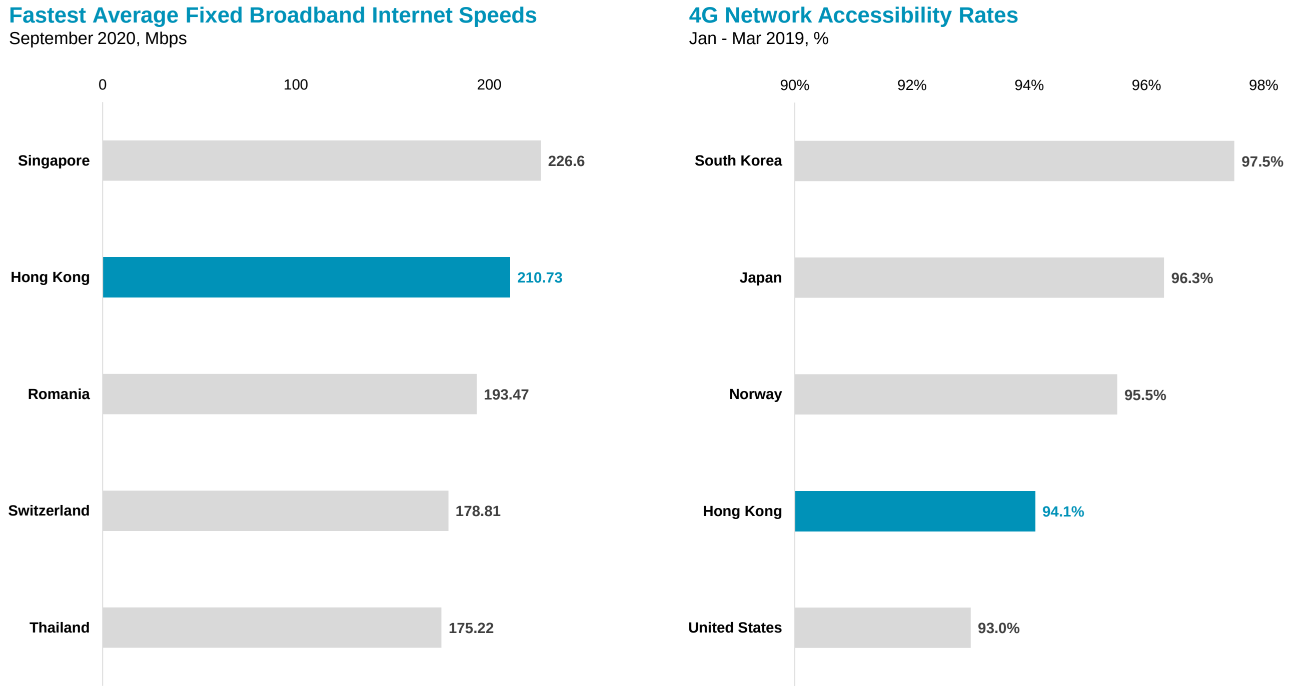
Given the various challenges facing incumbent players, it appears that there may be a sufficient gap in the industry for new entrants – especially those with a digital mindset.

DIGITAL ENABLEMENT

In addition to being financially sophisticated, Hong Kong has one of the most technologically advanced populaces in the world, boasting a robust smartphone penetration rate of 76% and the second fastest internet speeds globally, together with widespread accessibility of 4G internet connectivity at 94.1% (see Figure 8). 2020 also saw domestic telecom operators like China Mobile Hong Kong ("CMHK"), Hutchinson, and Hong Kong Telecom ("HKT") launching commercial 5G services.

[11] Regulation Asia, 'HK Bank profitability Suffers, Loan Quality Deteriorates', 5 February 2021, available at: https://www.regulationasia.com/hk-bank-profitability-suffers-loan-quality-deteriorates/
[12] HSBC Holdings plc, 'Annual Report and Accounts 2020', 23 February 2021, available at: file:///Users/eashantrehan/Downloads/210223-annual-report-and-accounts-2020.pdf

FIGURE 8: INTERNET ACCESSIBILITY AND SPEED



Source: Statista, Quinlan & Associates analysis

With a combination of financial and technological sophistication, Hong Kong citizens are no stranger to financial services delivered via digital means. The Millennial and Generation Z population, known for being technologically adept, make up 36.4%[13] of Hong Kong's overall population, while 91% of people in Hong Kong presently use their mobile phones for e-wallet activities,[14] with digital wallet transactions forecast to grow at a CAGR of 32% over the coming two years.[15]

Looking at specific examples from the city's banking industry, HSBC recently asserted that '90% of our transactions in Hong Kong are conducted through a digital platform',[16] while fellow incumbent, Citi, said that more than 50% of its consumer banking clients use digital channels and that 90% of its banking transactions were conducted through self-service channels.[17]

[13] Census and Statistics Department, 'Population Estimates', 13 August 2020, available at: https://www.censtatd.gov.hk/hkstat/sub/sp150.jsp?tableID=002&ID=0&productType=8
[14] Statista, 'Share of mobile wallet users in Hong Kong from 2017 to 2020', 16 October 2020, available at: https://www.statista.com/statistics/996415/hong-kong-share-of-people-using-mobile-wallet/
[15] J.P. Morgan, 'E-commerce Payments Trends: Hong Kong', 2019, available at: https://www.jpmorgan.com/merchant-services/insights/reports/hong-kong
[16] SCMP, 'HSBC insists it does not need a virtual bank licence in Hong Kong, invests USD2.2 billion in raising digital banking game', 18 November 2019, available at: https://www.scmp.com/business/banking-finance/article/3038108/hsbc-insists-it-does-not-need-virtual-bank-licence-hong
[17] Citigroup Inc., 'Citi Hong Kong named "Digital Bank of the Year" by the Asset Magazine', 15 February 2018, available at: https://www.citibank.com.hk/english/info/pdf/Citi-named-Asias-Best-Digital-Bank-by-the-Asset-Magazine_HK_Eng_Final_online.pdf

While it appears that technology-enabled financial service offerings have strong penetration rates in Hong Kong and are gaining significant traction among the local populace, broader innovation efforts by incumbent banks remain somewhat less impressive. As discussed in our previous report, *Beyond The Buzz*, legacy financial institutions face significant barriers to change, reflecting poor innovation processes, a weak innovation culture, and broader financial constraints (see Figure 9). Moreover, many of the "Innovation Labs" launched by incumbent banks in recent years have failed to drive meaningful change, with most serving only as a shiny marketing tool.[18]

FIGURE 9: INNOVATION BARRIERS (BY FIRM SIZE)

	INNOVATION BARRIERS			
	Large Firm (e.g. Global Bank)	Mid-Sized Firm (e.g. Regional Fund)	Small Firm (e.g. Hedge Fund)	Description
Innovation Process	■■■■■	■■■□□	■□□□□	• Large firms find it much more difficult to identify underlying problems, and typically have a chaotic and poorly designed innovation process
Firm-Wide Buy-in	■■■■■	■■■■□	■■■□□	• Bureaucracy at large firms hampers firm-wide buy-in, given competing interests, though small firms may be hamstrung by key personalities
Governance	■■■■■	■■■■□	■■■□□	• Large firms typically outsource innovation efforts to an Innovation Lab, while smaller firms usually lack centralised ownership of innovation
Incentives	■■■■■	■■■■□	■■■■□	• Most firms have no meaningful incentive structures to drive innovation efforts, largely reflected in an absence of relevant KPIs
Communication	■■■■■	■■■■□	■■■□□	• Communication remains a challenge across most organisations, especially at large firms, with most efforts focused on marketing
Systems	■■■■■	■■■■■	■■■□□	• Large firms are plagued by problems with legacy systems and challenges around integrating with complex IT / data architecture
Budget / Resources	■□□□□	■■■□□	■■■■■	• Most small firms face considerable budget constraints to drive major their innovation efforts, though they typically have fewer needs

Internal Processes · Organisational Culture · Financial Capacity · Low ■■■□□ High · Culture remains a key barrier for most companies

Source: Quinlan & Associates analysis

Juxtaposing the shortcomings of the current industry incumbents with the technological maturity of the Hong Kong populous, there appears to be a clear appetite for digitally native banking services, resulting in HKMA taking concerted steps to introduce FinTechs and TechFins into the market, and eventually greenlighting the launch of virtual banks.

[18] Quinlan & Associates, 'Beyond The Buzz', May 2020, available at: https://www.quinlanandassociates.com/insights-beyond-the-buzz/

SECTION 2
HONG KONG VIRTUAL BANKS

REGULATORY BACKDROP

With the launch of Hong Kong's virtual banks, the city hopes to usher in a new age of branchless banking via digitally enabled means. For several years leading up to the granting of virtual bank licences, the HKMA adopted a series of initiatives aimed at fostering a robust FinTech ecosystem in Hong Kong, including the FinTech Supervisory Sandbox, Open Banking API, and Faster Payment System, among many others (see Figure 10).

FIGURE 10: KEY HKMA FINTECH INITIATIVES (2016-19)

		Description
2016	Cybersecurity Fortification Initiative	• HKMA launched cybersecurity initiatives to raise the cyber resilience of Hong Kong's banking system
	Stored Value Facilities Licensing (SVF)	• HKMA granted the first and second batches of SVF licences
	Fintech Supervisory Sandbox (FSS)	• FSS allows banks and their partnering technology firms to conduct pilot trials of their fintech initiatives to gather data and user feedback
	HKMA-ASTRI Innovation Hub	• Launched in collaboration with ASTRI to provide a neutral ground for innovative collaboration for the fintech industry
	Distributed Ledger Technology (DLT)	• HKMA published a whitepaper discussing the potential application of DLT in financial services and possible challenges
	Fintech Career Accelerator Scheme	• A talent development scheme launched to expand the FinTech talent pool in Hong Kong
2017	Central Bank Digital Currency (CBDC)	• HKMA conducted a study on CBDC in 2017 with a view to better understanding its feasibility, implications and possible benefits
	Banking Made Easy Initiative	• The Banking Made Easy initiative aims at reducing regulatory frictions that are hindering technological innovations
2018	Open Banking API	• Open API allows Fis to open up internal IT systems and data for programmatic access by third-party service providers (TSPs)
	Faster Payment System (FPS)	• FPS is a payment financial infrastructure introduced to enable 24/7 instant payments in Hong Kong
	eTradeConnect	• HKMA facilitated the launch of a blockchain-based trade finance platform fully funded by a consortium of major banks in Hong Kong
2019	Granting of Virtual Bank Licences	• HKMA granted a virtual banking licence to eight different applicants to promote FinTech and innovation in Hong Kong

Source: HKMA, Quinlan & Associates analysis

Many of these initiatives have paved the way for the development of a robust virtual banking ecosystem in the city, laying a strong foundation for both banks and FinTechs with respect to advancements in cybersecurity, open innovation (via APIs and innovation hubs), regulatory compliance (via the FSS), payments, and trade finance.

OVERVIEW OF THE VIRTUAL BANKS

Recognising the disruptive potential of providing an operationally streamlined, digitally native banking proposition, 29 aspirants submitted an application to the HKMA for a virtual banking licence. Following a rigorous selection process, eight applicants were granted approval for a licence in 2019, all of which have since launched their operations.

BACKGROUND

All eight virtual banks are backed by a mix of financial and technological behemoths, including major legacy banks and Chinese technology giants (see Figure 11). In addition to gaining access to a sizeable funding channel, one key benefit of being under the veil of a well-known entity is the trust factor that comes along with it, as both retail and SME customers alike may feel more confident banking with players that are supported by household names armed with considerable financial firepower.

FIGURE 11: DIFFERENTIATORS OF VIRTUAL BANKS

		INDUSTRY BACKING							
Virtual Bank	Shareholders	Banking	Tech	Insurance	Other FIs	Others	Synergy with Backers	External Partnerships	Differentiators
	• ZA International	✗	✗	✓	✗	✗	• ZhongAn's expertise in the online insurance space can help ZA Bank offer innovative insurance plans	• Visa with personalised number • 11% cash rebate on Deliveroo • Buy-one-get-one-free offer at 11 coffee chains • HKTV mall cash coupon	• First mover advantage • Various insurance offerings
	• Xiaomi • AMTD	✗	✓	✗	✓	✗	• Xiaomi's IoT technology may potentially be integrated with Airstar Bank's offerings • AMTD Group may lend its experience in capital markets and other financial industries	• N/A	• Focused on becoming "Everyone's Bank", through stellar, wealth agnostic customer service • High interest rate of 3.6% on HKD20,000 deposit
	• WeLab	✗	✗	✗	✓	✗	• WeLab is a homegrown fintech unicorn, with extensive experience in consumer lending through its WeLend subsidiary	• Numberless MC debit card • JETCO and Cirrus ATM withdrawals • HKD 20 discount on OpenRice, HKD 25 on Deliveroo, and 8% at The Coffee Academics • 1-month fee rebate and lucky draw from 3HK	• Integrated, virtual, and numberless debit card for security purpose • "GoSave" time deposit, with interest rate determined by the number of joiners in each group
livi	• BOCHK • Jardines • JD Digits	✓	✓	✗	✓	✓	• Livi can benefit from legacy incumbent BOCHK's expertise in the Hong Kong banking industry	• QR code-based payment option from UnionPay • Exclusive virtual banking partner of yuu, which includes Wellcome, Mannings, 7-Eleven, IKEA, KFC, Pizza Hut, etc.	• No physical card, payment made through app-based QR code • Emphasis on facilitating payments and handing out "shake shake" cash rewards
mox	• Standard Chartered • PCCW • HKT • Ctrip	✓	✗	✗	✗	✓	• Mox could potentially offer travel and telecom related benefits, in partnership with its backers, Ctrip and PCCW, respectively • Standard Chartered's experience in Hong Kong can help Mox	• A virtual card that can be used via Apple Pay and Google Pay, with cash back offers • Numberless Mastercard debit card	• Numberless card with no expiry date or verification number for security • Real-time savings calculator for budgeting, instant categorisation and goal setting
ANT BANK	• Ant Financial	✗	✓	✗	✓	✗	• Quick onboarding of AlipayHK e-wallet users, numbering approximately two million • Offer shopping and dining rewards via AlipayHK	• N/A	• Shopping and dining offers • Ability to tap into AlipayHK's approximately two million existing users
PAObank	• Ping An • OneConnect	✗	✓	✓	✗	✗	• OneConnect's technological expertise in fintech can help PAOB innovate • Ping An can lend its expertise in the insurance sector	• Accelerated loan processing for SMEs on Tradelink E-Commerce platform	• "5-day service pledge" for loans of up to HKD 2 million
	• ICBC • Tencent • Hillhouse Capital • HKEx • Adrian Cheng (via Perfect Ridge Ltd.)	✓	✓	✗	✓	✓	• Fusion Bank can draw upon the banking and technological expertise of ICBC and Tencent respectively, with HKEX and Mr. Adrian Cheng bringing financial markets and local experience	• Partnered with WeChat Pay HK to offer HKD 188 e-cash coupons for linking Fusion Bank account with WeChat Pay HK	• Focus on foreign exchange

Source: Company websites, Quinlan & Associates analysis

Taking a closer look at the partnerships forged between the backers of these newly minted virtual banks provides valuable insight into the strategic direction they may follow in coming years. Ant Bank (Hong Kong), for example, appears to be leveraging Ant Financial's AlipayHK offering to speed up account opening, extend shopping and dining-related offers, and tap into the e-wallet application's existing user base of two million customers. We are also likely to see ZA Bank leveraging its parent company's domain expertise in the insurance space to extend innovative insurance plans to its banking customers.

A number of external collaborations have also been forged in an effort to deliver value to end customers. WeLab Bank, for example, an offshoot of homegrown FinTech unicorn WeLab, has struck up several partnerships, such as its numberless debit card offered in collaboration with MasterCard, as well as its partnerships with JETCO and Cirrus that enable its customers to tap into 2,000 ATMs in the city to withdraw cash. Another example is livi Bank's exclusive partnership with rewards club yuu, which automatically aligns it with the likes of Wellcome, Mannings, 7-Eleven, IKEA, KFC, and Pizza Hut, among others.

RECOGNISING THE DISRUPTIVE POTENTIAL OF PROVIDING AN OPERATIONALLY STREAMLINED, DIGITALLY NATIVE BANKING PROPOSITION, 29 ASPIRANTS SUBMITTED AN APPLICATION TO THE HKMA FOR A VIRTUAL BANKING LICENCE. FOLLOWING A RIGOROUS SELECTION PROCESS, EIGHT APPLICANTS WERE GRANTED APPROVAL FOR A LICENCE IN 2019

PRODUCTS

Keen to deliver on their promise of revolutionising the banking industry, the virtual banks have made an immediate mark on the city's banking industry by: (1) enabling rapid account opening within the space of a few minutes; (2) waiving many fees and minimum balance requirements; (3) providing remote banking services through digital means; (4) offering relatively higher interest rates on savings accounts and time deposits; (5) extending speedy monetary / payment transfer capabilities; (6) delivering tailor-made personalised offerings; and (7) providing 24/7 customer service through digital channels.

At present, Hong Kong's virtual banks have launched relatively basic products and services, such as savings accounts and payment capabilities, with several players also offering time deposits and debit cards. Currently, ZA Bank and Mox Bank appear to have the widest range of offerings, with the former being granted an insurance agency licence by the Hong Kong Insurance Authority ("IA") to extend insurance offerings, and the latter offering innovative budgeting tools (see Figure 12).

FIGURE 12: OVERVIEW OF HONG KONG VIRTUAL BANKS

Virtual Bank	ZA Bank	Airstar Bank	WeLab Bank	livi Bank	Mox Bank	Ant Bank	PAOB	Fusion Bank
Launch Date	Mar 2020	Jun 2020	Jul 2020	Aug 2020	Sep 2020	Sep 2020	Sep 2020	Dec 2020
Deposits* (HKD '000)	2,406,330	356,578	187	183	28,030	1,334	6,027	N/A
Services								
Savings	✓	✓	✓	✓	✓	✓	✓	✓
Time Deposits	✓	✓	✓	×	×	×	×	✓
Personal Loans	✓	✓	×	×	×	×	×	×
Business Loans	✓	×	×	×	×	×	✓	×
Transfer / Pay	✓	✓	✓	✓	✓	✓	✓	✓
Debit Card	✓	×	✓	✓	✓	×	×	×
FX	×	×	×	×	×	×	×	✓
Insurance	✓	×	×	×	×	×	×	×
Budgeting Tools	×	×	×	×	✓	×	×	×

*As of June 2020

✓ Offered × Not Offered

Source: Company websites, interim reports, Quinlan & Associates analysis

In addition to providing highly competitive lending and deposit rates, the virtual banks are offering free of charge digital and QR-code payments and transfer capabilities, along with free-to-use budgeting tools. Like many start-ups, the provision of no cost services highlights a clear first priority for the eight new payers: rapidly scale their customer base by attracting consumers looking for low-cost financial services offerings.

TECHNOLOGY

The virtual banks have deployed a variety of technology solutions across the entire customer value chain; from leveraging social media platforms to drive customer acquisition efforts, to biometric facial recognition to streamline onboarding times, and chatbots to provide 24/7 customer support, technology has been fundamental in the quest for the virtual banks to deliver a more innovative customer experience (see Figure 13).

FIGURE 13: TECHNOLOGY USE ACROSS CUSTOMER VALUE CHAIN

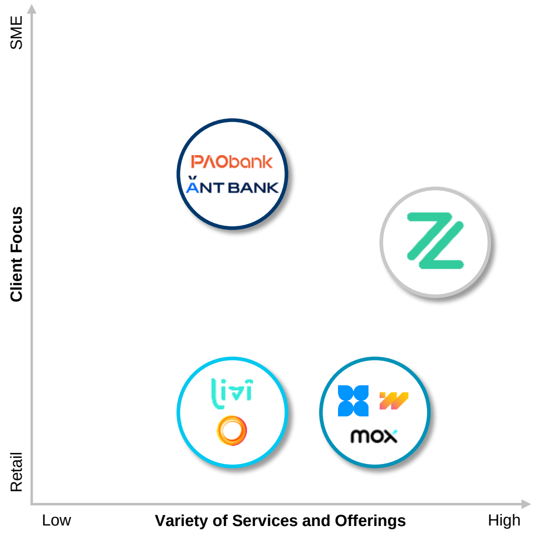
		Technology	Impact	Example
ACQUIRE	Customer Acquisition	• Digital marketing and advertising • Social media platforms • Search engine and app store optimisation	• Use of online platforms and technology for advertising and marketing can allow virtual banks to optimise their acquisition costs and more accurately target customers	• Virtual banks are using search engine optimisation (SEO) and app store optimisation (ASO) to make their ads more visible to potential customers
ACQUIRE	Customer Onboarding	• Biometric facial recognition • eKYC • Optical Character Recognition (OCR)	• Solving customer onboarding pain points, such as lengthy onboarding times and excessive paperwork, can help virtual banks offer a seamless joining experience	• ZA Bank is leveraging Accuity's risk and compliance screening solution to screen customers during onboarding, to detect PEPs, sanctioned entities, etc.
SERVE	User Experience	• A.I. and Big Data Analysis • Personalisation • Gamification	• Technology can empower virtual banks to provide personalised cross-selling recommendations, while also gamifying the user experience for more fun	• ZA Bank has launched mobile game-like quests (ZA Quest) that offer randomly assigned "ZA Coins" to users for tasks like setting a nickname, verifying e-mail ID, etc.
SERVE	Payment Services	• QR code-enabled payments • Faster Payment System (FPS) • Electronic Direct Debit Authorisation	• Digitally-enabled payments can help provide seamless online transfer capabilities to customers, substituting the use of cheques and cash withdrawals	• Mox Bank's card can be added to a digital wallet, while the physical card is numberless, has no expiry date, and no CVV displayed on it, for security
SERVE	Credit Lending	• Online loan origination • Artificial Intelligence (A.I.) • Big Data analysis	• Virtual banks have significantly cut the amount of paperwork required, as well as waiting times till the receipt of results, for credit applications	• PAOB uses an A.I. credit analysis tool to detect credit sentiment and relationship network for companies, with online loan origination and risk monitoring
MAINTAIN	Maintenance and Support	• 24 / 7 online customer support • Chatbots • In-app chat option	• Improving accessibility to remote services with 24/7 online support through a variety of digital options can help customers receive quick redressal for their complaints	• livi can be reached via live chat on their app, ZA Bank has deployed a chatbot, and Fusion Bank has a 24 / 7 customer service hotline
MAINTAIN	Data Storage	• Public cloud • Private cloud • Hybrid cloud	• Since virtual banks are storing vast amounts of sensitive customer data, they need to select a form storage of storage which is efficient and secure	• Mox Bank has emerged as one of the first cloud-native virtual banks in Asia, operating its entire platform on a public cloud infrastructure
MAINTAIN	Safety and Security	• Encryption • Biometric login • Multi-factor authentication	• Given the digital nature of virtual banks, robust cybersecurity measures and anti-fraud measures can help protect customers and gain their trust	• To log in to Mox, you need to use your password, fingerprint, or facial recognition. Lockable card and 3D secure software is used to safely make online purchases

Source: Finextra, company websites, Quinlan & Associates analysis

COMPETITIVE POSITIONING

While the Hong Kong virtual banks currently offer a similar suite of services, we see subtle differences in their range of offerings and client focus. For example, while Mox is primarily targeting the retail banking segment, PAOB has a stronger focus on the SME space. Similarly, ZA Bank is offering flexible insurance plans, while livi is focusing on extending cash rewards to attract new customers (see Figure 14).

