



"As traditional banking evolves to digital banking, we believe that open banking is the future. We see a lot of potential collaborating with financial and non-financial firms. Integration is going to be the next big thing because it allows each player to create the user experience and delivery models of their choice."

Sanjay Gupta, Senior EVP - Information Technology, Kotak Mahindra Bank

"We don't have 'customers' anymore; we have people engaged in the community who want to use different services. So the bank has to pivot from developing everything internally to being a curator of apps, APIs, and analytics from marketplaces that give the best overall customer experience. Because I, as a customer, don't want to go to 200 different startup companies and try and put that together myself — I'd much rather have a trusted brand do that for me."

Chris Skinner, author of the best-selling book, Digital Bank

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Outlook and Opportunities



What is Open Banking?

Open Banking enables banks to share customer data securely with third-party providers (TPPs) in various verticals, such as insurance, fintech, utilities, and travel, as well as other banks through the use of application programming interfaces (APIs). This enables banks to create innovative data-driven financial products and services around a centralized platform.

The open banking movement is building momentum globally, radically changing the way banks approach business models, customer engagement, and service delivery. While open banking continues to advance in Europe, countries in Asia-Pacific are quickly catching up by implementing various initiatives to transform customer engagement and develop agile financial services.

Drivers of Change

The need to leverage new digital capabilities – for instance, cognitive intelligence, data analytics, mobile and social technologies– to boost differentiation, enhance customer experience, and create new revenue streams.

Regulatory initiatives to usher in more competition for customer dollars as well as promote efficiency, integration and inclusion in the financial services industry.

Consumers demand immediacy, 24/7 access, personalized and frictionless service – driving new expectations akin to the e-commerce experience.

The emergence of fintech and technology challengers, who have built their success on the back of simplified operations, and digital-first capabilities to deliver a seamless and superior experience at a lower cost.

Why Banks are Interested in Open Banking

Open banking is becoming the prime solution for banks aiming to:



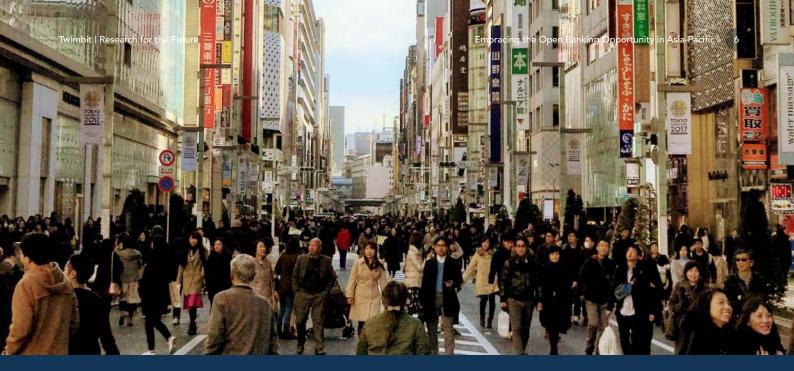
Why the Future of Banking Depends on APIs

APIs are the strategic levers in facilitating new collaborative opportunities between banks and TPPs on the open banking platform-based ecosystem. By launching open banking APIs, banks can generate value by taking the following actions:

Create a marketplace that leverages the bank's services and branch network, mobile channels, agents, kiosks, wearables, and smart virtual assistants

Extend the value of data, algorithms, and processes to improve their native offerings, create revenue streams from new channels, and enhance customer engagement

Offer customers a more extensive choice of products via market aggregation



Why Asia-Pacific is an Attractive **Open Banking Destination**



Majority still underbanked 73% of Southeast Asia is

unbanked

58% of South