FIGURE 14: INDUSTRY LANDSCAPE



Virtual Bank	Retail	SME	Description
ZA Bank	✓	✓	• ZA Bank offers business banking, insurance, deposits, loans and transfer services
Airstar Bank	✓✓	×	• Airstar Bank is focused on becoming "Everyone's Bank", offering a 3.6% p.a. deposit rate
WeLab Bank	✓✓	×	• WeLab Bank is concentrating purely on retail customers through its debit card and time deposit
livi bank	✓✓	×	• livi is solely servicing retail clients with a savings account, transfers, and QR payment offerings
Mox Bank	✓✓	×	• Mox is targeting retail customers, with options like budgeting tools, savings calculator, cash back etc.
Fusion Bank	✓✓	×	• Fusion Bank is expected to focus particularly on small-value depositors
Ant Bank (Hong Kong)	✓	✓✓	• Ant Bank is aiming to target both retail as well as SMEs through innovative banking services
PAOB	✓	✓✓	• PAObank offers retail banking, SME banking, and innovative fintech solutions as well

✓✓ Core ✓ Yes × No

Source: Company websites, Quinlan & Associates analysis

With eight new players now battling it out with well-entrenched incumbents in what could be described as an almost "overbanked" market, the road to success for these digital challengers is far from certain, and a number of key hurdles must be crossed to turn innovative visions into long-term, sustainable success stories.

IMPACT ON HONG KONG

Besides their commercial standing, virtual banks have also served as a boon for the broader society in Hong Kong by encouraging the development of a robust FinTech ecosystem and supporting financial inclusiveness.

As a result of an increase in competition in the Hong Kong banking industry, we may also witness a “catfish effect”, whereby the incumbent players are motivated to further improve their value proposition to customers in a bid to remain relevant, providing further benefits for the people of Hong Kong in the form of broader choices and improved customer experience. By imposing no minimum account balance requirements and levying no low-balance fees, virtual banks have also helped to make banking and financial services more accessible and inclusive, enhancing upward social mobility. They may also prove to be a helping hand for small business owners who cannot get access to loans and other banking facilities from traditional incumbents, supporting growth in competition.

Virtual banks have also emerged as a key contributor to the development of Hong Kong’s FinTech ecosystem, a goal which the government has been working towards for several years through various policy measures.

Not only have the virtual banks helped to create new job opportunities, but they have promoted development in modern technology solutions in areas such as Big Data, Artificial Intelligence (“A.I.”), machine learning, and cloud computing.

From a cultural perspective, the virtual banks have heralded the birth of a “Silicon Valley-esque” culture in Hong Kong’s banking industry, which encompasses technological innovation, out-of-the-box thinking, team spirit, and a problem solving-focused attitude. We believe the ultimate fate of virtual banks is strongly tied to Hong Kong’s aspirations of evolving from an international financial centre to a FinTech hub that can successfully marry the best of traditional financial services with the innovative edge of modern start-ups.

Since several of the Hong Kong virtual banks are being backed by shareholders originating from Mainland China with significant experiencing in delivering FinTech solutions on the mainland, Hong Kong can position itself as a testing ground for applying these solutions before rolling them out to other parts of the world, including Southeast Asia. As a mature and well-regulated market, the city, in effect, provides fertile ground for industry leaders in Mainland China who are looking for a robust Proof of Concept (“PoC”) to expand their virtual banking aspirations to other parts of the world.

SECTION 3
CHALLENGES AHEAD

While the launch of the Hong Kong virtual banks has heralded the dawn of a new era for the city's financial services industry, we see six key challenges that need to be overcome in their quest to wrestle away market share from the incumbents and position themselves as a force to be reckoned with in years to come (see Figure 15).

FIGURE 15: OVERARCHING CHALLENGES

1 **Trust Deficit**
Gaining retail customers' trust and showcasing their value-addition over incumbent banks is a key hurdle facing virtual banks

2 **Uncertain Path to Profitability**
Given their high deposit interest rates and low / non-existent fees, virtual banks' ability to turn a profit remains under the scanner

3 **Data Protection**
Cybersecurity and customer data privacy are essential for safeguarding user data, maintaining credibility, and meeting regulatory requirements

4 **Talent Management**
Fierce competition over acquiring skilled, technical talent has erupted among the virtual banks, resulting in hiring bottlenecks and high staff turnover rates

5 **Competition from Other VBs**
With eight virtual banks battling it out for a wallet share of 7.5 million Hong Kong residents, there are questions over whether the market size can support all players

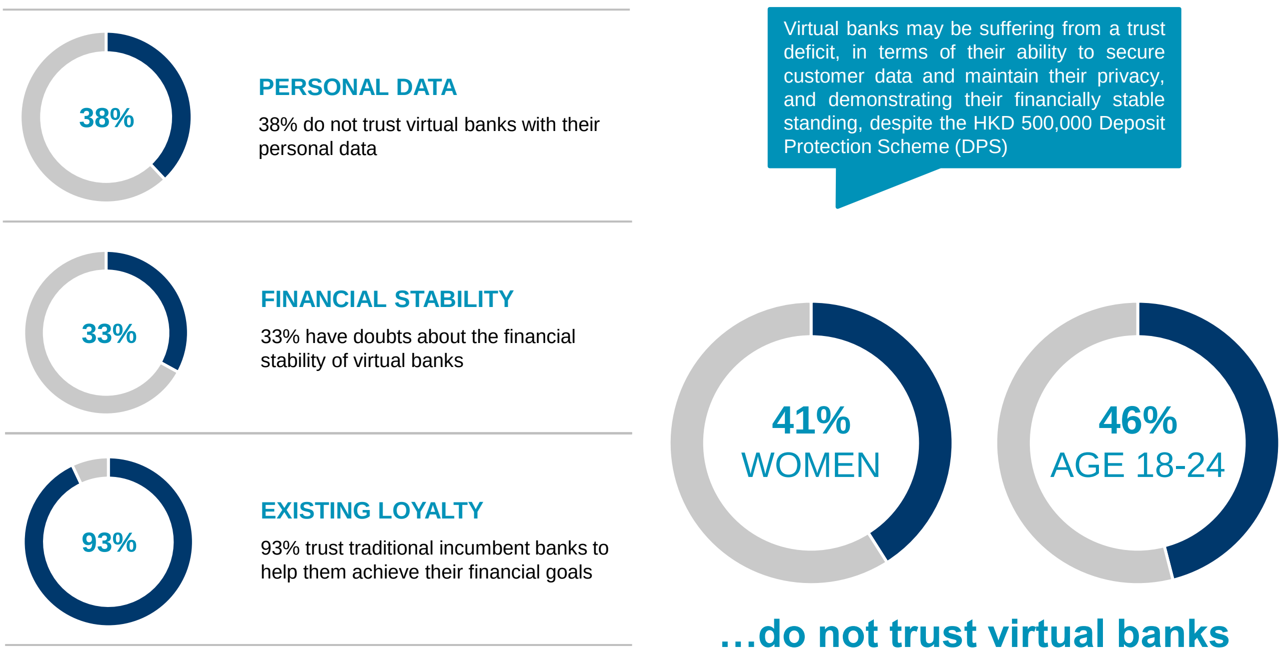
6 **Competition from Incumbents**
Incumbent banks have responded to the launch of virtual banks with accelerated digital partnerships and aggressive price competition in the form of lower fees

Source: Quinlan & Associates analysis

1. TRUST DEFICIT

While many have welcomed the birth of Hong Kong's virtual banks with great gusto, others have trodden more cautiously and raised question marks over their ability to gain customers' trust (see Figure 16).

FIGURE 16: TRUST DEFICIT



Note: based on survey responses from 1,516 participants
Source: PwC, Quinlan & Associates analysis

Although the HKD 500,000 Deposit Protection Scheme ("DPS") provides a tangible safety net for retail customers, many residents are still apprehensive about using virtual banks, given that they are relatively new and unknown entities.

There is also a sense of loyalty and familiarity – in other words, "stickiness" – by many citizens towards their incumbent banking providers. This presents a teething problem for the new entrants, who need to bridge a considerable mindset gap in order to build a sizeable, loyal customer base.

2. UNCERTAIN PATH TO PROFITABILITY

As part of their customer acquisition efforts, the virtual banks are offering comparatively attractive deposits interest rates (see Figure 17), resulting in a high Cost of Capital ("CoC"). Their lending rates also appear extremely competitive relative to incumbents. However, in an economic climate characterised by dovish central banks and low interest rates, impacting NIMs, the inertia of maintaining such attractive rates may pose longer-term challenges to virtual banks' bottom-lines.

FIGURE 17: NIM SPREADS

	Institution	Savings IR (HKD, p.a.)		Time Deposit IR (HKD, p.a.)		Lowest Lending Rate (APR, p.a.)
		Minimum	Maximum	Minimum	Maximum	
VIRTUAL BANKS	ZA Bank	0.01%	1.00%	0.10%	0.65%	• 1.88% (Tax Season Loan)
	Airstar Bank	0.10%	3.60%	0.05%	0.70%	• 1.85%
	WeLab Bank	0.10% (Core Account)		1.10%	1.50%	
	livi Bank	0.01%	1.00%			
	Mox Bank	0.65% for up to HKD 500,000				
	Ant Bank	0.001%	2.00%			
	PAOB	0.01%	0.60%			• 8.00-12.00% (Trade-Connect Loan)
	Fusion Bank	0.10% on HKD Savings		0.05%	0.70%	
LEGACY INCUMBENTS	HSBC	0.001% on >= HKD 5,000		0.001%	0.15%	• 2.02% (Personal Instalment Loan)
	BOCHK	0.001%	0.002%	0.001%	0.35%	• 1.78% (preferential tax loan rate)
	Stan Chart	0.001%		0.001%	0.15%	• 1.75% (Tax Season Loan) • 1.75% (Personal Instalment Loan)
	Citi	0.001%		Up to 0.50%		• 1.78% (Tax Season Loan)
	Hang Seng	0.001% on >= HKD 5,000		0.001%	0.35%	• 2.01% (Tax Season Loan) • 2.68% (Personal Instalment Loan)

Virtual banks: **-2.0% to 1.9%** Min-Max Retail NIM Spread

Legacy incumbents: **1.3% to 2.7%** Min-Max Retail NIM Spread

Virtual Bank | Legacy Incumbent

Note: the interest rates are as of 1 March 2021 for HKD. There rates are subject to change and do not include promotional rates
Source: company websites, Quinlan & Associates analysis

We have seen virtual banks extending lucrative offers to customers across four key areas: (1) high deposit interest rates; (2) spending rewards such as cash rebates; (3) partner rewards in association with third parties; and (4) referral-based rewards (see Figure 18). These promotions-based campaigns to attract customers are likely costing virtual banks hefty sums that may be unsustainable over the long run.

FIGURE 18: PROMOTIONS-BASED MARKETING CAMPAIGNS

BANK	DEPOSITS	SPENDING	PARTNERSHIPS	REFERRALS
	• Up to 6.8% p.a. interest rate in an initial promotion • Now offering 1% p.a. interest rate on the first HKD 500,000	• 6% cash rebate on online spending • "PowerDraw" cash rebate of up to 200% on store purchase	• Cardholders offers with Deliveroo, McDonalds, etc. • Tie-ups with shopping malls and coffee stores	• Receive up to HKD 180 cash reward by inviting a friend
	• Offered 5% p.a. interest rate on HKD 20,000 deposit	• N/A	• N/A	• Referee can receive up to 10 1% p.a. interest rate boosters
	• GoSave Drift time deposit scheme offering 9.8% p.a. • Up to HKD 10,000, for first 50 customers every day	• 5% cash rebate for debit card spending on weekends • 1% cash rebate on weekdays and non-public holidays	• N/A	• 18 Districts campaign account opening reward of HKD 200
	• Offered 0.5% p.a. interest rate on HKD 500,000 deposit	• "Shake Shake" 3% or higher cash rewards • Up to three daily transactions, with cashback up to 200 HKD	• Tie-up with yuu gives livi access to multiple outlets • More than 10 brands and 2,000 shops and restaurants	• 18,000 yuu Points upon inviting a friend
	• 0.65% p.a. interest rate for up to HKD 500,00 • Daily credited with interest accruing automatically	• 1% unlimited cash back on all eligible spending • 5% "Super CashBack" at founding merchants	• Exclusive offers with a variety of partners • E.g. csl, MOOV, 1010, eCup, Now E, HKT Smart Living, etc.	• N/A
	• 2.5% p.a. interest rate on the first HKD 20,000 deposited • 1% p.a. interest rate on HKD 20,000 - HKD 500,000	• N/A	• N/A	• N/A
	• Initially offered selected customers an 8.8% p.a. • Currently offering a 1.0% p.a. interest rate	• PAOB offered cash rebates worth HKD 288	• N/A	• N/A
	• First 40,000 customers receive 5% p.a. interest rate • Applicable for 3-month long time deposits	• First 40,000 customers may pair account with WeChat Pay • Receive e-cash coupons worth HKD 188	• Exclusive 10% discount at Group shopping stores • E.g. K11, K11 Design Store, K11 Beauty, and K11 Antonia	• N/A

Note: the promotions discussed are subject to change and may have expired
Source: company websites, Planto, The Standard, Quinlan & Associates analysis

Virtual banks will need time to shore up a sizeable deposit base. Coupled with capital adequacy requirements, this may hamper them from extending mortgage loans - while they are generally viewed as a relatively safer type of lending, they require a larger ticket size per loan disbursed. This may, in turn, harm virtual banks in their quest to develop a robust loan book, without having to expose themselves to more risky lending products. The uncertainty resulting from the COVID-19 pandemic may also put a damper on virtual banks' ability to discern an SME or retail customer's ability to repay.

Furthermore, while virtual banks can avoid the costs associated with maintaining physical branches, many players are spending considerable sums on marketing and advertising their presence – and benefits – to build up brand recognition. While this is often a necessary part of any brand awareness and customer acquisition strategy, it will need to be carefully managed if the virtual banks are to strike the right balance between maximising visibility and profitability.

3. DATA PROTECTION

Data privacy and cybersecurity pose another set of potential challenges to the integrity of virtual banks.

One of the cornerstones of virtual banks is their use of internet as a medium to extend services online. However, this leaves them particularly vulnerable to (1) cyberattacks; (2) fraud; and (3) data leakages. Furthermore, since virtual banks are expected to utilise A.I. and advanced data analytics to carve out tailor-made products and services for their customers, data privacy and user consent is of paramount importance, given the need to gain users' trust and, ultimately, monetise their data. As such, any data breach leading to leakage of sensitive customer information could be catastrophic to their future success.

Apart from maintaining robust internal controls and cybersecurity measures, there are a number of external risks that may prove difficult for the virtual banks to tackle. For instance, bogus websites have already been set up masquerading as ZA Bank and Airstar Bank in an effort to fleece unsuspecting customers. Moreover, customers could also potentially be at risk if they log-in to their virtual banking accounts via an unknown Wi-Fi service or public computer, or if they divulge their personal details in response to fraudulent calls or messages. As such, not only are sound cybersecurity processes needed for virtual banks to "make it big"; they are a fundamental pre-requisite to survival.

4. TALENT MANAGEMENT

As discussed in our previous report, *The Human Factor*,[19] many growth and late stage start-ups have been failing to deliver a meaningful career proposition to their employees, with notably lower staff satisfaction levels than their traditional rivals. Unfortunately, Hong Kong's virtual banks are no exception.

For four of the eight virtual banks in Hong Kong for which Glassdoor data were available, the average employee rating was 2.9 / 5.0 (with the lowest score being 2.0), compared to an average rating of 3.8 / 5.0 for the four leading incumbent retail banks in Hong Kong. This is despite the glut of regulatory and reputational issues that global banks have faced over the past decade (see Figure 19).

FIGURE 19: GLASSDOOR REVIEWS (HONG KONG)

Virtual Banks (HK)

FIRM	PUBLIC RATING	ONLINE FEEDBACK
1	3.5	• Benefits are not as good as you'd expect • Trustless hiring procedure, headcount freeze anytime, and reduce people • Bottom 30% of the company will have no bonus and no (salary) increment
2	3.3	• HR has exerted a significant power for your promotion and salary increments • Extra work time without salary • importing expats and outsourcing jobs, instead of developing the local talents
3	2.9	• Average salary increment, inconsiderate boss, and lack career path • Bad compensation, no formalised training program • Little growth and drudgework
4	2.0	• Bonus is deferred and demanding marketing culture • Weak middle and back office support • Need more systematic staff training • Bonus cheque came too late

2.9 pts
Average Rating

Most negative sentiment centred around poorly planned and executed HR processes

Incumbent Banks (HK)

FIRM	PUBLIC RATING	ONLINE FEEDBACK
1	4.0	• Complex organisational structure to navigate • Demanding, stressful, heavy work load • Poor work life balance and culture promoting internal competition
2	3.8	• Bureaucratic structure; legacy problems everywhere; Slow career advancement • Long working hours, tough timeline • Countless admin and compliance related work
3	3.7	• Bureaucratic and conservative • The tasks are repetitive and the management is quite loose • Office politics very common amongst middle management
4	3.6	• Politics everywhere and very low risk appetite • Long working hours and high demand on profit with old system and computer • Many manual routine work required

3.8 pts
Average Rating

Most negative sentiment centred around rigid organisational structure (i.e. lack of flexibility)

Note: the data from virtual banks may include the data of its parent company where direct data is unavailable
Source: Glassdoor, Quinlan & Associates analysis

[19] Quinlan & Associates, 'The Human Factor', August 2020, available at: https://www.quinlanandassociates.com/insights-the-human-factor/

Speaking to numerous employees at some of Hong Kong's virtual banks off record, much of the dissatisfaction experienced stems from a weak talent strategy and opaque internal HR processes, including a lack of structure around compensation and promotions, an absence of formal training programmes, and a poorly defined organisational construct that sees employees regularly double- or triple-hatting. Additionally, the lack of a clearly defined career path and a weak corporate culture, including dissatisfaction with middle management, points to a more substantive chasm in the talent offerings of these companies. All of this suggests an urgent need to institute an effective organisational talent strategy.

Furthermore, with all eight virtual banks entering the market in tandem, there has been stiff competition for talent in information technology ("IT"), compliance, and risk management. However, a dearth of local supply in fields such as technology have created hiring bottlenecks, driving virtual banks to look outside of Hong Kong for talent. ZA Bank, for example, has the majority of its employees based out of Shenzhen instead of Hong Kong, presumably owing to the comparative wealth of technology talent in the city.

A senior talent war also appears to have erupted amongst many of the virtual banks, with Ant Bank (Hong Kong) poaching Chief Executive Officer ("CEO") Michael Wang from livi and Chief Risk Officer ("CRO") Johnson Lo from Mox, barely 12 months since the receiving the go-ahead from HKMA. WeLab Bank has turned over two CEOs already as well, with Tat Lee recently taking over the mantle of CEO from Adrian Tse, who himself took over from Dr. William Leung at the beginning of 2020. It is likely that this war for talent will continue for the foreseeable future, given the importance of hiring and retaining suitably skilled employees in a market confronting a dearth of supply in the technology space.

5. COMPETITION FROM VIRTUAL BANKS

Apart from competing with existing legacy banks, Hong Kong's virtual banks are also competing for supremacy amongst themselves. In a region home to roughly 7.5 million inhabitants and over 340,000 SMEs, with eight virtual banks dishing it out to build a profitable business, future consolidation appears more likely than not.

In their initial years, the virtual banks are expected to compete fiercely for new customers (and their assets) as they attempt to build a sizeable user base. However, if cash burn rates become unsustainable, shareholder patience may begin to wear thin, and profitability will become a key focus. As such, we believe an exit could be on the cards for players that are unable to accumulate a critical mass of users (and adequately monetise them).

As the saying goes, a rising tide lifts all boats, but once the tide begins to recede, some boats may run aground. This signals the need for virtual banks to differentiate themselves and focus on acquiring more customers (or monetising them more effectively) than each other before a potential wave of consolidation kicks off.

6. COMPETITION FROM INCUMBENTS

Although virtual banks may be able to attract new retail customers through attractive deposit interest rates, the promise of a seamless digital experience, and lucrative rewards, there is a risk they may play second fiddle to Hong Kong's legacy banks, which continue to serve as peoples' primary bank account providers.

The current absence of a sophisticated suite of products and services does not bode well for virtual banks' ability to fulfil their customers' financial needs over the long-term. In fact, retail banking customers in Hong Kong often use multiple products and services from incumbent legacy banks, consequently building a sticky relationship and trust factor that virtual banks will need to overcome. Furthermore, although the market is seeing a secular shift in favour of digital technology, many customers still have a desire to interact with a human representative – 62% for mortgages, 57% for insurance, and 57% for wealth management.[20]

The technological gap that virtual banks are seeking to plug through their innovative digital offerings is unlikely, in isolation, to give them an unassailable advantage over their more traditional rivals. For example, HSBC's PayMe mobile-based application, which was launched well after the entry of AlipayHK and WeChat Pay in Hong Kong, has since skyrocketed to two million users and secured an impressive 68% market share.[21]

Beyond doubling down on their digital transformation efforts, Hong Kong's incumbent banks are not taking their virtual banking rivals for granted, with many responding to the arrival of new competition by cutting or eliminating fees (see Figure 20).

WE SEE SIX KEY CHALLENGES THAT NEED TO BE OVERCOME IN THEIR QUEST TO WRESTLE AWAY MARKET SHARE FROM THE INCUMBENTS AND POSITION THEMSELVES AS A FORCE TO BE RECKONED WITH IN YEARS TO COME

[20] PwC, 'Virtual Banking: Customers Take Charge – Are You Ready?', November 2019, available at: https://www.pwchk.com/en/financial-services/publications/2019-digital-banking-customer-survey.pdf
[21] HSBC, 'Business Update and Results Presentation to Investors and Analysts', 18 February 2020, available at: https://www.hsbc.com/investors/results-and-announcements

FIGURE 20: RESPONSE BY INCUMBENT BANKS

	HSBC	STAN CHART	BOCHK	CITI	HANG SENG
FEE CONCESSIONS	■■■■	■■■□	■■■□	■□□□	■■■■
	HSBC has eliminated 26 fees and charges for basic banking services; expected to benefit over 4 million personal customers	Standard Chartered has scrapped minimum balance fees for premium bank and transaction fees for "click-a-count" clients	BOCHK has introduced fee concessions for electronic services and extended service hours of online banking services	Citi does not appear to have introduced any fee concessions in response to the launching of virtual banks	Hang Seng Bank has waived general banking fees for services including deposits, remittances, securities trading, FX, etc.
DIGITAL INNOVATION	■■■□	■■■□	■■■□	■■■□	■■■□
	Launched "HSBC One", an integrated account which will provide a suite of services with no minimum balance requirement	Standard Chartered has launched a "Refresh Strategy" to focus on technology, such as mobile funds, QR cash, etc.	BOCHK has revamped its mobile app, introducing one click binding with BoC Pay, BoC Live for investment expert interactions, etc.	Citi has launched "Citi Plus", a mobile banking app with deposit, funding, and wealth-management features for customers	Hang Seng Bank has rolled out over 140 digital innovations and enhancements for its digital services in 2020
VIRTUAL BANK LICENCE	□□□□	■■■■	■■■■	□□□□	□□□□
	HSBC has opted against applying for a virtual banking license, instead choosing to invest in its own digital banking efforts	Standard Chartered has backed Hong Kong virtual bank – Mox Bank, partnering with the likes of HKT, PCCW, and Ctrip	BOCHK has backed Hong Kong virtual bank – livi Bank, partnering with the likes of JD Digits and Jardines	Citi has asserted that it can already offer all types of online banking services that virtual banks could, and more at their branches	HSBC owned Hang Seng Bank has opted against applying for a virtual banking license, similar to its parent institution

WEAK ■■□□ STRONG

Source: HSBC, Citi, BOCHK, Standard Chartered, SCMP, finews, Business Chief, Quinlan & Associates analysis

HSBC, for example, has scrapped 26 general banking and transaction fees, for deposit and withdrawal of foreign currency notes, request for banker's reports and documents, passbook replacement, global transfers and remittances, etc., and accelerated its digital partnerships. It has also removed its monthly fee for customers with deposits totalling below HKD 5,000, launched a remote account opening scheme for SMEs, and developed its own digital offerings, such as PayMe. Fellow incumbent bank, Citi has responded by tying up with AAStocks.com to enable their customers to trade stocks through phones.

Virtual banks were recently reported to have removed electronic direct debit authorisation ("eDDA") or reduce transfer limits from certain traditional banks due to high transaction fees being levied. For example, Mox has removed eDDA from HSBC, Hang Seng Bank, and Dah Sing Bank.[22] Moreover, Stored Value Facility ("SVF") Licensees, such as AliPayHK and WeChat Pay, which have gained popularity amongst retail customers for their digital wallet and payment offerings, may also offer stern competition to virtual banks in the retail space. Other SVFs, such as Neat and Statrys, with their rapid account opening processes, local and international payment facilities, multi-currency accounts, and company registration, etc., are likely to provide significant competition in the SME space.

Given the aggressive response by the Hong Kong incumbents, the virtual banks will need to develop and consistently execute a highly targeted (and differentiated) strategy if they are to win the battle for market share in years to come.

[22] The Standard, 'Mox cuts three banks from direct debit link', 4 December 2020, available at: https://www.thestandard.com.hk/section-news/section/2/225353/Mox-cuts-three-banks-from-direct-debit-link

SECTION 4
NAVIGATING THROUGH UNCERTAINTY

In response to the various challenges faced by virtual banks, we believe four key pillars hold the key to their future success, including:

1. Build a trusted franchise;
2. Create a path to profitability;
3. Safeguard customer data;
4. Attract and nurture talent (see Figure 21).

FIGURE 21: KEY SUCCESS PILLARS

1	2	3	4
Establish a trustworthy brand through a relentless focus on customer experience	***Achieve profitability and generate respectable returns for shareholders***	***Ensure proper cybersecurity and customer data privacy safeguards are in place***	***Attract and retain the right talent pool in key functions across-the-board***
Build a Trusted Franchise	**Create a Path Profitability**	**Safeguard Customer Data**	**Attract and Nurture Talent**
• Educate potential customers on safeguards • Shortlist relevant KPIs for measuring success • Focus on customer experience and building loyalty • Utilise low-cost channels like social media • Generate strong word of mouth	• Retain customers and generate referrals • Secure a low-cost source of funding • Pursue a fee-based, non-interest income model • Evaluate third-party partnership opportunities • Explore geographic expansion into the Greater Bay Area (GBA)	• Identify relevant resources • Implement required safeguards • Promptly detect cybersecurity events • Build functionalities for responding to cyber threats • Develop resilience for restoring services post attacks	• Map out personnel requirements • Establish front-to-back headcount targets • Develop an efficient talent pipeline • Create an appropriate remuneration policy • Build relevant learning and development frameworks

Source: Quinlan & Associates analysis

1. BUILD A TRUSTED FRANCHISE

In an already well-banked market, with customers spoilt for choice between a multitude of legacy incumbents and eight new digital contenders, building loyalty will be fundamental to the future success of the virtual banks.

While the DPS may help assuage retail customer concerns around the safety of their deposits with a virtual bank, much more needs to be done to win over customer hearts and minds. While some of the virtual banks may flaunt their association with well-regarded backers to lend credibility, delivering an exceptional customer experience remains essential in gaining trust, enhancing satisfaction levels, and maintaining a vice-like grip over loyalty, all of which will be crucial in building a trusted franchise that commands a greater share of wallet.

In spite of the digital edge that virtual banks may possess over their brick-and-mortar rivals, we believe sound relationship management will be important in effectively penetrating the SME space. To cite an example, Ping An backed PAOB is attempting to leverage its relationship with Tradelink, an e-commerce business solutions provider, to offer credit to their SME clients with: (1) no document submission for loan approval; (2) application drawdown within five days; (3) no handling fee; and (4) early redemptions without penalties.

In delivering a superior customer-centric approach, the virtual banks will need remain razor-focused on relevant Key Performance Indicators ("KPIs"), helping them to streamline their customer experience metrics and accurately identify areas for future improvement across the entire customer value chain (see Figure 22).

FIGURE 22: SAMPLE CUSTOMER-CENTRIC KPIs

		Relevant KPIs	Description
ACQUISITION	Customer Identification	Traffic-to-lead Ratio	*Understand the source of the customer traffic*
		Bounce Rate	*Percentage who visited one screen and left*
		Conversion Rate	*Sales funnel conversion rate across touchpoints*
	Customer Onboarding	Onboarding Rate	*Percentage that do not abandon onboarding*
		Onboarding Time	*Time taken to onboard a customer*
		Customer Acquisition Cost (CAC)	*Sales and marketing costs per new customer*
MONETISATION	Product Development	Time to Value (TTV)	*Time taken for a new customer to realise value*
		Monthly Active Users (MAU)	*Count of users that are active on a monthly basis*
		Session Duration	*Average duration of a session on the app*
	Interest Income Generation	Loan Application Success Rate	*Percentage of credit applications approved*
		Time to Funding	*Time taken for funds to be disbursed*
		Non-Performing Loan (NPL) Ratio	*Percentage of loans that have defaulted*
	Fee Income Generation	Recurring Revenue Rate (RRR)	*Revenue that is recurring over a time period*
		Cross-sell Ratio	*Products and services cross-sold*
		Average Fee Revenue per User	*Fee revenue generated per user*
MAINTENANCE	Customer Servicing	Net Promoter Score (NPS)	*Likelihood of receiving positive customer referral*
		Customer Satisfaction (CSAT)	*Barometer of customer experience*
		Customer Effort Score (CES)	*A measure of ease of service and products use*
	Complaint Handling	Tickets Opened and Closed per day	*Customer complaints received and resolved*
		Time to Response	*Customer waiting time till response is received*
		Time to Resolution	*Customer waiting time till complaint is resolved*
	Customer Retention	Customer Churn Rate (CCR)	*Percentage of customers lost over time periods*
		Redemption Rate (RR)	*Percentage of loyalty rewards redeemed*
		Customer Life Value (CLV)	*Revenue generated per customer over lifecycle*

Source: Quinlan & Associates analysis

As they look to rapidly build their customer base, marketing remains a key focus area for the virtual banks, with many adopting an omnichannel strategy. ZA Bank, for example, has placed advertisements on digital panel networks in Mass Transit Railway ("MTR") stations, while Airstar Bank has taken a more creative approach by sponsoring a local television show.

Given the digital nature of virtual banks, many have also turned to social media to drive brand awareness, leveraging platforms such as Instagram, Facebook, Pinterest, and YouTube. Together with partner referrals, we believe social media will serve as an important low-cost channel for reaching virtual banks' target user base (see Figure 23).

FIGURE 23: SOCIAL MEDIA MARKETING

ONLINE CHANNELS

Social Network Management

Leveraging social media platforms to connect with customers to build company's brand awareness, increase sales, and drive website traffic.

Example: Several virtual banks have used Facebook, Instagram, LinkedIn for promotion

Paid Search Advertisement

Placing advertisement online platforms by paying space-owners, which displays the advertisement based on user's previous search interests

Example: Multiple virtual banks have used Google Ads, YouTube Ads, ads on App Store, etc.

OFFLINE CHANNELS

Physical Advertisements

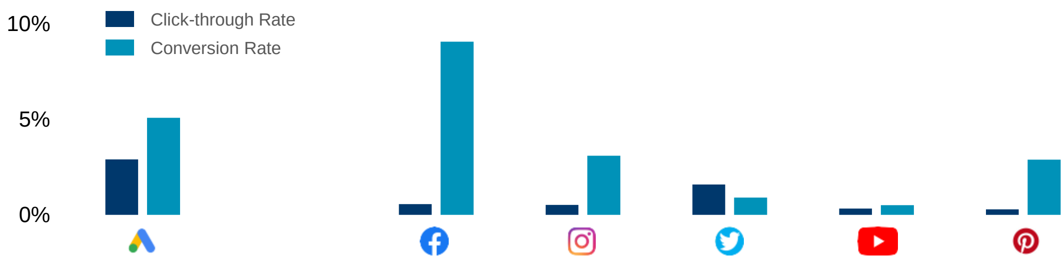
Purchasing physical advertisement space on billboards, banners, in newspapers, and other physical channels

Example: ZA Bank has placed ads in the MTR, while livi has placed ads on billboards

Electronic Media Advertisements

Utilising electronic media channels, such as television and radio, by either sponsoring programs or buying advertising time on a channel

Example: Airstar Bank has chosen to sponsor a local television show



	Google Ads	Facebook	Instagram	Twitter	YouTube	Pinterest
Click Through %	2.91%	0.56%	0.52%	1.59%	0.33%	0.28%
Conversion %	5.10%	9.09%	3.10%	0.90%	0.50%	2.9%
Cost Per Mille (USD)	2.8	7.19	7.91	6.46	9.68	3.67
MARKET SHARE (Ranking)						
Hong Kong	92.15% (1)	51.66% (1)	2.35% (5)	17.74% (3)	7.42% (4)	18.69% (2)

Source: Pixability, Wordstream, Heap, Social Media Examiner, Adstage, Linkedin, Webfx, Statcounter, Fat Stacks, 4C Insights, Quinlan & Associates analysis

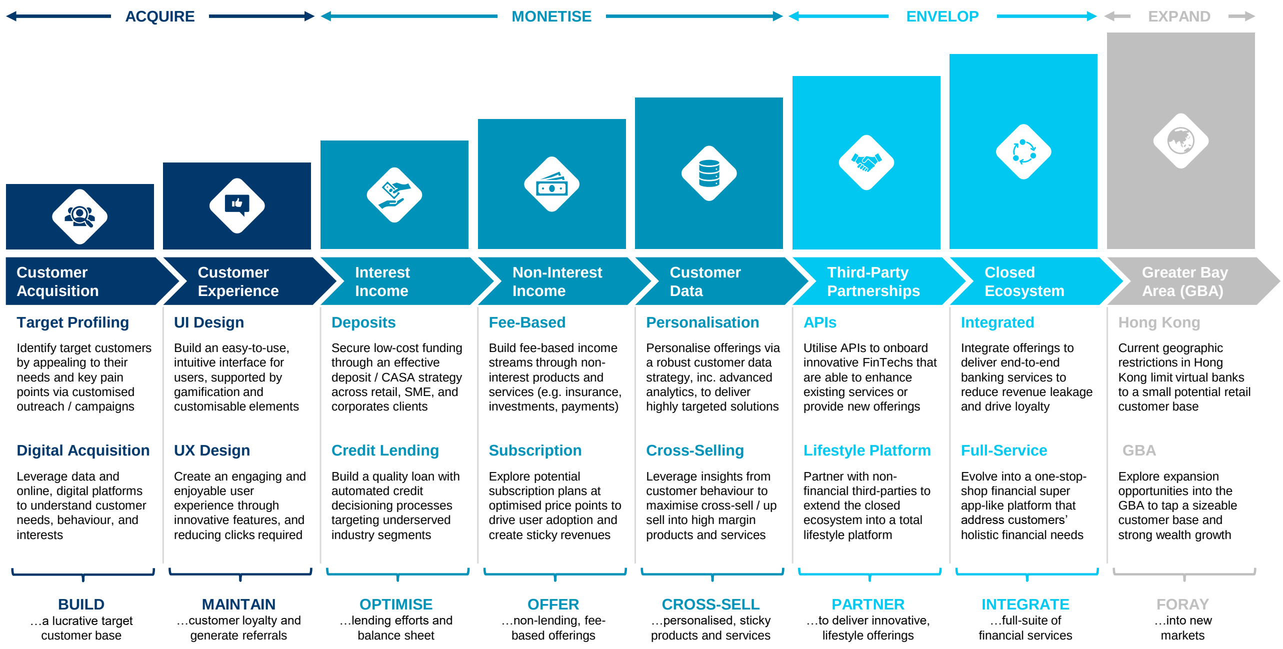
Looking at marketing strategies from the west, U.K. neobank, Monzo, managed to craft an implicit strategy for capturing customer attention through offering bright, neon, coral coloured payment cards to their customers, which caught the general public's eye whenever they were used. This helped to drive greater word of mouth, generating considerable "free" advertising for the company. Following that blueprint, Monzo's Hong Kong counterpart, WeLab Bank, appears to also have adopted a similar idea and have designed a card with a unique shimmering look to drive greater organic brand awareness.

Elsewhere, in the United States, neobank Chime has opted for a "social proof strategy" with its #ChimeSavedMe social media campaign, showcasing the real-life social impact that its offerings – such as automatic savings, no hidden fees, and two-day salary advance – can have on its customers. By building mutual trust and understanding with its customers through displaying its "humane" qualities, Chime has sought to better connect to the communities it serves in an effort to win the hearts and minds of US banking customers.

2. CREATE A PATH TO PROFITABILITY

Like any start-up, Hong Kong's virtual banks will need to demonstrate their ability to generate sustainable profits and shareholder returns over the long-term. We see eight key pillars that need to be addressed in charting the path to profitability (see Figure 24).

FIGURE 24: CHARTING THE PATH TO PROFITABILITY



Source: Quinlan & Associates analysis

A. CUSTOMER ACQUISITION

Due to their high advertising costs and current limited suite of offerings (consisting primarily of high interest rate savings accounts and free of charge payment solutions), it will be crucial for virtual banks to raise their Customer Life Value ("CLV") above their corresponding Customer Acquisition Costs ("CAC") – in short, they must generate more revenue per customer over their lifetime than what they spend on acquiring them.

To achieve this, virtual banks will need a clear strategy for acquiring their target customers based on their capabilities (see Figure 25). For example, if the virtual bank is primarily providing basic services, then young individuals with basic needs may be targeted, or if the virtual bank is looking to offer more sophisticated products then more mature clients who are not satisfied with incumbents may be targeted. Targeting this mix of young, technologically savvy millennials, along with older, mass-affluent generations experiencing low satisfaction rates with incumbent banks, may present the ideal combination; this would allow virtual banks prise higher value customers away from traditional providers while attracting younger generations with considerable growth potential from generational wealth transfer.

FIGURE 25: TARGET USER PROFILES

	Technologically Savvy Youngsters	Demographics	Families with Unsatisfied Experience
MONETARY	**Mass Retail** Mass retail customers may be able to contribute deposits in small quantities	Wealth	**Mass Affluent** More affluent individuals can allocate more disposable income towards financial products
MONETARY	**Recent Graduate** Early-career professionals may require more personal finance education	Financial Objective	**Mid-Career Professional** A mid-career professional may have specific financial goals (e.g. buying an apartment)
LIFESTYLE	**Millennial** Younger generations are more technologically and may stand to gain from future inheritance	Age	**Mature** Older generations may be less technologically adept, but possess greater financial assets
LIFESTYLE	**Unmarried** Unmarried individual with fewer personal commitments may spend more on lifestyle	Family	**Married with Child** Married individual may have larger expenses and need wealth planning solutions
MOTIVATION	**Greater Digital Offerings** Seeking more modern, digital offerings, with greater personalisation	Pain Points	**Unsatisfied with Incumbents** Queueing up, long waiting periods, poor customer service, etc.
MOTIVATION	**Technologically Savvy** Digitally adept individuals, who are technologically sophisticated	Sophistication	**Experienced in Personal Finance** Individuals with some basic level of understanding and personal finance education

Source: Quinlan & Associates analysis

Additionally, developing a robust brand strategy can help a virtual bank effectively communicate its mission, vision, and value proposition to customers. To this end, the leadership at virtual banks should look to answer the following question – "How do we wish for our current and potential customers to perceive us?". For instance, American neobank, Chime, is seeking to showcase a positive societal impact to its customers, while U.K.-based neobank, Revolut, is positioning itself as "one app for all things money".

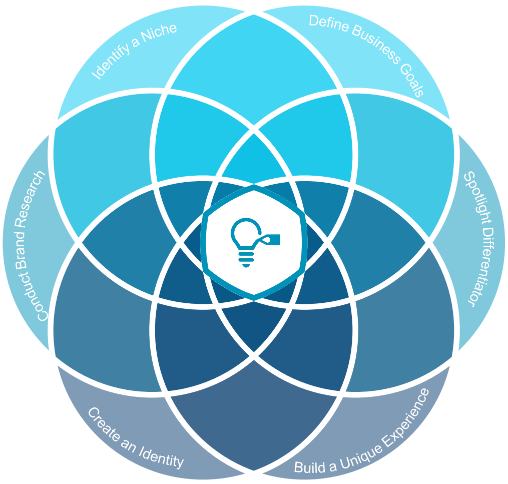
An effective brand strategy yields incremental benefits by inserting an idea into customers' head of what the organisation is all about, enticing them to become a part of the company's journey. In order to achieve this, virtual banks should look to: (1) identify a niche or particular area to have a laser-like focus on; (2) define business goals and align the marketing strategy accordingly; (3) conduct extensive brand research to gauge customers' experience, expectations, and current perceptions; (4) put a spotlight on a singular key differentiator that sets the virtual bank apart from its peers; (5) build a visual and social media identity that is aligned with the factors identified in earlier steps; and (6) lastly, carve out a unique customer experience accordingly (see Figure 26).

FIGURE 26: BRAND STRATEGY

Identify a Niche
Identify a niche or particular area to have a laser-like focus on

Conduct Brand Research
Conduct extensive brand research to gauge customers' perceptions

Create an Identity
Create a visual and social media identity that is aligned with the brand



Define Business Goals
Define business goals and align the marketing strategy accordingly

Spotlight Differentiator
Identify a key differentiator that sets the virtual bank apart from its peers

Build a Unique Experience
Build a customer experience that is unique relative to competitors

Source: Quinlan & Associates analysis

It is important to recognise that a truly effective customer acquisition strategy in a digital age needs to go far beyond broad-brush customer segmentation models. While robust customer segmentation will help with the virtual banks' broader brand positioning objectives, an intricate understanding of customer needs, behaviours, and interests at an individual level is required, which necessitates a mastery of personal customer data.

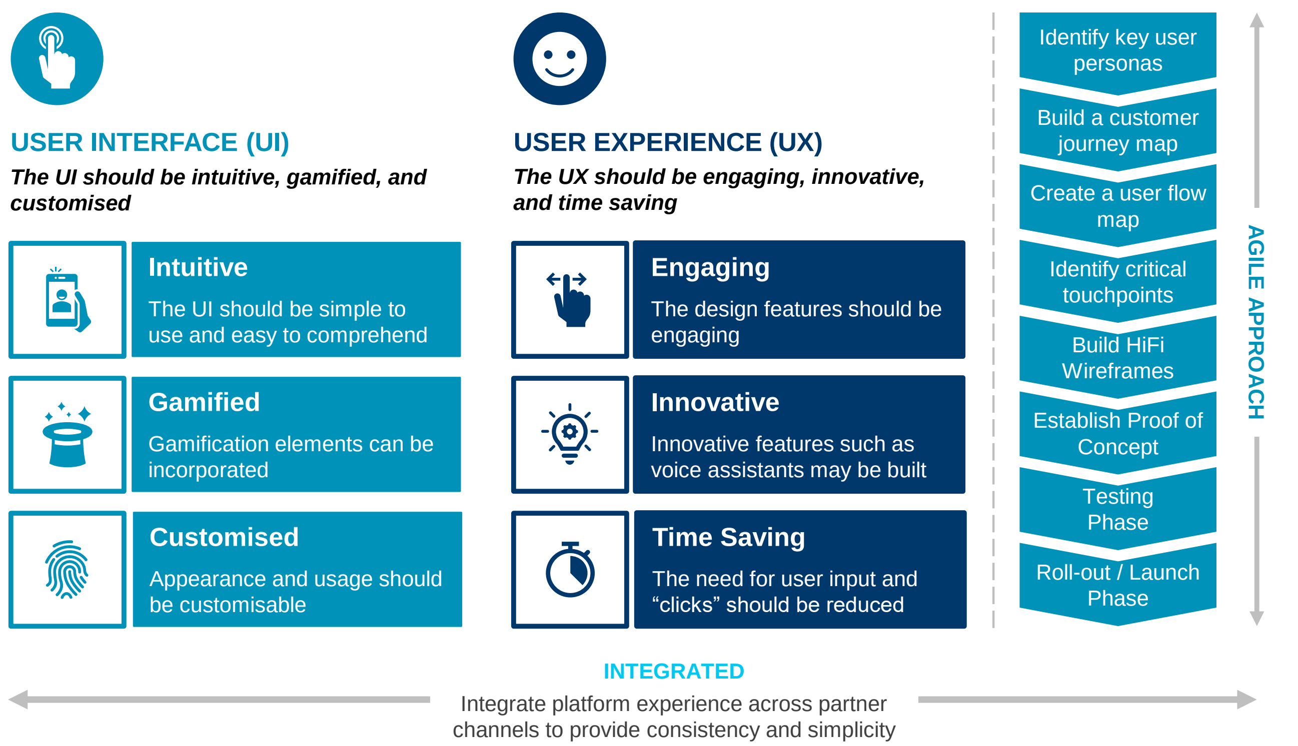
B. CUSTOMER EXPERIENCE

Given the relatively lower cost of customer retention vs. acquisition, ongoing customer satisfaction is of paramount importance for the virtual banks. This is likely to have a positive spill-over effect for future customer referrals.

We believe that virtual banks should continuously strive to make their user interface ("UI"): (1) intuitive; (2) gamified; and (3) customised, while making their user experience ("UX"): (1) engaging; (2) innovative; and (3) time saving, across various touchpoints along the customer value chain, thereby delivering a more simple and user-friendly experience (see Figure 27).

For example – livi is using "shake shake" cash rewards to add a fun element to its user experience, by asking users to shake their smartphones after making a QR-code payment to receive a cash reward, and ZA Bank has launched "ZA Quest", a new feature that invites users to participate in mobile game-like quests and earn rewards. While a positive start, we believe there is ample scope for the virtual banks (and the financial services industry more broadly) to bring gamification to the next level.

FIGURE 27: USER INTERFACE AND EXPERIENCE DESIGNING



Source: Quinlan & Associates analysis

While it is still early days, the virtual banks have generally witnessed a positive response from users on Apple's App Store (see Figure 28), with reviews praising rapid onboarding speeds, friendly user interfaces, and a simplified user experience.

FIGURE 28: VIRTUAL BANK APP REVIEWS

APP STORE

VIRTUAL BANK	RATING	NO. OF REVIEWS
Mox Bank	4.8	8,968
Fusion Bank	4.8	768
ZA Bank	4.7	7,305
WeLab Bank	4.3	1,046
Airstar Bank	4.0	428
Ant Bank (Hong Kong)	3.4	44
PAOB	3.2	54
livi Bank	2.8	288

4.7
Weighted Average Rating

PLAY STORE

VIRTUAL BANK	RATING	NO. OF REVIEWS
Fusion Bank	4.9	696
WeLab Bank	4.7	827
ZA Bank	4.6	5,056
Mox Bank	4.4	2,992
livi Bank	3.6	813
Airstar Bank	3.2	604
Ant Bank (Hong Kong)	2.9	84
PAOB	2.7	79

4.4
Weighted Average Rating

Note: ratings and number of reviews accurate as of 1 March 2021
Source: App Store, Play Store, Quinlan & Associates analysis

It is worth noting that certain virtual banks have performed vastly better than their peers. Fusion Bank, in particular, has come out of the gate roaring, garnering an average rating of 4.9 / 5.0 from 696 reviews on Play Store and 4.8/5.0 from 768 reviews on App Store. ZA Bank has also received a significantly positive response, similar to the early reviews for Fusion Bank, the last of the virtual banks to launch publicly.

In stark contrast, livi Bank has a paltry average rating of 2.8/5.0 on App Store and 3.6/5.0 on Play Store, while Ant Bank (Hong Kong) has a meagre 44 reviews on App Store and 84 on Play Store, which pales in comparison to some of its leading counterparts. Like Ant Bank (Hong Kong), PAOB has also not received a lot of reviews, possibly due to their relatively greater focus on SMEs rather than retail customers.

This lopsided contest in terms of app store reviews could potentially reflect the order in which the virtual banks launched, given that Mox Bank and ZA Bank were the first two to launch and have amongst the highest ratings, while Fusion Bank has emerged as somewhat of an outlier. In addition, the timing of the Hong Kong government's cash payout scheme may have also favoured virtual banks that launched either before or close to that time. In any case, these early reviews are sending a clear indication as to which players are winning the battle for the hearts and minds of Hong Kong's banking community.

C. INTEREST INCOME

On the deposit front, in addition their current efforts to target retail savings, winning the battle for the excess cash reserves of SMEs and corporates will allow the virtual banks to open up a sizeable, low-cost source of funding and the capacity to supercharge their lending activities.

In the short term, it is likely that the virtual banks will need to compete on price, targeting both retail customers and SMEs in fast-growing industries to build a strong reputation in the market, before gaining access to larger blue-chip corporations with stronger balance sheets to build a more robust asset base.

With respect to retail lending in particular, pioneering use of alternative data sources, such as utilities and telecom bill payment, rental payments, purchasing habits, etc., for determining the creditworthiness of potential borrowers can help provide a gilt-edge to retail lending efforts. Combining the various forms of lifestyle data – ranging from professional background and browsing history, to spending patterns and geolocation data – to build a behavioural profile may help provide valuable insights into a borrower's propensity to pay on time.

To effectively penetrate the SME and corporate lending space, the virtual banks can look to build stronger relationships and generate greater revenue through a service-focused approach centred around the provision of non-lending products and services, including payroll, currency exchange, and advisory. This tactic would help grow revenue from SMEs and attract deposits without exposing the bank to credit risk or raising concerns around asset quality. In addition, securing the payroll services of a company could also help onboard its employees as retail customers, offering valuable cross-selling potential.

The virtual banks may also focus on satisfying the "operational cash" needs of SMEs and the "excess cash" held by larger corporates through offering liability products such as structured notes, as well as demonstrating seamless transaction banking capabilities.

D. NON-INTEREST INCOME

Given the suppressed NIM environment and the need to scale their customer base, virtual banks may find it difficult to attain profitability by adopting a traditional lending and deposits-based business model.

We see ample scope for Hong Kong's virtual banks to pursue a fee-based income model in coming years, offering products and services such as insurance plans, wealth management advisory, buy-now-pay-later credit lending, budgeting tools, investment products and trading services, and international multi-currency transfer and payment capabilities. Under this model, we estimate a wallet opportunity from retail (wealth management and personal income), commercial (SME), and corporate (excluding investment banking and global markets) banking of HKD 76 billion to be up for grabs by the virtual banks in Hong Kong by 2025, translating to a combined revenue market share of 19.3% (see Figure 29).

COMBINING THE VARIOUS FORMS OF LIFESTYLE DATA – RANGING FROM PROFESSIONAL BACKGROUND AND BROWSING HISTORY, TO SPENDING PATTERNS AND GEOLOCATION DATA – TO BUILD A BEHAVIOURAL PROFILE MAY HELP PROVIDE VALUABLE INSIGHTS INTO A BORROWER'S PROPENSITY TO PAY ON TIME

FIGURE 29: VIRTUAL BANK REVENUE POTENTIAL (2025E)

1a WHAT PROPORTION OF THE POPULATION IS INTERESTED?

26% of 18-24, 30% of 25-34, 32% of 35-44, 31% of 45-54, 22% of 55-64, and 31% of 65+ aged residents are interested in opening a virtual bank account by 2025[1]

1b WHAT ARE THE CORRESPONDING DEMOGRAPHICS?

We forecast approximately 0.13 million 18-24, 0.32 million 25-34, 0.39 million 35-44, 0.36 million 45-54, 0.28 million 55-64, and 0.44 million 65+ year olds to be customers[2]

1.9 MILLION
TOTAL CUSTOMERS

2a HOW MUCH ARE RETAIL CUSTOMERS WILLING TO DEPOSIT?

We estimate an average deposit balance at half of HSBC's at HKD 230,000[3] by 2025, considering Mox Bank's current average balance of HKD 70,000+[4]

2b HOW MUCH ARE COMPANIES WILLING TO DEPOSIT?

Based on estimates of company deposits at incumbent banks and a lower proportion of virtual banks focusing on SMEs, we see a relatively lower company deposit base

HKD 560 BILLION
TOTAL DEPOSITS

3 HOW MUCH WILL VIRTUAL BANKS BE ABLE TO LEND?

Examining the loan-to-deposit ratio (LDR) of incumbent banks in Hong Kong, we estimate a 68% LDR for virtual banks[5]

HKD 381 BILLION
TOTAL LENDING

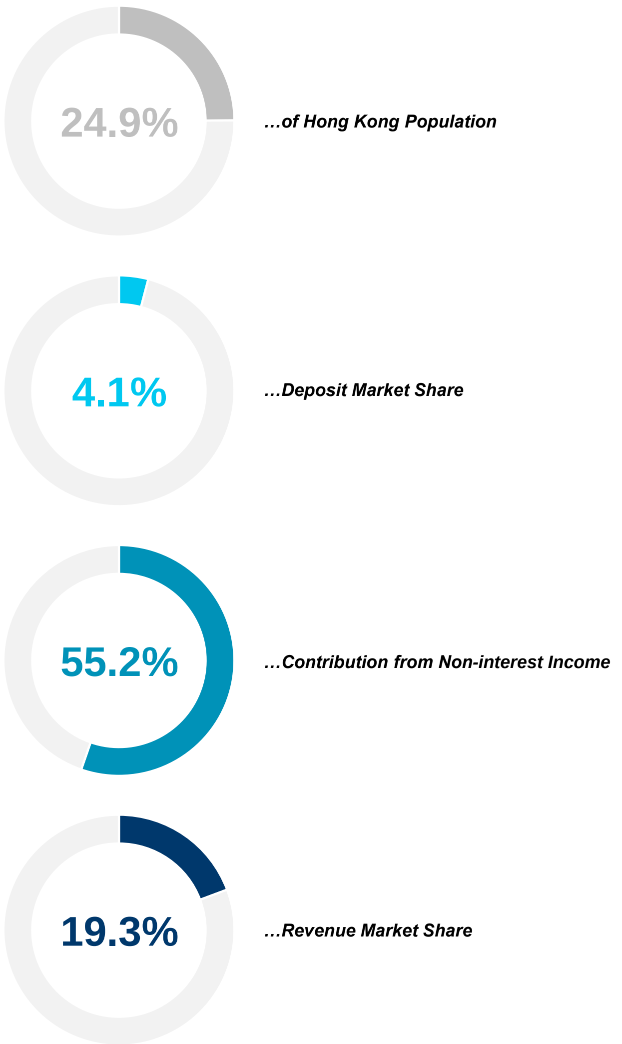
4a WHAT IS THE EXPECTED INTEREST INCOME EARNED?

We expect virtual banks to charge an average interest rate of 9%, due to a focus on personal and SME lending, which translates to HKD 34 billion in interest income

4b WHAT IS THE EXPECTED NON-INTEREST INCOME EARNED?

Using the U.K. neobanks' fee-based model as a proxy, we estimate a non-interest to interest income ratio of 1.23x,[6] which translates to HKD 42 billion non-interest income

HKD 76 BILLION
TOTAL REVENUE



[1] Finder.com, 'The rise of virtual banks', 7 September 2020, available at: https://www.finder.com/hk/virtual-banking-statistics
[2] Census and Statistics Department, 'Population Estimates', accessed 12 February 2021, available at: https://www.censtatd.gov.hk/hkstat/sub/sp150.jsp?tableID=002&ID=0&productType=8
[3] HSBC, 'HSBC Asia Factbook FY19', 30 March 2020, available at: https://www.hsbc.com/-/files/hsbc/investors/hsbc-results/2019/annual/pdfs/hsbc-holdings-plc/200330-asia-factbook-fy19.pdf?download=1
[4] Finextra, 'Hong Kong virtual bank Mox signs 35,000 customers in first month', 23 October 2020, available at: https://www.finextra.com/newsarticle/36811/hong-kong-virtual-bank-mox-signs-35000-customers-in-first-month
[5] Various bank annual reports and filings
[6] Various neobank bank annual reports and filings

Source: Quinlan & Associates analysis and estimates

As part of our market sizing exercise, we attempted to measure our estimates against suitable benchmarks. For instance, our projected 2025 customer count of 1.9 million people is approximately in line with surveys conducted by other institutions such as Finder.com, which reported an estimate of 1.8 million customers,[23] and Field Resource Consultant ("FRC") which forecasted an approximate customer base of 1.4 million.[24]

With respect to our average deposit balance estimate, we note that Mox Bank reportedly boasts an average customer balance of >HKD 70,000[25] and has garnered HKD 5.1 billion in total deposits as of December 2020,[26] compared to an estimated average retail customer deposit balance of HKD 460,000 for HSBC.[27] Consequently, we anticipate that by 2025, as virtual banks gain more notoriety and demonstrate their safety and utility, they will be able to achieve an average retail customer deposit balance that is half of HSBC, of approximately HKD 230,000, leading to a retail deposit base of HKD 443 billion.

Further taking into account deposits from commercial and corporate banking customers, based on the ratio of deposits from retail versus commercial and corporate banking customers of incumbents such as HSBC, we see an overall deposit base of HKD 560 billion from retail (wealth management and personal income), commercial (SME), and corporate (excluding investment banking and global markets) banking customers combined.

With respect to the projected loan-to-deposit ratio ("LDR"), we evaluated the LDRs at traditional Hong Kong banks to arrive at an LDR of 68% for virtual banks, which translates to HKD 381 billion worth of loans and advances to customers. Compared to virtual banks, incumbent traditional banks have greater capacity to offer low-interest mortgage loans that carry high ticket sizes and have a lower cost of funds owing to lower deposit rates, this leads us to estimate an average lending interest rate of 9% for virtual banks, taking into consideration that they are likely to focus more on extending personal loans (i.e. short-term personal loans and credit cards) and SME loans rather than mortgage loans or loans to large corporations. Consequently, we see virtual banks garnering ~HKD 34 billion in interest income.

[23] Finder.com, 'The rise of virtual banks', 7 September 2020, available at: https://www.finder.com/hk/virtual-banking-statistics
[24] The Standard, 'Survey shows multi-billion deposit potential for virtual banks', 29 December 2020, available at: https://www.thestandard.com.hk/breaking-news/section/2/162185/Survey-shows-multi-billion-deposit-potential-for-virtual-banks
[25] Finextra, 'HK virtual bank Mox captures $5.1 billion in deposits in first five months', 22 February 2021, available at: https://www.finextra.com/pressarticle/86258/hk-virtual-bank-mox-captures-51-billion-in-deposits-in-first-five-months
[26] Finextra, 'Hong Kong virtual bank Mox signs 35,000 customers in first month', 23 October 2020, available at: https://www.finextra.com/newsarticle/36811/hong-kong-virtual-bank-mox-signs-35000-customers-in-first-month
[27] HSBC, 'HSBC Asia Factbook FY19', 30 March 2020, available at: https://www.hsbc.com/-/files/hsbc/investors/hsbc-results/2019/annual/pdfs/hsbc-holdings-plc/200330-asia-factbook-fy19.pdf?download=1

With regards to the non-interest income estimate, we firmly believe that Hong Kong's virtual banks will need to consider a robust fee-based strategy and have accordingly used U.K. neobanks as a suitable proxy, given that they have been in existence for over five years, the similarities between the U.K. and Hong Kong banking markets in terms of maturity and competition levels, and their push towards non-interest income. Consequently, we have forecasted a non-interest to interest income ratio of 1.23x to estimate HKD 42 billion in non-interest income for Hong Kong virtual banks.

As a result, we arrive at a revenue opportunity in Hong Kong of HKD 76 billion p.a. by 2025, translating to a combined revenue market share of 19.3%. This amounts to an average annual revenue opportunity of ~HKD 9.5 billion, equating to an average revenue market share of almost 2.4%, per virtual bank. While not trivial, we believe that there is scope for industry consolidation in years to come, and that only a handful of players will truly thrive.

After building out a competitive suite of fee-based offerings that allows them to go toe-to-toe with their legacy rivals, virtual banks should focus on optimising their pricing strategy in order to price their offerings within the customer's sweet spot. As the pricing gap between virtual and brick-and-mortar banks narrows over time, consideration could be given to wrapping multiple offerings into subscription plans.

WE SEE A REVENUE OPPORTUNITY OF HKD 76 BILLION P.A. BY 2025 FOR VIRTUAL BANKS IN HONG KONG, TRANSLATING TO A COMBINED REVENUE MARKET SHARE OF 19.3%.

We see two primary fee-based models that virtual banks could look to adopt, being: (1) transactions-based; and (2) subscription plans (see Figure 30).

FIGURE 30: FEE MODELS

FEE MODELS

	1 TRANSACTIONS-BASED	2 SUBSCRIPTION PLANS
DESCRIPTION	Users are charged a fee income based on their frequency of usage / transactions	Users pay a regular fixed fee, based on the subscription plan selected by them
VALUE PROPOSITION	Modularised offerings can be provided to users based on their needs, with low maintenance costs	Recurring revenue can be generated, without competing over pricing of individual offerings
	nubank, kakaobank, chime	R, M, N26
RECURRING NATURE	✗	✓
FREEMIUM OPTION	✗	✓
PRICING COMPETITION	✗	✓
CUSTOMER STICKINESS	✗	✓
MODULARISED OFFERINGS	✓	✗
MAINTENANCE COSTS	✓	✗

✓ Favourable ✗ Unfavourable

Source: Quinlan & Associates analysis

Opting for a subscription-based model could allow virtual banks to morph into a "banking-as-a-Service" provider, offering greater potential for recurring revenue generation, relative to the one-time payment received during transactions. Identifying products and services based on their frequency of usage and bundling them into a set of staggered plans could potentially be the way to proceed.

U.K. neobanks such as Revolut and Monzo currently offer subscription plans to their users, with a quantitative limit attached to certain services, beyond which customers may be charged additional fees. The two neobanks are also offering "freemium" versions to attract initial users, thereafter upselling their paid subscription plans containing additional lucrative features.

E. CUSTOMER DATA

At the heart of virtual banking lies technology, which could serve as the bedrock of virtual banks' differentiated value proposition, making it imperative to adopt a digital-first mindset.

By virtue of their purely digital nature, virtual banks possess a cutting-edge over their brick-and-mortar counterparts, in terms of collecting customer data. With each virtual bank garnering vast swathes of data from its users, the manner in which they put this data to use may tilt their fortunes towards one side or another. We find two primary uses of customer data that could benefit virtual banks: (1) improved personalisation of offerings; and (2) enhanced cross-selling opportunities.

Analysing customer data to gain a better understanding of users can enable virtual banks to personalise their offerings. This can help them meet customers' intricate needs, gain direction with regards to what kind of product or service they should launch next, and better comprehend customer pain points. This can consequently lead to the development of proprietary forms of technology powered by customer data, such as alternative credit scoring algorithms for rapid loan extension, utilising A.I. for recommending personalised offers, or building a robo-advisor to offer wealth management advice.

Given the deluge of data that they can harness from customers, we see ample opportunity for virtual banks to extend more personal finance and wealth management offerings. Serving as a case in point, Mox Bank is already offering intuitive budgeting tools with instant categorisation of spending and goal-based savings planning. In the future, Mox could potentially leverage the wellspring of data that it is collecting to recommend suitable investment products, offer various financial instruments, and extend financial planning advisory. This personalisation can act as a keystone in building mutual trust with customers, by extending tailor-made offerings that connect well with each individual customer's needs and preferences. With greater engagement levels, virtual banks will be better positioned to showcase their value addition relative to traditional banks, crucial in the battle for customer assets.

In addition, scrutinising factors such as customer spending patterns and behavioural traits could open up tremendous opportunities for cross-selling. By leveraging customer data, virtual banks can increase their count of "products per customer" by driving a strong cross-sell ratio. A high count of products per customer would also help to maintain customer loyalty, especially through sale of products such as insurance and investment, which tend to exhibit high levels of stickiness.

As an example, virtual banks could examine the balance history and income flow of a customer's account and pre-approve them for a host of products and services, such as credit cards, personal loans, insurance, and buy-now-pay-later offers on purchases. Looking at success cases in the market, Indian bank HDFC delivers a 10-second pre-approved loan offering, which leverages the bank's existing customer database to provide rapid credit lines to its customers. Similarly, partnering with non-financial companies that form a part of customers' daily lives, such as telecommunications, eCommerce, etc., can help virtual banks leverage alternative data to form a better understanding of their customers, for purposes such as new product development, pain point identification, scoping of demand gaps, and gauging creditworthiness.

F. THIRD-PARTY PARTNERSHIPS

Building a robust network of third-party partnerships can enable virtual banks to swiftly expand their range of offerings, without having to bear the time and cost of building them out from scratch. Exclusive partnerships can further help corner certain niches and attract loyal customers of the partner organisation. We broadly see two different types of partnerships that virtual banks may explore: (1) financial services (e.g. payment, insurance, brokerage, etc.); and (2) non-financial services (e.g. restaurant booking, cab hailing, tourism, telecom, etc.).

Post the publication of HKMA's "Open API Framework for the Hong Kong Banking Sector" on 18 July 2018, which outlined an implementation plan, detailing safeguards and a four-phased approach to execution,[28] a secular trend in favour of open banking and Application Programming Interfaces ("APIs") has emerged. Virtual banks may look towards APIs for keeping up to date with the latest technological developments in the FinTech space. We believe open banking APIs could hold the key to bringing third-party players to the table and aligning the bank with innovative FinTech organisations and new-age start-ups. This would enable virtual banks to continue to function as the disruptor rather than the disrupted.

Moreover, APIs can enhance virtual banks' ability to monetise customer financial data in multiple areas. For example, Standard Chartered, backer of Mox Bank, has built "aXess", an open banking API platform for innovating with new technological capabilities. HSBC has also launched a new banking guarantee API, which enables partner banks to issue local guarantees in markets in which they don't operate. Through leveraging APIs to expand their suite of customer offerings via third-party institutions, virtual banks can look to form a full-service financial ecosystem addressing much more than a person's banking needs.

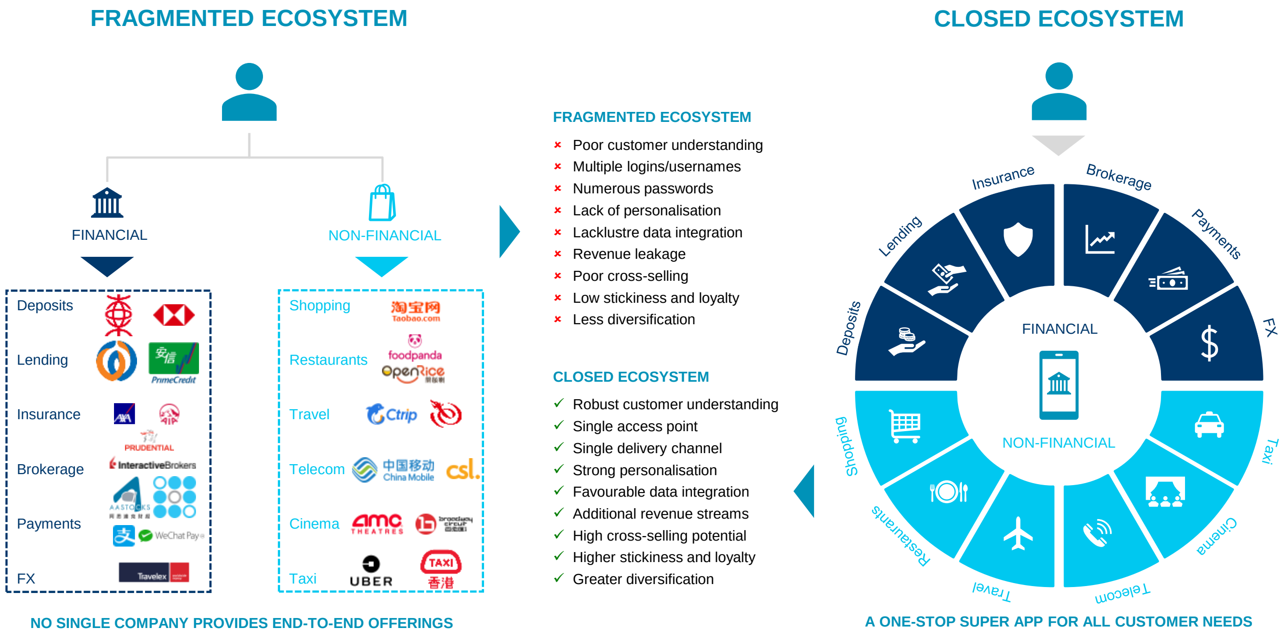
Through partnerships outside of pure financial services, virtual banks can also look to position themselves as a broader lifestyle platform. Given the sheer volume of customer data that they possess, virtual banks can examine the spending and behavioural patterns of customers to identify lucrative partnerships in areas that may appeal to their user base. For instance, Citi has partnered with AS Watson Group to enable customers to transfer their credit card points to their partner retailer's customer loyalty programme, MoneyBack.[29] Among the virtual banks, Mox Bank, for example, could carve out integrated offerings with its shareholders such as Ctrip (for vacations) and HKT (for telecom plans).

[28] HKMA, 'Open API Framework for the Hong Kong Banking Sector', 18 July 2018, available at: https://www.hkma.gov.hk/media/eng/doc/key-information/press-release/2018/20180718e5a2.pdf
[29] MARKETING-INTERACTIVE, 'Citi partners with MoneyBack to launch points conversion programme', 16 January 2019, available at: https://www.marketing-interactive.com/citi-partners-with-moneyback-to-launch-points-coversion-programme

G. CLOSED ECOSYSTEM

Once they have built a comprehensive suite of offerings in both the financial services and non-financial services space, the virtual banks may look to develop a "closed ecosystem", within which customers can access integrated end-to-end banking and lifestyle service offerings. This would allow virtual banks to become a one-stop shop for a wide range of customer needs, plugging potential revenue leakages across the customer journey (see Figure 31).

FIGURE 31: ECOSYSTEM DEVELOPMENT



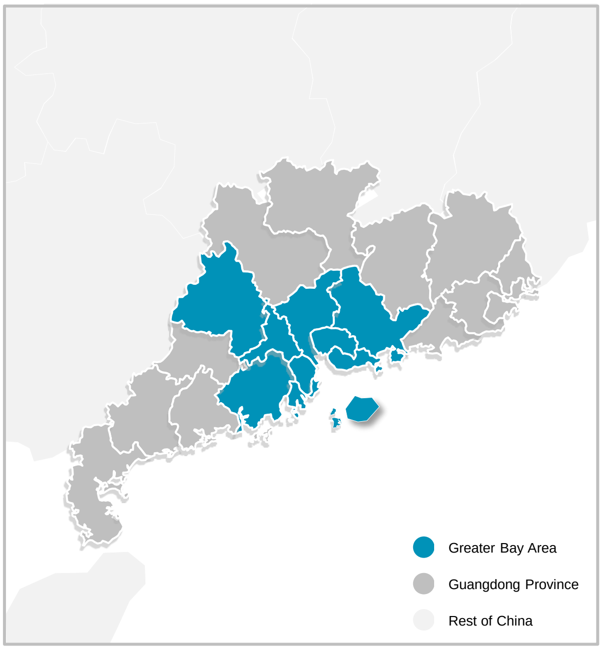
Source: Quinlan & Associates analysis

A highly personalised full-service closed ecosystem could be a powerful idea that incentivises customers to remain loyal to a particular virtual bank, rather than sourcing solutions from a mix of alternative providers that do not have nearly the same level of understanding of their specific needs or preferences. By leveraging appropriate analytics and offering relevant products, virtual banks can position themselves as "financial supper app"-like platforms, that deliver full-service banking with an intimate understanding of its customers, helping them become the primary – and potentially only – bank account for their retail customers.

H. GEOGRAPHIC EXPANSION

Given the suppressed NIM environment and the need to scale their While Hong Kong virtual banks are currently restricted to serving only Hong Kong residents, the opening of the Greater Bay Area ("GBA") and the future potential relaxation of HKMA's geographic restraints on virtual banks could present an opportunity to tap into a vast customer base over 71 million people, nearly 10x that of Hong Kong (see Figure 32).

FIGURE 32: KEY HIGHLIGHTS OF GREATER BAY AREA



USD 23,371
GDP per capita

72 million
Population

8%
GDP Contribution of Financial Services to Guangdong

9%
Asset Growth of Major Chinese Banks in Pearl River Delta Region

12%
Loan Growth of Major Chinese Banks in Pearl River Delta Region

Note that the Guangdong Province and Pearl River Delta Region have been taken as a proxy for Greater Bay Area
Source: Constitutional and Mainland Affairs Bureau, DBS, Quinlan & Associates analysis

Gaining access to the GBA diaspora will no doubt open up a vast wallet opportunity on the mainland for Hong Kong's virtual banks, allowing them to capitalise on China's strong economic growth story and the rapid wealth accumulation of its citizens. If and when this regulatory liberalisation materialises (including if Chinese regulators offer up new virtual banking licenses to Hong Kong's virtual banks), those players who can effectively capitalise on the client network of their mainland backers are likely to come out as the key winners.

Existing cross-border initiatives, such as the Shenzhen-Hong Kong Stock Connect and Bond Connect, point to lucrative revenue opportunities between Hong Kong and the mainland. In particular, the Wealth Management Connect scheme, announced on 29 June 2020 by the People's Bank of China ("PBOC"), HKMA, and the Monetary Authority of Macao, could empower virtual banks to garner cross-boundary investment in wealth management products distributed by them. Consequently, the efficacy of virtual banks' strategy to tap into the wealth management market in GBA could prove pivotal to their future growth prospects.[30]

THE OPENING OF THE GREATER BAY AREA ("GBA") AND THE FUTURE POTENTIAL RELAXATION OF HKMA'S GEOGRAPHIC RESTRAINTS ON VIRTUAL BANKS COULD PRESENT AN OPPORTUNITY TO TAP INTO A VAST CUSTOMER BASE OVER 71 MILLION PEOPLE, NEARLY 10X THAT OF HONG KONG

[30] Constitutional and Mainland Affairs Bureau, 'Connectivity with the Mainland's capital markets', accessed 28 January 2021, available at: https://www.bayarea.gov.hk/en/opportunities/finance.html

3. SAFEGUARD CUSTOMER DATA

While leveraging customer data presents huge opportunities for virtual banks, ensuring its safety – and safeguarding customer data privacy – will be critical in driving the credibility and future success of every organisation.

Based on the “Framework for Improving Critical Infrastructure Cybersecurity”, published by the National Institute of Standards and Technology (“NIST”),[31] there are five key functions that virtual banks should pay heed to (see Figure 33):

1. **Identify**: Focus and prioritise efforts for identifying resources that support critical functions and related cybersecurity risks

2. **Protect**: Implement required safeguards for ensuring the proper functioning of critical infrastructure services

3. **Detect**: Develop relevant capabilities for identifying the occurrence of cybersecurity events

4. **Respond**: Build functionalities for taking action in response to a detected cybersecurity event and contain its impact

5. **Recover**: Develop suitable operations for resilience and to restore any functions or services that were impaired by a cybersecurity event

BY LEVERAGING APPROPRIATE ANALYTICS AND OFFERING RELEVANT PRODUCTS, VIRTUAL BANKS CAN POSITION THEMSELVES AS “FINANCIAL SUPPER APP”-LIKE PLATFORMS

[31] NIST, ‘Framework for Improving Critical Infrastructure Cybersecurity’, 12 February 2014, available at: https://www.nist.gov/system/files/documents/cyberframework/cybersecurity-framework-021214.pdf

FIGURE 33: CYBERSECURITY FRAMEWORK

Function	Category
IDENTIFY	• Asset Management
	• Business Environment
	• Governance
	• Risk Assessment
	• Risk Management Strategy
PROTECT	• Access Control
	• Awareness and Training
	• Data Security
	• Processes and Procedures
	• Maintenance
	• Technology
DETECT	• Anomalies and Events
	• Security Continuous Monitoring
	• Detection Processes
RESPOND	• Response Planning
	• Communications
	• Analysis
	• Mitigation
	• Improvements
RECOVER	• Recovery Planning
	• Improvements
	• Communications

1	**Prioritise and Scope**	• Identify objectives and organisational priorities • Make strategic decisions regarding cybersecurity implementation and determine the scope of relevant systems and assets that require safeguards
2	**Orient the Scope**	• Orient the scope and identify related systems and assets, regulatory requirements, and overall risk approach, outlining the threats to, and vulnerabilities of, the respective systems and assets
3	**Create a Current Profile**	• Develop a profile, indicating the relevant categories and subcategories of the framework, and their status
4	**Conduct Risk Assessment**	• Assess the virtual bank's overall risk management process and previous risk assessment activities • Assess the operational landscape to discern the likelihood of a cybersecurity breach and the impact that it could have on the virtual bank
5	**Create a Target Profile**	• Create a "Target Profile" that describes the virtual bank's desired cybersecurity outcomes, taking into account its specific needs and external stakeholders, such as partners and customers
6	**Determine, Analyse, and Prioritise Gaps**	• Compare the "Current Profile" and the Target Profile to determine remaining gaps, creating a prioritised action plan to address those gaps, carrying out a cost-benefit analysis, and determining the resources necessary to address the gaps
7	**Implement Action Plan**	• Determine which actions to take to address the gaps, if any, as identified in the previous steps • Monitor the current cybersecurity practices against the Target Profile • Determine which standards, guidelines, and practices, including those that are sector specific, work best for the virtual bank's needs

Source: NIST, Quinlan & Associates analysis

When developing an effective cybersecurity framework, there are seven steps that an organisation should adhere to. First, it is essential to carve out a well-defined scope that clearly lays out the objectives of the organisation. Next, the organisation should put the scope into perspective, by examining it through different lenses, such as resource requirements, and compliance norms. Thereafter, the present status of the organisation's cybersecurity structure should be profiled, followed by a detailed risk assessment. A "Target Profile" that outlines the desired cybersecurity structure and goals should then be established. Following this, the current cybersecurity structure should be evaluated against the target profile to identify any gaps, based on which an action plan can be established and implemented.

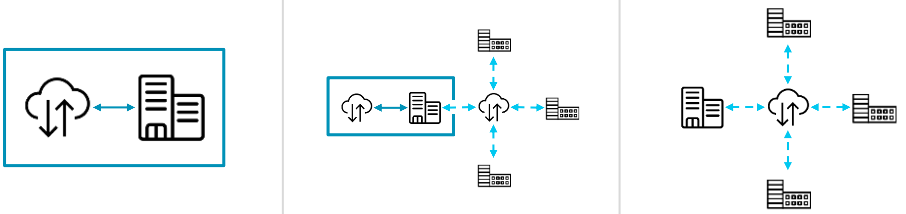
With respect to customer data privacy, virtual banks should construct terms and conditions that are not only robust, but also customer oriented (i.e., customers should be succinctly explained the policies adhered to by the virtual bank). In case of outsourcing of operations to an external vendor, virtual banks should ensure that stringent access controls are in place to protect sensitive customer data. Regular audits for ascertaining proper governance of data and systems should also be conducted.

To store customer data in a secure manner, virtual banks also need to be careful when choosing an appropriate cloud deployment model, given that they store significant amounts of sensitive client information and any cybersecurity breaches could cause detrimental reputational and financial consequences. As discussed in our previous report, *Banking On The Cloud*, there are three types of deployment models that virtual banks could consider: (1) private cloud; (2) hybrid cloud; and (3) public cloud (see Figure 34).[32]

WHILE LEVERAGING CUSTOMER DATA PRESENTS HUGE OPPORTUNITIES FOR VIRTUAL BANKS, ENSURING ITS SAFETY – AND SAFEGUARDING CUSTOMER DATA PRIVACY – WILL BE CRITICAL IN DRIVING THE CREDIBILITY AND FUTURE SUCCESS OF EVERY ORGANISATION

[32] Quinlan & Associates, 'Banking on the Cloud', August 2018, available at: https://www.quinlanandassociates.com/insights-banking-on-the-cloud/

FIGURE 34: CLOUD DEPLOYMENT MODELS



		PRIVATE CLOUD	HYBRID CLOUD	PUBLIC CLOUD
	DEPLOYMENT	• Cloud infrastructure dedicated to a single company • Can be managed by company itself or a third-party vendor	• Mix of private and public clouds provided by different vendors • Clouds used for different purposes	• Cloud infrastructure provided by a third-party vendor • Businesses rent the usage of system resources
OPERATIONS	SCALABILITY	×	✓	✓
	STABILITY	×	✓	✓
COST	INVESTMENT	×	–	✓
	MAINTENANCE	–	×	✓
	EXPERTISE	–	×	✓
	SECURITY	–	–	–

Cloud System | Subject Company | Other Companies | Private Connection | Public Connection

Key consideration for banks | × Unfavourable | – Dependent | ✓ Favourable

Source: Quinlan and Associates research and analysis

In this context, WeLab Bank has emerged as the first multi-cloud digital bank in Hong Kong, operating on multiple clouds at the same time, for better operational resilience and disaster recovery capability.[33] Mox Bank has also positioned itself as one of the first cloud-native virtual banks in Asia, built entirely on public cloud infrastructure.

[33] Temenos, 'Hong Kong's First Multi-Cloud Challenger Bank Goes Live with Temenos', 20 October 2020, available at: https://www.temenos.com/news/2020/10/20/hong-kongs-first-multi-cloud-challenger-bank-goes-live-with-temenos/

4. ATTRACT AND NURTURE TALENT

Virtual banks need to conduct a robust workforce planning exercise to map out personnel requirements to support their future growth ambitions on both a market and functional level.

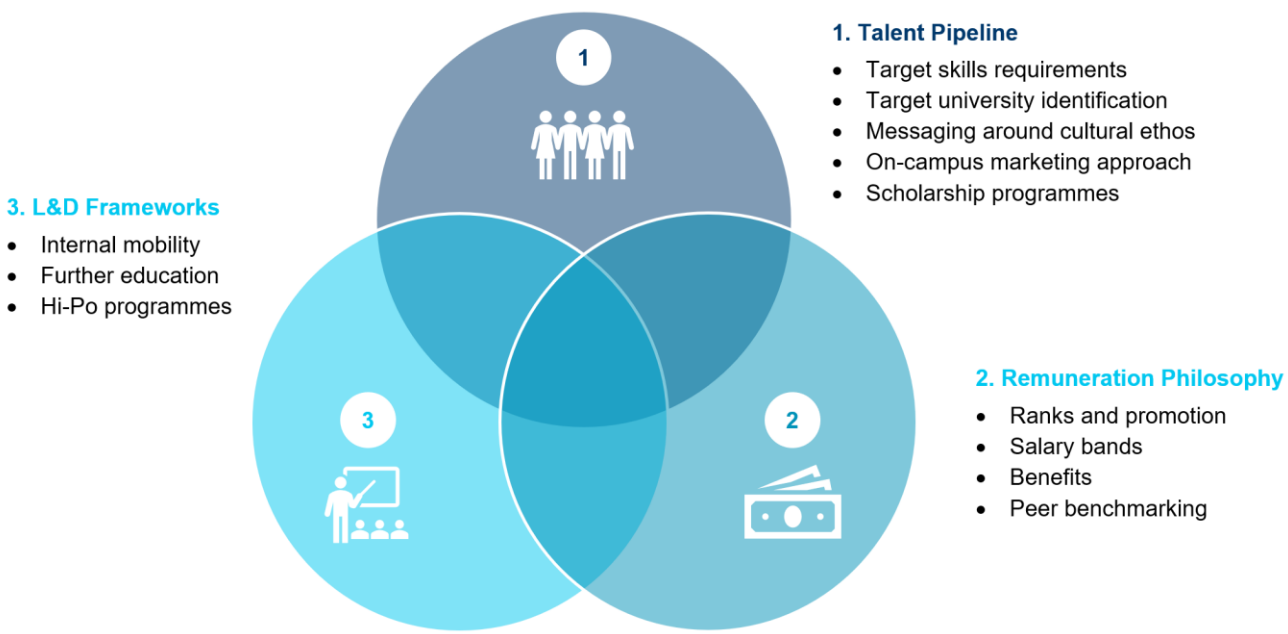
Striking the right balance between banking and technology hiring composition is essential for building an ideal stable of talent, given the need to marry more modern and traditional business models (and mindsets). Equally important is building a core team that is flanked by a robust support ecosystem, with open and transparent communication.

As part of this exercise, companies should aim to establish their front-to-back headcount targets, taking into account objectives with respect to:

- Rank / seniority mix
- Nationality mix (considering regulatory requirements, where necessary)
- Gender / cultural mix
- Sources of talent in each location (e.g. universities, local competitors, expatriates)
- Current and future retention trends

According to our previous report, *The Human Factor*,[34] there are three pillars that should be considered with respect to talent strategy, including: (1) talent pipeline; (2) remuneration philosophy; and (3) learning and development ("L&D") frameworks (see Figure 35).

FIGURE 35: TALENT STRATEGY CONSIDERATION



Source: Quinlan and Associates analysis

[34] Quinlan & Associates, 'The Human Factor', August 2020, available at: https://www.quinlanandassociates.com/insights-the-human-factor/

TALENT PIPELINE

An efficient talent pipeline can be achieved via: (1) outlining the skills required in various roles; (2) identifying feeder sources, such as universities, online hiring platforms, etc.; (3) clearly communicating the cultural ethos of the organisation; (4) creating a targeted marketing campaign; and (5) offering lucrative scholarship programmes to appeal to a younger talent pool.

As the eight virtual banks are competing for the same pool of talent in a relatively small region, it is imperative that they build a robust talent pipeline to address their future resourcing needs.

REMUNERATION PHILOSOPHY

It is essential for virtual banks to maintain high employee satisfaction levels to retain top talent, promote loyalty, and reduce potential costs associated with hiring replacements. To this end, an appropriate remuneration strategy and incentive mechanisms should be established. This will necessitate effective benchmarking of salary bands, ranks, and benefits with key competitors, including virtual bank counterparts, traditional banking rivals, and other financial institutions. Suitable performance metrics and KPIs should also be established and clearly communicated to align and manage employee expectations.

L&D FRAMEWORKS

L&D is a critical ingredient for retaining top talent. Virtual banks should encourage employees to pursue skills development and personal growth via various schemes, such as internal mobility opportunities, training programmes, and sponsored education schemes. In addition to supporting staff development, this should go a long way to making employees feel valued while undoubtedly having a knock-on effect of boosting productivity.

STRIKING THE RIGHT BALANCE BETWEEN BANKING AND TECHNOLOGY HIRING COMPOSITION IS ESSENTIAL FOR BUILDING AN IDEAL STABLE OF TALENT

POLICIES, PROCESSES, & SYSTEMS

With regards to the three key pillars discussed, robust human resources ("HR") policies, processes, and systems ("PP&S") should be adopted across the entire employee lifecycle, in order to implement an effective talent strategy, that can enable virtual banks to attract and retain quality talent that is commensurate with their lofty ambitions (see Figure 36).

FIGURE 36: HR POLICIES, PROCESSES, AND SYSTEM (EMPLOYEE LIFECYCLE)

	Source	Filter	Contract	Onboard	Develop	Offboard
	Job Postings	**Interviews**	**Job Offers**	**Onboarding**	**Work Performance & Rewards**	**Employee Exits**
1. Policies *(examples)*	• Anti-discrimination and conduct (anti-competition, data privacy) policies; fair employment requirements • Statutory and organisational leave entitlements, and other obligations and benefits, included in an employee handbook					
2. Processes *(examples)*	• Standardised job descriptions • Salary banding • Advertising per local reqs. • Talent referral programmes • Headhunter onboarding • Campus calendar	• Criteria in which to evaluate candidates • Documentation of applicant statistics, hiring decisions	• Customisation of employment contract terms	• Vetting • New joiner obligations (e.g. provident funds, insurance) • Systems access • New joiner training programmes	• Annual appraisal process • Salary benchmarking • Promotion process • Technical and professional development	• Performance improvement plans • Misconduct escalation • Exit interview & checklist • Removal from payroll, systems access
3. Systems *(examples)*	• New staff hiring request • Job application	• Applicant tracking	• Contract generation	• Employee status (e.g. visa status, leave management) • Timesheets • Payroll / expense reimbursement • Training • Performance appraisal • Organisational charting		• Alumni network

1 POLICIES
Ensure employees understand the company's "rules and regulations" around their obligations / behaviours

2 PROCESSES
Ensure employee policies are effectively applied through structured processes, driving productivity / minimising risks

3 SYSTEMS
Ensure automation of manual processes to supercharge productivity and reduce capacity for "human error"

Source: Quinlan and Associates analysis

A company's HR policies serve as the rules and regulations for its employees. Key policies that every firm needs to consider include anti-discrimination, code of conduct (e.g. anti-competition, data privacy), as well as fair employment requirements. Statutory and organisational leave entitlements should also be covered, as well as other specific employee obligations and benefits. Many of these policies should be reflected in the company's employee handbook (and other relevant internal HR documentation), and should echo each company's cultural ethos, taking into account its underlying values with respect to talent attraction during its workforce planning exercise.

To ensure employee policies do not lie dormant in a company handbook and are consistently applied by all employees, structured processes need to be put in place to drive productivity, minimise risks, and shape individual behaviours. Among the various processes that should be put in place are those related to standardised job descriptions, salary bandings, candidate evaluation criteria, employee contract terms, and new joiner onboarding protocols. Any lack of transparency can create considerable dissatisfaction among employees.

To enhance the productivity of the HR team while reducing the potential for human error, the virtual banks should explore the adoption of relevant technology solutions to automate any manual, low value-add HR processes. There are a variety of tools currently available in the market to streamline HR processes across the employee lifecycle, including applicant tracking tools, contract generation tools, payroll and expense reimbursement software, and organisational charting applications. In our experience, Microsoft Excel is still used as an interim semi-automation solution by some players. However, its various limitations – including the need for in-depth expertise when building advanced automation functionality via macros – means it is often ineffective in driving meaningful productivity gains or managing potential HR risks.

ORGANISATIONAL CULTURE

Another essential factor in the war for talent is the development of a robust internal culture that champions innovation, creativity, and effective risk management. Given that virtual banks are combining talents from the technology (new and agile) and banking (traditional and process-oriented) industry, they need to reduce any possible friction between employees from vastly differing cultural backgrounds while fostering team-based over individualistic thinking.

The promotion of workplace diversity and inclusion is also a key aspect underlining virtual banks' talent strategy, that encompasses recruitment of specialist talent from all walks of life, including beyond Hong Kong's borders. To this end, we recommend virtual banks to: (1) encourage empathetic leadership; (2) help carve out a sense of belonging for every individual; and (3) look beyond a simplistic top-down approach by encouraging employees to be transparent and voice their perspectives without fear.

SECTION 5
CASE STUDY – REVOLUT

OVERVIEW

Revolut is a British FinTech company headquartered in London, U.K., that offers banking and financial services through digital means. It currently serves more than 12 million customers in over 35 countries, covering more than 30 currencies.

Founded in 2015, Revolut sought to establish itself as a global financial superapp. The company raised a Series A round of USD 15 million in 2016, followed by a USD 66 million Series B round and USD 250 million Series C round over the next two years. In December 2020, Revolut raised USD 500 million in a Series D round at a valuation of USD 5.5 billion.

BUSINESS MODEL

Initially offering money exchange and transfers, the company amassed 100,000 retail customers by 2016, gradually adding more offerings to its arsenal, eventually reaching a milestone of 10 million retail customers in 2020.

As part of its diverse suite of offerings, Revolut provides: (1) real-time budget analytics; (2) expense categorisation into user-customisable “Pockets”; (3) cryptocurrency trading; (4) fractional trading; (5) online purchase of precious metals like gold and silver; (6) centralised group billing for easy splitting; (7) insurance plans; and (8) philanthropic donations, among other innovative solutions.

Unlike traditional banks whose business models revolve around lending and deposits, Revolut follows a subscription-based revenue model, with customers able to choose from one of three different subscription plans depending on their specific needs, charged on a monthly basis (see Figure 37).

FIGURE 37: SUBSCRIPTION PLANS

	PLANS			
Features	Standard (£0/m)	Plus (£2.99/m)	Premium (£6.99/m)	Metal (£12.99/m)
International Spending in over 150 Countries	✓	✓	✓	✓
Returns Protection for Post Purchase Refunds (90 days)	×	✓	✓	✓
Event Tickets Refund (up to £1,000/y)	×	✓	✓	✓
24/7 Priority Customer Support	×	✓	✓	✓
Customisable Cards (coming soon)	×	✓	✓	✓
Exclusive Junior Account Features	×	✓	✓	✓
Overseas Medical Insurance with Winter Sports Coverage	×	×	✓	✓
Delayed Baggage and Flight Insurance	×	×	✓	✓
Unlimited Disposable Virtual Cards for Online Shopping	×	×	✓	✓
20% Discount on Device Insurance	×	×	✓	✓
Unlimited Cross Border and 1 Free SWIFT Transfer	×	×	✓	✓
Cashback Offers on Card Payments	×	×	×	✓
Car Hire Excess	×	×	×	✓
Miscellaneous Benefits	• Free Revolut card (excluding delivery) • No fee ATM withdrawals up to £200 per month • Revolut Junior Account for one child • 2.5% markup on cryptocurrencies • Free currency exchange worth £1,000/m	• Customisable card by Revolut with standard delivery charges • No fee ATM withdrawals up to £200 per month • Revolut Junior Account for two children • 2.5% markup on cryptocurrencies • Free currency exchange worth £1,000/m • Purchase protection worth £1,000/y for accidents and theft • 0.30% APY daily interest on savings account	• Premium card with exclusive designs • No fee ATM withdrawals up to £400 per month • Revolut Junior Account for up to two children • 1.5% markup on cryptocurrencies • Unlimited free currency exchange • Purchase protection worth £2,500/y for accidents and theft • 0.65% APY daily interest on savings account • Free lounge passes for you and a friend if your flight is delayed by > 1 hour	• Exclusive Revolut Metal card • No fee ATM withdrawals up to £800 per month • Revolut Junior Account for up to five children • 1.5% markup on cryptocurrencies • Unlimited free currency exchange • Purchase protection worth £10,000/y for accidents and theft • 0.65% APY daily interest on savings account • Free lounge passes for your and up to 3 friends if your flight is delayed > 1 hour

✓ Offered × Not Offered

Source: Company website, Quinlan & Associates analysis

Being one of the largest FinTech unicorns in Europe, Revolut broke even in November 2020, having boosted its revenues by 50% relative to pre-COVID-19 levels.[35] The firm reportedly generates the majority of its revenue via interchange fees charged when a customer makes a payment with their card.

More recently, Revolut has been making a push towards business banking and investments, launching a new product called “merchant acquiring”, which lets businesses accept online payments. Having established itself as a force to be reckoned with in the banking industry through its fee-based structure, Revolut now appears to be setting its sights on more traditional credit and lending businesses.

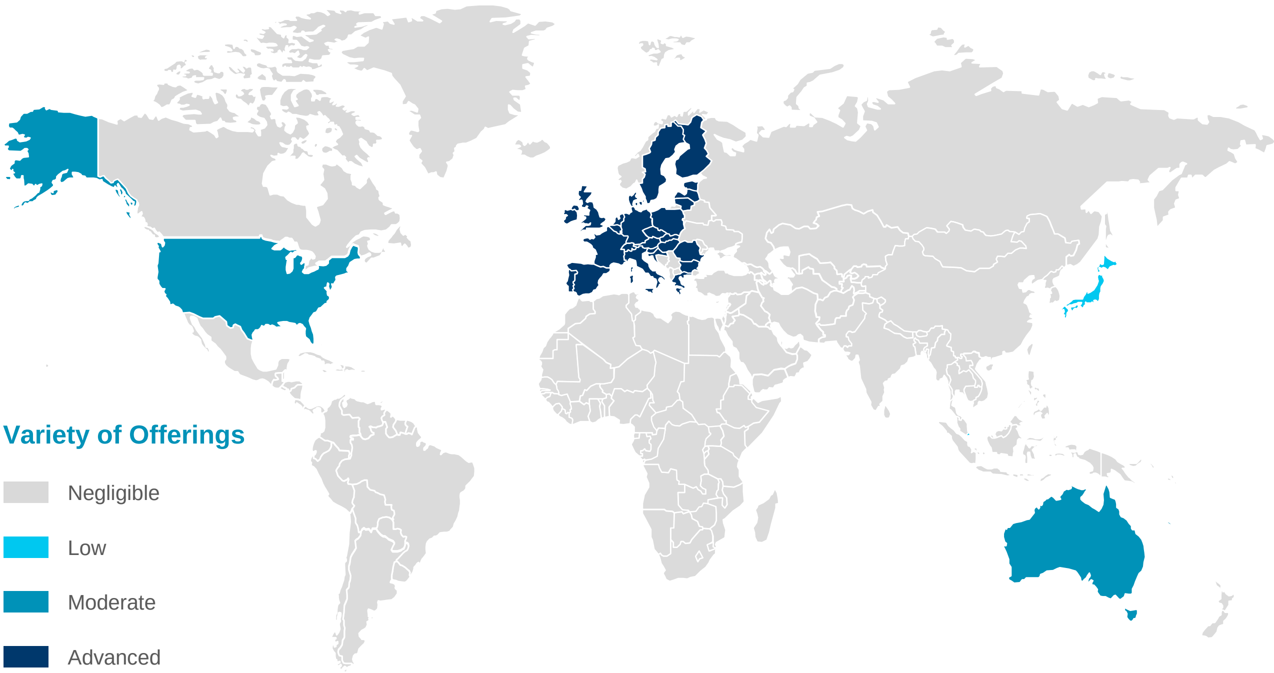
GROWTH AND EXPANSION

Granted a European Banking License in 2018, Revolut first expanded outside of Europe into Australia and Singapore in 2019, followed by an entry into the U.S.A. and Japan in 2020 (see Figure 38).

UNLIKE TRADITIONAL BANKS WHOSE BUSINESS MODELS REVOLVE AROUND LENDING AND DEPOSITS, REVOLUT FOLLOWS A SUBSCRIPTION-BASED REVENUE MODEL, WITH CUSTOMERS ABLE TO CHOOSE FROM ONE OF THREE DIFFERENT SUBSCRIPTION PLANS DEPENDING ON THEIR SPECIFIC NEEDS, CHARGED ON A MONTHLY BASIS

[35] CNBC, ‘Revolut, Europe’s $5.5 billion digital bank, quietly broke even in November’, 8 December 2020, available at: https://www.cnbc.com/2020/12/08/digital-bank-revolut-breaks-even-in-november.html

FIGURE 38: GEOGRAPHIC PRESENCE



Revolut	Europe	United States	Australia	Japan	Singapore
Budgeting Tools	✓	✓	✓	✓	✓
Credit / Debit Card	✓	✓	✓	✓	✓
Current Accounts	✓	✓	✓	✓	✓
Savings Accounts	✗	✓	✗	✗	✗
Stock Trading	✓	✗	✓	✗	✗
Cryptocurrencies	✓	✓	✓	✗	✗
Commodities	✓	✗	✓	✗	✗
Transfers and Payments	✓	✓	✓	✓	✓
Insurance	✓	✗	✗	✗	✗
Donations	✓	✓	✗	✗	✗

✓ Offered ✗ Not Offered

Source: Company website, Quinlan & Associates analysis

KEY TAKEAWAYS

Revolut offers a unique example of utilising a subscription-based model to side-step the traditional lending and deposits-based mindset followed by incumbents.

The company's use of a subscription-based model to generate a stable stream of recurring revenues while offering a differentiated, customer-centric value proposition from traditional banks, can serve as a potential example of how Hong Kong's new virtual banks can succeed against their brick-and-mortar rivals with a non-interest income generation strategy.

MORE RECENTLY, REVOLUT HAS BEEN MAKING A PUSH TOWARDS BUSINESS BANKING AND INVESTMENTS, LAUNCHING A NEW PRODUCT CALLED "MERCHANT ACQUIRING", WHICH LETS BUSINESSES ACCEPT ONLINE PAYMENTS

SECTION 6
CASE STUDY – TINKOFF BANK

OVERVIEW

Moscow-based Tinkoff Bank was founded by Russian billionaire entrepreneur, Oleg Tinkov, with an initial investment of ~USD 70 million. Tinkoff Bank operates a disruptive, internet-only business model which has seen it rise to become the second largest credit card issuer in Russia, with approximately 11 million customers.

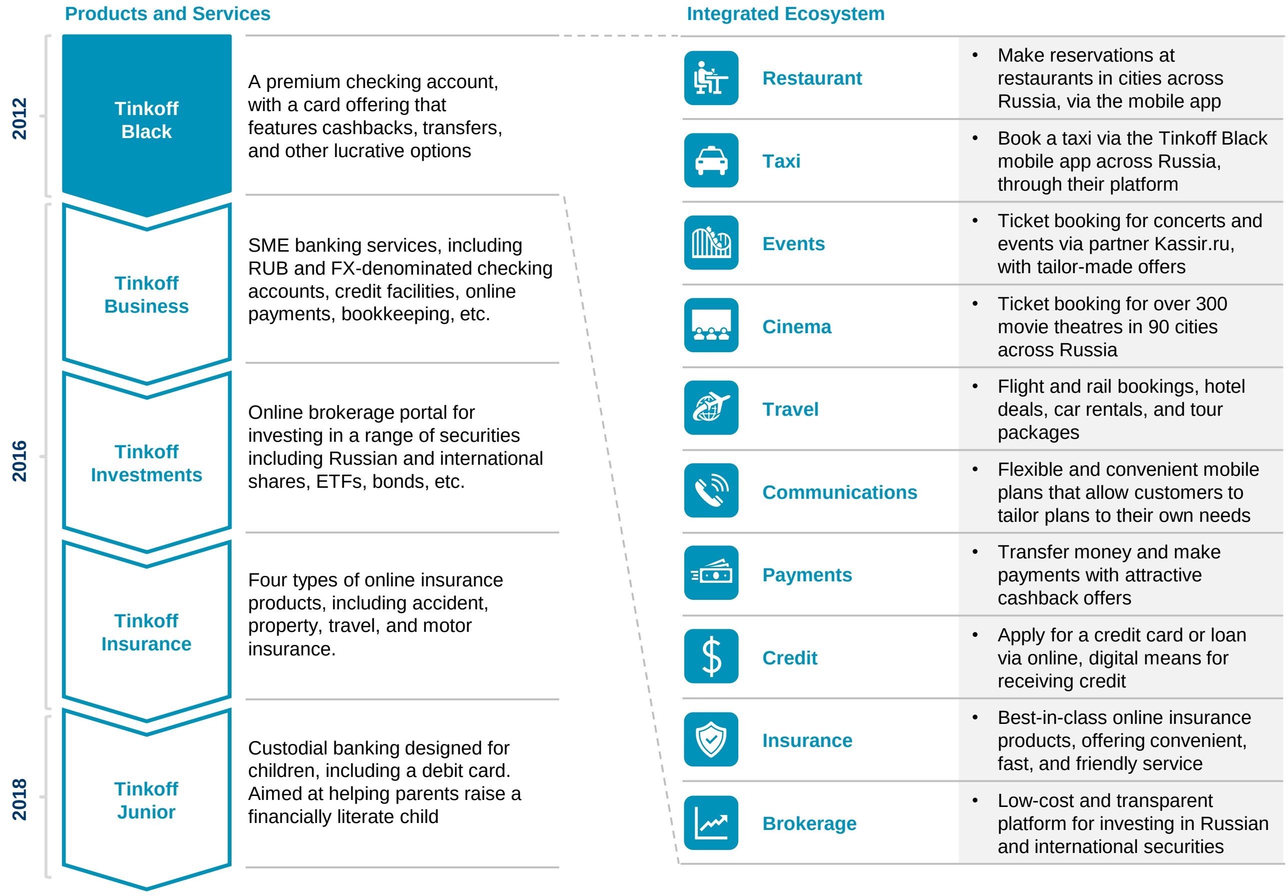
Founded in 2006 as a branchless credit card issuer called Tinkoff Credit Systems, it rebranded itself as Tinkoff Bank in 2015. It debuted on the London Stock Exchange ("LSE") in 2013, raising USD 1.1 billion on the back of its robust financial performance in Russia. The company is aiming to serve as a cloud-based financial ecosystem, providing a full range of digital banking services to both individuals and corporates.

BUSINESS MODEL

Tinkoff Bank offers a wide variety of products and services, ranging from mobile personal accounts to investments and insurance products. It is also Russia's second biggest issuer of credit cards, boasting a market share of over 13%. Implementing a customer-centric model and leveraging its ecosystem to drive cross-selling, Tinkoff Bank offers its customers a diverse range of products and services (see Figure 39).[36]

[36] Tinkoff, 'Investor Presentation', November 2020, available at: https://acdn.tinkoff.ru/static/documents/f4fcd8a7-cd4a-4d8d-8b2c-53624dd3c212.pdf

FIGURE 39: FINANCIAL ECOSYSTEM



Source: Company website, Quinlan & Associates analysis

Tinkoff Bank launched its maiden credit card offering in 2007 with the backing of Goldman Sachs and introduced mobile banking in 2011. In 2015, it expanded into business banking services and investments, gradually introducing Samsung Pay, Apple Pay, and Android Pay over the following years.

During its lifespan, Tinkoff Bank has evolved from its humble beginnings as an alternative credit card issuer to a provider of current accounts, loans, mortgages, investments, savings, and insurance products. In more recent years, it has branched out into various “quasi-financial” services, including ticketing for cinemas and booking for hotels, restaurants, and taxis. The bank now aims to transform itself into an “online financial supermarket living in the cloud” to support customers with their everyday finance and lifestyle banking needs.

Tinkoff Bank’s ability to maintain a large user base, driven by its wide product coverage and cross-selling potential, has been fundamental to its success. The company generated net profits of RUB 12.6 billion (~USD 170 million) in Q3 2020, representing a Return on Equity (“ROE”) of 45%.

Looking into the future, Tinkoff Bank is investing heavily into further developing its A.I., blockchain, and biometrics capabilities. Its CEO, Oliver Hughes, has set an ambitious target to grow the bank's customer base to over 20 million within three years.

KEY TAKEAWAYS

Tinkoff Bank's success at creating a lifestyle ecosystem – stretching from restaurant table bookings to investments and insurance purchases – shows the immense potential that a financial superapp carries.

Virtual banks in Hong Kong may consider Tinkoff Bank's attractive proposition to customers as an online "one-stop-shop" for their everyday needs. Such an ecosystem could help drive a plethora of revenue streams from the myriad of lifestyle activities that people engage in every day, while further capitalising on the treasure trove of data that virtual banks can collect from their customers.

TINKOFF BANK'S ABILITY TO MAINTAIN A LARGE USER BASE, DRIVEN BY ITS WIDE PRODUCT COVERAGE AND CROSS-SELLING POTENTIAL, HAS BEEN FUNDAMENTAL TO ITS SUCCESS

SECTION 7
INTERVIEWS WITH VIRTUAL BANKS

We had the opportunity to interview the CEOs of all eight of Hong Kong's virtual banks to better understand their take on the virtual banking industry, the progress they have made thus far, and what we can expect going forward (see Figure 40).

FIGURE 40: KEY INTERVIEW HIGHLIGHTS

Bank	Impact of Covid-19	Customer Acquisition	Challenges Experienced	Technology	Future Course
	• The staff shifted to working from home from Chinese New Year onwards and launched the bank to the public during this period	• ZA Bank is focused on online, digital, and word of mouth advertising, to keep their customer acquisition costs low	• Obtaining the right mix of technological and financial talent, and integrating them into a well-oiled team	• ZA Bank has sourced its IT talent from the Mainland, where their parent company's presence helps them	• In the long-term, ZA Bank wishes to go beyond SMEs and retail customers to target financial institutions as well
	• The pandemic has been a challenge in general, but is also an opportunity to grow a non-face-to-face business	• Airstar Bank has sponsored a local TV show and was offering a high savings rate of 5% p.a. on the first HKD 20,000	• The heavy schedule for preparing to launch the virtual bank, coupled with the requirement to meet various regulatory compliances	• Airstar Bank is exploring third-party partnerships for extending A.I.-based financial services and advisory offerings	• Airstar Bank would like to introduce simple competitive products and explore the potential of tapping into the Greater Bay Area
	• Digital application downloads and financial services offerings have witnessed greater adoption during the pandemic	• WeLab Bank is leveraging its home grown heritage to build top-of-mind brand awareness to underadvised new generation customers	• An incentive driven approach lacking consumer experience may not be enough to build a long-term relationship with customers	• WeLab Bank has designed its entire infrastructure based on a multi-cloud approach to switch across servers in case of problems	• Offer multiple revenue generating products and financial services to customers, such as lending, wealth management, and insurance
livi	• Although COVID-19 posed operational challenges, it has been a catalyst for acceleration of digital transformation	• livi is building an ecosystem to encourage its customers to use its app every day and refer their friends to use it as well	• There is high competition in the industry between the eight new virtual banks, traditional banks, FinTechs, and TechFins	• livi is building data analytics capabilities to better understand consumers, advertising campaigns, rewards, and products	• livi Bank aims to become an everyday use application for its customers and build an ecosystem of partners around them
mox	• People's consumption has shifted from restaurants to eCommerce, warranting a shift in reward schemes in tandem	• Mox Bank is analysing behavioural clusters based on customer motivations and pain points, instead of traditional demographics	• Recruiting specialised talent with relevant knowledge of the latest technology has been a challenge for Mox Bank	• Mox Bank is using a public cloud and is one of the first entirely cloud-native platforms to be established in Asia	• Mox Bank is beta-testing its credit card in the regulatory sandbox environment and may roll it out soon
ANT BANK	• While physical banks have been affected by social distancing rules, virtual banks have been providing a stable 24/7 banking experience	• It could be challenging for all newly found local virtual banks to survive before making profit in a market which is relatively saturated	• Driving technological innovation while maintaining a sustainable business model in a relatively saturated market is a challenge	• Ant Bank (Hong Kong) is looking to deploy technologies from business proposition, risks management, and RegTech perspectives	• Ant Bank (Hong Kong) is focused on integrating banking with daily spending and e-wallet to enhance customer experience
PAObank	• As a result of enforced social distancing measures, contactless digital services are now more commonly accepted	• PAOB has strategically chosen to serve the SME market, and is offering innovative services to attract retail customers as well	• PAOB has had to demonstrate the benefits of a virtual bank through regular customer education and marketing processes	• PAOB is the first Hong Kong virtual bank to adopt the model of "Alternative Credit Scoring", by utilising Big Data	• PAOB aims to become a trusted banking partner for SMEs in different sectors, while adapting to new trends and developments
	• The COVID-19 pandemic has had no direct impact on Fusion Bank's business and growth plans for the time being	• Fusion Bank is segmenting clients based on "application scenarios" that people comes across in banking, e.g. payments, etc.	• The need for continuous education of customers as a paradigm shift cannot be expected to occur overnight	• Fusion Bank is conducting extensive R&D to create new and authentic solutions specifically for a new generation of banking	• Fusion Bank aims to eventually extend its application scenarios to include different aspects of daily life
QUINLAN & ASSOCIATES	• COVID-19 has exposed the lack of digital capabilities of traditional banks, pushing customers towards digitally adept rivals	• Virtual banks need to look beyond customer segmentation models and gain an intricate understanding of customers by using data	• We see a trust deficit among customers, intense competition, talent issues, data protection needs, and profitability concerns	• We believe that customer data can help improve personalisation of offerings and enhance cross-selling opportunities	• We see virtual banks expanding their offerings and adopting a business model that focuses on fee-based revenue growth

Q&A View

Source: Virtual bank CEO interviews

IMPACT OF COVID-19

The ongoing COVID-19 pandemic presented a mix of opportunities and obstacles for the virtual banks. Many CEOs cited broader operational impediments of setting up in such a climate, including adapting to a "work from home" environment. Notwithstanding some of these operational challenges, there was widespread recognition that COVID-19 had catalysed the drive to digital adoption.

According to Mr. David Sun, CEO of livi Bank, although the pandemic posed operational challenges, it has ushered an increase in digital app downloads and widespread adoption of digital financial services, particularly in the case of online and QR code-based digital payments. Mr. Eric Sum, Chief Executive of Fusion Bank also commented that there is a rising demand for contactless solutions and virtual services, and that the pandemic could push society to think of how technology can help fight the virus more effectively. In addition, Mr. Michael Wang, CEO of Ant Bank (Hong Kong) pointed out that while physical banking was affected by social distancing rules and a range of other restrictions, virtual banks have continued to provide customers with a stable 24/7 banking experience.

For PAOB's CEO, Mr. Ryan Fung, it has also spurred a rise in awareness around digital banking – 'as a result of enforced social distancing measures, contactless digital services are now more commonly accepted.' PAOB was also the first virtual bank to join the SME Financing Guarantee Scheme launched by HKMC Insurance Limited, providing 90% Guarantee Product under the scheme to selected trade SMEs.

Mr. Rockson Hsu, CEO of ZA Bank, conveyed that ZA Bank shifted to working from home from Chinese New Year of 2020 onwards for approximately three and half months, launching the bank to the public during this period to become Hong Kong's first virtual bank.

Purchasing habits of consumers have also experienced a dramatic shift from restaurants and cinemas to eCommerce purchases such as digital electronics, warranting a shift in rewards schemes, according to Mr. Deniz Güven, CEO of Mox Bank, who went on to add that it was difficult in the beginning to shift to remote work as they required extra coordination amongst the teams. However, it was overall a positive for the virtual banks.

CUSTOMER ACQUISITION STRATEGY

With respect to customer acquisition, Mr. Hsu, CEO of ZA Bank, advocates a focus on (1) online digital advertising; (2) referral-based acquisition; and (3) word of mouth; to help keep advertising costs low. ZA Bank has also leveraged homemade Facebook videos casting their own employees and were aided by the Cash Payout Scheme in June. Airstar Bank on the other hand has sponsored a local television show and was paying a high interest rate of 5% p.a. on the first HKD 20,000 deposited.

Mr. David Sun from livi Bank highlighted that more than two-thirds of their clients have been onboarded via referrals and that the livi app is easy to use and transparent. livi Bank is working with business partners and building an ecosystem so that customers can use the app on an everyday basis. For example, livi Bank is partnering with yuu Rewards Club, it is also seeking to learn from customers' behaviours through market research. Also focusing on collaborations, Ant Bank (Hong Kong) is looking to leverage Alibaba and Ant Group's ecosystem to integrate their business propositions into customers' daily lives so as to deliver a better customer experience and value addition.

Fusion Bank's Chief Executive Mr. Sum also asserted that they would focus on launching banking products that can prove the quality of the daily lives of their customers. As part of their retail banking business, PAOB also believes that offering efficient, speedy, and innovative services to individual customers will naturally attract them. It has also actively participated in industry events such as Fintech Week, Asian Financial Forum, and HKIB Annual Banking Conference to raise awareness.

In terms of target client segments, Mr. Ronald Iu, Chief Executive of Airstar Bank, believes that there is a grave misunderstanding that virtual banks are primarily for youngsters and wants to position Airstar Bank as "Everyone's bank". Mr. Güven, CEO of Mox Bank, goes so far as to say that traditional segmentation models based on demographics and income brackets are largely inappropriate, and that targeting customers based on their individual behaviours, pain points, and motivations is far more relevant. Accordingly, Mox Bank has witnessed diverse age demographics joining the platform, with customers as young as 18 and as old as over 90 years of age. Fusion Bank Chief Executive, Mr. Sum has also put forth an interesting customer segmentation strategy, based on "application scenarios" that take into account different application circumstances for banking services, such as the payments space in which Fusion Bank has collaborated with WeChat Pay HK for opening up an extensive network of local spending and cross-border payment.

Rebates and rewards have also taken centre stage, with Mox Bank providing cashback in real cash into customers' savings account when they spend using their Mox card. WeLab Bank is also offering attractive rebates on their debit card and high interest rates on deposits, but from a longer-term perspective is looking to offer advisory services to the under-advised target segment to establish brand loyalty. ZA Bank, on the other hand, has put more emphasis on winning customers over through innovative features and a community-driven approach by receiving customer feedback through a community called "ZA Fam".

On the SME front, PAOB's 'Trade-Connect Loan' requires no documentation to be submitted, promises a '5-Day Service Pledge', and offers early redemption without any penalty fees. They are also offering a '90% Guarantee Product under the SME Financing Guarantee Scheme' and a series of promotions including 'a cap of 4.99% annualized percentage rate ("APR"), full rebate of guarantee fee, no documents required to be submitted for loan approval, no additional fee apart from interest expense, early repayment without penalties.'

ZA Bank is also looking to provide SMEs with financing solutions such as credit lending, onshore and offshore remittances, payroll services, and deposits. Interestingly, Ant Bank (Hong Kong) is looking to focus on catering to e-commerce businesses in the SME segment in particular. We see product innovation efforts such as this being an important part of effective SME acquisition strategy in lieu of having an established Relationship Manager ("RM") network.

CHALLENGES EXPERIENCED

In addition to the COVID-19 pandemic, the introduction of a novel approach to a mature market poses its own myriad of challenges, with eight banks entering the arena within a year.

Mr. Iu, the Chief Executive of Airstar Bank, points out that with an emphasis on launching quickly, there was a very short time frame for virtual banks to meet the relevant compliance requirements, yet with a team of seasoned management team members in the bank, they made it in just 13 months of time since the licence was granted, while Mr. Hsu, CEO of ZA Bank, believes that regulators are still learning about virtual banking and that it is important to remain nimble and adaptive as the industry continues to evolve.

Mr. Sun adds that livi Bank is competing with not just other virtual banks, but also with incumbent traditional banks, FinTechs, and TechFins. According to Mr. Tat Lee, WeLab Bank is gaining brand traction with good monthly new customer growth, however, overall awareness of virtual banks is still low, and would require much education before the market will see significant switches to virtual banks. Along the same lines, PAOB believes they 'have to demonstrate the benefits of a virtual bank through regular customer education and marketing processes.' Mr. Sum, the Chief Executive of Fusion Bank, also asserted that there is a need for customer education, given the inability to drive a paradigm shift overnight. Mr. Wang, CEO of Ant Bank (Hong Kong) feels that it could be challenging for all eight newly found virtual banks to survive in a relatively saturated market, before making profit.

Suitable talent acquisition has also been a considerable challenge. Mr. Güven, CEO of Mox Bank, asserted that it was relatively difficult to recruit specialised talent in Hong Kong, especially in the area of technology, and they had to bring in talent from different parts of the world. In fact, ZA Bank CEO, Mr. Hsu, highlighted that most of ZA Bank's technological talent is based in Mainland China. Indeed, Fusion Bank has also pointed out the need for more data analysts, programmers, developers, and digital marketing personnel, and is actively cooperating with different universities to provide internship programmes for their students to give them hands-on experience. Along the same lines, PAOB has also seen a general lack of data scientists and other talent that possess the knowhow of up-and-coming innovative technologies.

TECHNOLOGY

We also learned about the various manners in which virtual banks are leveraging technology to differentiate themselves.

Fusion Bank Chief Executive, Mr. Sum, believes that there is a lack of solutions designed specifically for the new generation of banking services. As such, Fusion Bank is conducting extensive research and development ("R&D") efforts to improve customer experience. WeLab Bank has designed its entire banking infrastructure on a multi-cloud environment, allowing them to swiftly switch between servers in the event of technological disruptions. It has also modularised a lot of its product features, utilising Open API to make themselves nimbler and quickly adopt fintech innovation.

The onboarding process, which we identified earlier in this report as a major pain point for Hong Kong customers, has also witnessed a marked acceleration, with ZA Bank logging a fastest opening time of 2 minutes and 8 seconds. Other virtual bank CEOs touted their average onboarding times for retail customers to be between 3-4 minutes.

Livi Bank has built its own tech stack from scratch and is looking to further create data analytics capabilities to better understand consumers and identify what kind of campaigns, rewards, and products would appeal to them. PAOB claims to be the first Hong Kong virtual bank to adopt an "Alternative Credit Scoring" model, utilising big data from their partner Tradelink to conduct credit assessments, while Mox Bank has emerged as one of the first cloud-native virtual banks in Asia, operating its entire platform on a public cloud infrastructure.

As touched upon earlier in this report, cybersecurity is a key pillar for virtual banks to consider. Placing paramount importance on customer data security, WeLab Bank has an independent security layer on top of every modular layer, instead of having a single gateway. In the case of livi Bank, they have also installed a 24/7 monitoring centre for cybersecurity, with black and white hat teams for carrying out testing. Ant Bank (Hong Kong) is also looking to deploy considerable technologies in the risk management and RegTech space.

FUTURE COURSE

According to PAOB, the success of its products has proven that alternative data can be used to unlock financing bottlenecks faced by SMEs. From a long-term perspective, PAOB plans to go beyond serving trade SMEs and expand its services to other types of SMEs as well, and is looking to leverage its alternative credit scoring model to further provide diversified products that can solve SMEs' instant financing needs.

Fusion Bank believes that the development of virtual banking will help support the broader banking industry and Hong Kong's status as an international finance centre, while also benefitting customers in the process.

Mr. Sun of livi Bank feels that GBA offers huge potential, but also recognises the challenges of a differing regulatory environment, including restrictions on consumer protection, data exchange rules, and cross-border account opening.

Mox Bank, who's Mox Card has already been used more than 1.5 million times, is currently beta testing its credit card in the sandbox environment. Going forward, it wishes to collaborate more closely with partners to build an ecosystem around the customer.

Going forward, Ant Bank (Hong Kong) is focused on integrating banking with daily spending and e-wallet to enhance customer experience on both retail and SME banking fronts.

WeLab Bank is looking to offer multiple revenue generating products and financial services advisory to customers, with a view to help their target segment manage, save, and grow their money. In the process, it hopes to transition from being a secondary bank to customers' primary bank account over time.

In terms of product offerings, Mr. Iu highlighted that Airstar Bank is exploring opportunities to extend a wider range of products and services to its customers, aimed at providing more comprehensive and accessible banking services to people from all walks of life, anytime and anywhere.

Having recently received an insurance agency license from the Insurance Authority, ZA Bank is looking to expand its suite of product offerings to include insurance products for retail customers, while eventually looking to offer investments and also target financial institutions.

While it may still be early days, it is clear that Hong Kong's virtual banks are keeping one eye on the horizon and are actively exploring various ideas for expansion in the future.

SECTION 8
EMERGENCE ACROSS SOUTHEAST ASIA

The secular trend in favour of virtual banking goes beyond the borders of Hong Kong and is currently sweeping across various parts of Southeast Asia. In 2019, the Financial Supervisory Commission of Taiwan ("FSC") also approved three virtual bank licenses, with Rakuten International Commercial Bank ("RICB") becoming the first Taiwanese virtual bank to launch in January 2021. Central banks in a host of rapidly growing Asian economies, ranging from Malaysia to Vietnam, are exploring opportunities to promote digital banking and online financial services (see Figure 41).

FIGURE 41: ONSET OF VIRTUAL BANKING IN SOUTHEAST ASIA

Country	Description
Singapore	• The Monetary Authority of Singapore (MAS) has announced issuance of four virtual banking licenses, after receiving 21 applications for consideration
Malaysia	• Malaysian regulator, Bank Negara has announced that it will issue up to 5 licenses for virtual banks, potentially finalising recipients in 2021
Philippines	• Tonic became the first licensed, fully virtual bank in the Philippines in 2020 • Central bank, BSP, released a digital banking framework in November 2020
Vietnam	• Vietnam intends to explore digital banking licenses in the near future • Presently, Timo Plus is a digital banking partner of legacy incumbent Viet Capital Bank
Indonesia	• The OJK has not yet provided a framework for virtual banks • DBS and BTPN are providing fully digital solutions to their customers
Thailand	• Bank of Thailand (BoT) is considering the possibility of issuing virtual banking licenses. • UOB recently established a digital only arm, TMRW, offering account and budget services
Taiwan	• The Financial Supervisory Commission of Taiwan (FSC) approved three licenses in 2019 • Rakuten International Commercial Bank (RICB) became the first to launch in 2021

Source Media reports, central bank announcements, Quinlan and Associates analysis

On 4 December 2020, the Monetary Authority of Singapore ("MAS") recently announced the issuance of four virtual banking licenses, comprising of two digital full bank ("DFBs") licenses and two digital wholesale bank ("DWB") licences.

In Malaysia, Bank Negara has divulged plans to hand out five licences to digital banks for either conventional or Islamic banking. In its Exposure Draft on Licensing Framework for Digital Banks issued in December 2019, the regulator proposed a framework for the licensing of digital banks, to offer banking products and services to address market gaps in the underserved and unserved segments.

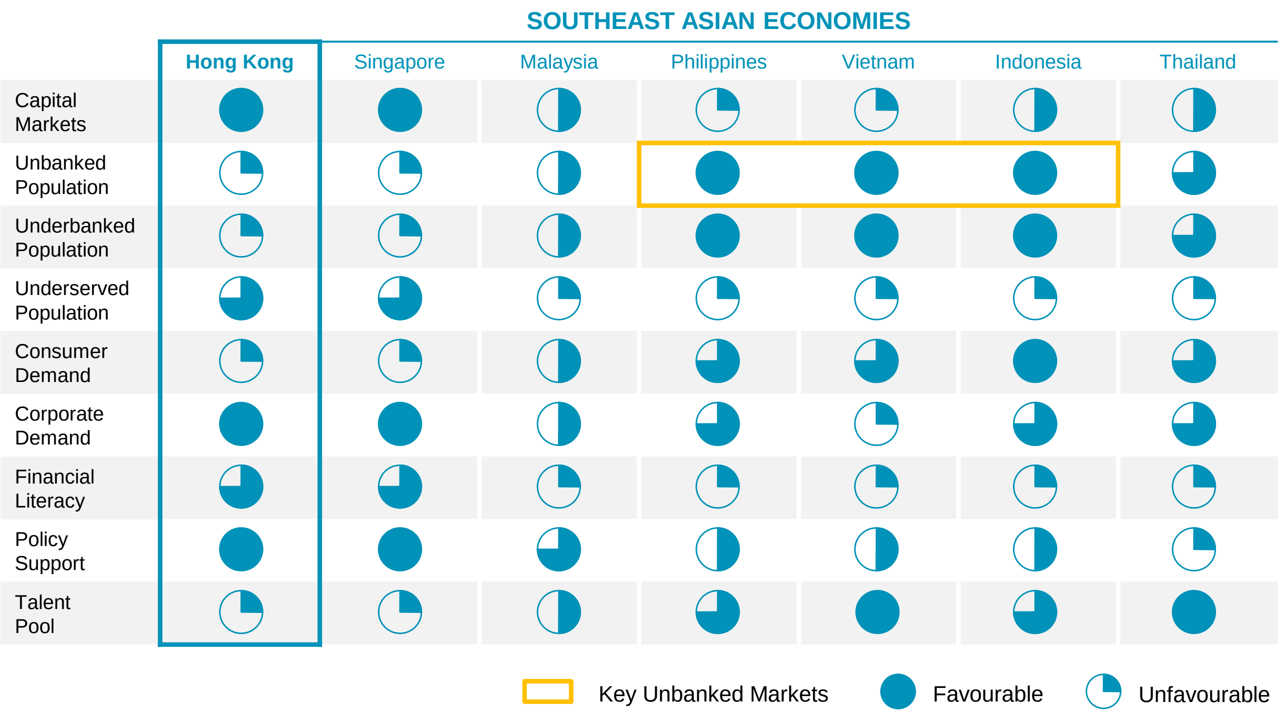
In the Philippines, the Monetary Board of the Bangko Sentral ng Pilipinas ("BSP") has approved the recognition of digital banking platforms as a new bank category and released a digital banking framework in November 2020. It recently granted the first virtual banking license in the country to Tonic.

Elsewhere, Vietnam's first online-only bank, Timo Plus, relaunched in September in 2020 in partnership with Viet Capital Bank, while the country's central bank, the State Bank of Vietnam ("SBV"), is still working on finalising a legal framework for FinTechs and digital banks.

Other countries, including Indonesia and Thailand, are at an exploratory stage and have not yet provided a framework.

Taking a closer look at the regional dynamics we noticed that countries such as the Philippines, Vietnam, and Indonesia, that possess vast underbanked and unbanked populations, could make a strong case for virtual banking introduction (see Figure 42).

FIGURE 42: REGIONAL DYNAMICS



Source Quinlan and Associates analysis

For instance, the BSP in its Financial Inclusion Survey ("FIS") of 2019 highlighted that 71% of Filipino adults remain unbanked,[37] while in next door neighbour Indonesia only 48.9% of adults possess a bank account.[38] The situation in other Southeast Asian nations, such as Thailand, Vietnam, and Malaysia, is not much better, with all three countries showcasing high levels of financial illiteracy amongst their populace.

TAKING A CLOSER LOOK AT THE REGIONAL DYNAMICS WE NOTICED THAT COUNTRIES SUCH AS THE PHILIPPINES, VIETNAM, AND INDONESIA, THAT POSSESS VAST UNDERBANKED AND UNBANKED POPULATIONS, COULD MAKE A STRONG CASE FOR VIRTUAL BANKING INTRODUCTION

[37] Bangko Sentral ng Pilipinas, 'Financial Inclusion Survey', 2019, available at: https://www.bsp.gov.ph/Inclusive%20Finance/Financial%20Inclusion%20Reports%20and%20Publications/2019/2019FISToplineReport.pdf

[38] World Bank Group, 'The Little Data Book On Financial Inclusion', 2018, available at: htthttps://openknowledge.worldbank.org/bitstream/handle/10986/29654/LDB-FinInclusion2018.pdf?sequence=1&isAllowed=y

SECTION 9
VIRTUAL BANK SET-UP AND LICENSING

While the virtual banking industry appears lucrative around the globe, the competition for receiving a licence is stiff, and the cost of failure for those who are unable to appropriately leverage a virtual banking licence remains high.

In order to develop a robust licence application and holistic set-up strategy from the onset, we have developed a 10-point plan that potential virtual bank applicants will need to address in detail (see Figure 43).

FIGURE 43: PRELIMINARY CONSIDERATIONS

CONSIDERATIONS	DESCRIPTION
Holistic Market Overview	• Understand the challenges facing traditional incumbent banks, key trends, and opportunities • Identify suitable customer segments that can be served appropriately, based on needs, pain points, etc.
Value Proposition Identification	• Identify shared synergy across various shareholder businesses and Unique Selling Propositions (USPs) • Outline differentiating factors in terms of products, customer experience, competitive advantages, etc.
Technological Capabilities Assessment	• Review technological applicability across the customer value chain (e.g. A.I., NLP, chatbots, etc.) • Identify available technologies across shareholders and plug gaps through licensing, partnerships, etc.
Roadmap Structuring	• Outline the specific products, services, and technologies to be launched over time, at a granular level • Map out staffing requirements (e.g. headcount, talent sophistication needs, etc.), business lines, etc.
Risk Management Framework	• Identify different risk types (e.g. credit, liquidity, operational, etc.) with probability and impact • Undertake suitable safety and countermeasures, such as capital adequacy, compliance with AML, etc.
IT Infrastructure Planning	• Identify key IT risks, such as vendor and third-party, data management risk, etc. • Build a governance framework of IT operations, risks, etc., based on industry leading best practices
Business Continuity Planning	• Consider time sensitive and mission critical functions and processes, conduct testing and train staff, etc. • Identify disaster scenarios such as sabotage, power failure, etc. and frame a disaster recovery plan
People / Human Resources	• Companies need a fit-for-purpose, right-sized HR team setup to support their future growth plans • Establish relevant roles and clearly outline the key responsibilities of each role
Corporate Governance	• Drafting of governance protocols regarding periodic reviews, supervisory oversight, and leadership • Three lines of defence should be constructed to manage risk effectively
Financial Modelling	• Build a financial model with estimated revenues, costs, profitability, estimated fundraising required, etc. • Compare estimates with market size to ensure rationality of projections and conduct sensitivity analysis

Strategic Operational Financial

Source Quinlan and Associates analysis

1. HOLISTIC MARKET OVERVIEW

Prospective licensing applicants need to showcase an appropriate understanding of the industry and evolving customer needs in the particular geography of interest. A comprehensive market overview should arm virtual bank candidates with a view of the key trends and opportunities in the industry, along with an understanding of the problems being faced by incumbent brick and mortar banks.

In addition, customer needs, preferences, and pain points, such as customer onboarding bottlenecks, should also be taken into account, as the applicants will have to eventually tackle these challenges themselves. Identifying key customer segments that are unbanked, underbanked, or simply underserved, could help the virtual bank candidates identify key gaps they are looking to fill.

2. VALUE PROPOSITION IDENTIFICATION

As a plethora of large corporations throw their hat into the ring, often in the form of a consortium of household names, it is essential for each virtual bank licensing applicant to highlight its competitive upper hand and Unique Selling Propositions (“USPs”).

Applicants will need to outline the manner in which the proposed virtual bank will be distinguished from existing traditional incumbents and their digital banking arms, be it with respect to customer experience, pricing, service proposition, product offerings, etc.. For instance, the prospective virtual bank candidate could leverage its experience in SME financing in the region to offer scalable, cost-efficient products to unbanked SMEs.

If the application is being submitted by a consortium of companies, the consortium should also look to articulate the synergies offered by their combined businesses.

3. TECH. CAPABILITIES ASSESSMENT

Given the digital nature of virtual banks, technology functions as a cornerstone of an applicant’s prospects of succeeding. Consequently, they should look to identify relevant technological capabilities that can be leveraged from various shareholder businesses, reviewing the strength of their technological innovation, and how they could apply such solutions across the customer value chain. To this end, a virtual bank candidate should consider specific forms of digital innovation, such as A.I., Natural Language Processing (“NLP”), automation tools, data analytics, and chatbots, etc.

Apart from the technology already available at hand internally, applicants must also consider how to address any technological gaps through purchasing, licensing, engaging in partnerships, or building the technology from scratch.

4. ROADMAP STRUCTURING

The development of a detailed roadmap is critical in outlining the path to a successful virtual banking venture.

Such a roadmap should clearly outline the specific products, services, and technologies that will be rolled out across certain time periods. For example, a virtual bank candidate could look to commence their operations by gathering retail deposits in the short run, followed by a foray into wealth management products in the long run.

Aside from product development, maintaining operational alignment as the business achieves greater scale is of paramount importance. To this end, it is important for virtual banks to map out staffing requirements, forecast associated costs, establish relevant business lines, and source talent needs. Based on the availability of a sizeable and sophisticated domestic talent pool, virtual banks may need to scout foreign talent and construct a long-term talent pipeline to ensure that there will be sufficient skilled headcount available as they further grow their business.

5. RISK MANAGEMENT FRAMEWORK

Although the rise of virtual banks may be viewed as a secular trend, it still carries its fair share of risks.

Virtual bank candidates should identify the myriad of risk types, including market, credit, liquidity, operational, and reputational risks. These may be measured against the estimated probability and impact, together with risk mitigation measures such as capital adequacy and operational risk processes.

Candidates should design and document standardised product approval and loan approval policies and processes, consider the use of automation to reduce human error, discuss the role of company culture in risk mitigation and an associated strategy in developing an appropriate risk culture framework, develop management information systems, conduct periodic assessments for risk monitoring and reporting, and identify the key personnel, reporting lines, and escalation protocols based on industry best practice.

With a view to ensure compliance with Anti-Money Laundering ("AML") and Counter Financing of Terrorism ("CFT") regulations, virtual bank candidates could consider a three-pronged approach surrounding (1) onboarding; (2) surveillance; and (3) reporting. From an onboarding perspective, steps such as customer ID verification, sanctions screening, due diligence risk assessment, and assignment of a corresponding risk rating should be conducted. With respect to surveillance, proper transaction monitoring, investigation, and review should also take place. Lastly, periodic reports and ad-hoc reports should be filed as per protocol, with appropriate management and regulatory escalation processes.

6. IT INFRASTRUCTURE PLANNING

An efficient IT organisation structure should be developed, based on minimum personnel requirements, segregation of tasks, scale of business build-out, and headcount forecasting.

An IT governance structure, backed by a governance framework of IT operations, IT projects, cybersecurity and IT risks, based on banking industry best practice, should be formed. A reporting structure, including the roles and responsibilities of each function, and relevant escalation protocols, should also be created.

An appropriate technology risk management framework should be built, identifying key risk types, such as data management, cybersecurity, IT resilience and continuity, operations, IT vendor, and third-party risk. Design and documentation of IT architecture development, IT procurement, and testing policies and processes should also be carried out, with relevant protocols for responding to outages and cybersecurity events.

7. BUSINESS CONTINUITY PLANNING

A governance structure to oversee, approve, and implement a business continuity plan ("BCP") should be constructed, keeping in mind time sensitive and mission critical functions and processes, and interdependencies between functions and processes.

Identification of potential revenue loss, fines, intangible losses, and insurance requirements should also be part of BCP. Additionally, business continuity measures, such as data backup and communication strategies, and the identification of personnel and other resources required, should also be outlined appropriately. Readiness procedures, including staff training, updating, and testing of the BCP should also be implemented.

As discussed earlier in this report, cybersecurity is a key challenge facing virtual banks. In the event of a cybersecurity breach, an IT disaster recovery plan should be framed, with identification of disaster scenarios (natural and man-made disasters, accidents, sabotage and power / communication failures). High-level descriptions of plans to minimise service disruption and resume mission-critical functions, including data management policies (e.g. data synchronising, vendor solutions, etc.) and related backup functions should be created. A framework for the identification of threats and challenges to services, and minimum acceptable levels of service in the face of disruptions / downtimes in systems, may also be built.

8. PEOPLE / HUMAN RESOURCES

Once applicants have mapped out their overall growth strategy, they will need to conduct a robust workforce planning exercise to map out personnel requirements to support their future ambitions on both a market and functional level, including establishing their front-to-back headcount targets.

As we have previously highlighted in our report titled The Human Factor, companies need to also determine a right-sized HR team setup to effectively support their future hiring plans. Some of the factors that should be taken into consideration include establishing relevant roles, clearly outlining the key responsibilities of each role, developing an effective organisational setup / governance structure (including HR reporting lines), and determining relevant budgets to support the build-out of the HR team.

Establishing a fit-for-purpose HR team is a critical pre-requisite to the development of a robust HR operating model. In our experience, many HR teams of even the largest start-ups, including unicorns, are grossly understaffed, resulting in capacity constraints and limited HR compliance oversight.

9. CORPORATE GOVERNANCE

Relevant governance protocols regarding periodic reviews, supervisory oversight, and leadership development should be drafted.

There should be a clear definition of decision makers, responsible person(s) for each stage and action various key processes, under each scenario, with step-by-step instructions for responsible persons to follow, in addition to relevant checks and procedures. It is essential to identify the responsibilities of different parts of the organisation for addressing and managing various forms of risk.

To this end, three lines of defence (“LoD”) should be formed. The first LoD comprises of the particular business line that has ownership of risk in conducting business activities. The second LoD includes risk management and compliance functions that are independent from the first LoD, who are responsible for identifying, monitoring, and reporting risk and compliance breaches. The third and final LoD involves internal auditing to ensure that the governance framework is effective and independent from the first and second LoDs.

10. FINANCIAL MODELLING

A financial model, showcasing the timing and amount of fundraising required, alongside estimated revenues, costs, and profitability, should be constructed while keeping a breakeven target timeframe in mind.

The financial model should take into account specific information on products and services being offered, pricing, number of customers, associated costs and expenses regarding headcount, marketing, infrastructure, etc. This model should be compared against market sizing numbers to ensure that the projections are realistic and account for a reasonable market share, based on the market research that has been done. A sensitivity analysis may be conducted with base-case, worst-case, and best-case scenarios to further manage financial expectations.

WHILE THE VIRTUAL BANKING INDUSTRY APPEARS LUCRATIVE AROUND THE GLOBE, THE COMPETITION FOR RECEIVING A LICENCE IS STIFF, AND THE COST OF FAILURE FOR THOSE WHO ARE UNABLE TO APPROPRIATELY LEVERAGE A VIRTUAL BANKING LICENCE REMAINS HIGH

SECTION 10
CONCLUSION

As a mature and well banked market that is home to a multitude of global and domestic players, there is currently a very limited gap in terms of an underbanked or unbanked population for Hong Kong's virtual banks to fill.

The real value that virtual banks possess lies in their ability to deliver a digitally enhanced service proposition to customers rather than completely reinventing the wheel. To their benefit, the respectable levels of internet access (and speed) in the city, coupled with the local population's rich experience using smartphones and e-wallets, provides fertile ground for the virtual banks to capture what has long been an underserved segment.

We believe that the arrival of Hong Kong's virtual banks has already and will continue to serve as a catalyst for change, accelerating digital innovation, particularly in relation to enhancing the customer experience. Consequently, the biggest winner from competition between virtual banks and legacy incumbents are likely to be their customers, who will be able to enjoy a wider array of choice, greater benefits, and an enhanced customer experience, as a plethora of virtual and traditional banks battle it out for a share of their hearts, minds, and ultimately, their wallets.

The manner in which virtual banks leverage the swathes of customer data collected in terms of targeted product development, and the quality of user experience they deliver, will be key differentiating factors in their bid to outdo each other. Ensuring the safety of customer data and improving their talent strategy shortcomings will also pose as key internal challenges. An interesting development to remain watchful of are the external partnerships that they may build with shareholder and non-shareholder businesses, as they inch closer to a lifestyle ecosystem offering. As time goes by and geographic restrictions ease, the economic riches of GBA may also open up new opportunities in the wealth management arena.

Virtual banks are not expected to experience a walk in the park, as they need to address certain challenges and get down to the brass tacks, especially with regards to winning over customers' trust and achieving sustainable profitability. Furthermore, we expect to see virtual banks expanding their range of offerings and adopting a business model that focuses on garnering a high volume of fee-based revenue.

On the competitor front, while virtual banks are not likely to completely pull the rug from underneath their brick-and-mortar rivals, they may be able to capture a significant market share and push their legacy rivals to innovate faster. In addition, legacy incumbents may experience a shrink in profitability as they ramp up their digital ecosystem and slash fees to remain competitive, all to the benefit of Hong Kong's banking customers.

In an industry that is presently dominated by a handful of large players, becoming the primary bank account provider for customers from the get-go is not a probable scenario for virtual banks in the short run. Instead, their ability to rapidly amass a sizeable customer base, monetise user data, drive cross-selling of products and services, and build a trusted franchise, will hold the key towards achieving long-term profitability. Most importantly, we believe that virtual banks who can leverage partnerships to rapidly build an ecosystem-based platform that touches upon peoples' daily lives will emerge as the big winners.

More broadly, we see potential for Hong Kong to position itself as both a test base and launchpad for FinTech solutions across Southeast Asia. With the immense potential offered by markets such as Indonesia, the Philippines, and Vietnam, all of which possess vast unbanked populations, a lucrative wallet opportunity exists for virtual banking players, especially their backers, looking to expand. However, given the fundamental difference in dynamics between Hong Kong and such markets, a "cut and paste" strategy won't work; a holistic and financially sound strategy needs to be built from the ground-up.

While the COVID-19 pandemic has exposed the weaknesses of brick-and-mortar banking models and pushed customers towards their virtual bank rivals, there remain whole host of challenges that need to be addressed, including a trust deficit among customers, intense competition, talent issues, data protection needs, and profitability concerns.

While a combined HKD 76 billion Hong Kong revenue pool by 2025 may not provide a big enough monetary opportunity for all eight virtual banks to thrive, we believe that there is scope for a handful of players to flourish.

However, for the ultimate winners, this will involve much more than branching off from traditional banking business models; a truly differentiated value proposition, centred around a customer-centric, closed ecosystem model, will be key.

WHILE A COMBINED HKD 76 BILLION HONG KONG REVENUE POOL BY 2025 MAY NOT PROVIDE A BIG ENOUGH MONETARY OPPORTUNITY FOR ALL EIGHT VIRTUAL BANKS TO THRIVE, WE BELIEVE THAT THERE IS SCOPE FOR A HANDFUL OF PLAYERS TO FLOURISH

SECTION 11
HOW CAN QUINLAN & ASSOCIATES HELP?

Quinlan & Associates ("Q&A") has extensive experience working with global financial institutions and a wide variety of FinTechs on end-to-end corporate strategy development, operating model design, and implementation planning, and has also advised a number of our clients on new market entry strategies, including the development of full-scale strategic business plans for government tenders and licence applications.

Q&A's project work typically involves supporting our clients across the full strategy spectrum:

1. APPLICATION SUPPORT

Support aspiring virtual bank license applicants with the necessary resources, domain expertise, go-to-market strategy, and compliance requirements for successfully obtaining a license:

- Review the virtual banking industry in the market and establish a differentiated value proposition to capture relevant opportunities
- Develop a market entry and growth strategy, along with a suitable operating model, to demonstrate capabilities to compete in the market and to address all regulatory concerns
- Provide comprehensive support throughout the application and licensing process, from application material preparation to virtual bank launch preparation

2. STRATEGY DEVELOPMENT

Support virtual banks in the development of their end-to-end growth strategies:

- Review industry, market, and regulatory developments to identify key opportunities, including market sizing of specific revenue opportunities
- Conduct detailed competitor analysis and benchmarking to identify capability gaps (e.g. geographies, industries, products, internal processes, etc.) against relevant peers and industry best practices
- Develop suitable marketing (e.g. promotion tactics, incentivisation schemes, etc.) and channel distribution strategies (including direct and indirect distribution)
- Craft robust and competitively differentiated customer segmentation, acquisition, experience, and relationship management strategies
- Support the design and development of new product offerings
- Develop robust pricing strategies, including both pricing models (e.g. subscription, one-off, etc.) and pricing levels (i.e. specific charges)
- Formulate an end-to-end data strategy across the full data lifecycle to improve marketing campaigns, cross-selling, product development, and data protection, etc.
- Develop a comprehensive business case outlining fully loaded costs and revenues based on anticipated demand levels, pricing, and resource requirements

3. OPERATING MODEL DEVELOPMENT

Develop of review operating model in detail to identify potential adaptations that may be required for existing policies, processes, and systems:

- Develop an end-to-end target operating model (“TOM”)
- Create an overall implementation plan, including supporting budgets
- Provide ongoing implementation support
- Develop a talent strategy (e.g. talent pipeline, remuneration philosophy, L&D frameworks)
- Forecast front-to-back headcount needs based on corporate growth strategy
- Establish key functional requirements, responsibilities, organisational structure, and required budgets
- Review data governance protocols regarding access and usage of customer data
- Analyse need for potential upgrades to cybersecurity capabilities
- Review relevant risk management process, including management information systems, periodic assessments for risk monitoring and reporting, etc.
- Identify key roles and responsibilities, including reporting lines and workstream formation, etc.

4. CORPORATE TRAINING

Conduct in-person corporate training and coaching programmes to equip clients’ employees with the necessary knowledge and capabilities to support cultural and mindset changes:

- Provide world-class employee training workshops (on areas including specific compliance topics and broader cultural change programmes), focusing on turning concepts into actions, and committing actions to practice
- Engage team managers in dedicated coaching programmes, creating actionable plans for them to inspire and champion for good business conduct within their teams and divisions
- Assess business performance improvements attributable to mindset and behaviour changes from training and coaching efforts, and further fine-tune the programmes

FINTECH ASSOCIATION OF HONG KONG

ABOUT FTAHK

The FinTech Association of Hong Kong (FTAHK) is an independent, not-for-profit, membership-based association representing Hong Kong's local and global FinTech community.

FTAHK is led by a volunteer group of board members and committee co-chairs who care about the future of FinTech in Hong Kong, Greater China, and Asia. We are not-for-profit and have an independent structure, based on pillars of transparency, accountability and governance.

CONTACT US

E-Mail: admin@ftahk.org
Website: https://ftahk.org

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STRATEGY WITH A DIFFERENCE

ABOUT US

Quinlan & Associates is a leading independent strategy consulting firm specialising in the financial services industry.

We are the first firm to offer end-to-end strategy consulting services. From strategy formulation to execution, to ongoing reporting, communications, and employee training, we translate cutting-edge advice into commercially executable solutions.

With our team of top-tier financial services and strategy consulting professionals and our global network of alliance partners, we give you the most up-to-date industry insights from around the world, putting you an essential step ahead of your competitors.

Quinlan & Associates. Strategy with a Difference.

@ enquiries@quinlanandassociates.com | www.quinlanandassociates.com | +852 2618 5000
Level 19, Two International Finance Centre, 8 Finance Street, Central, Hong Kong SAR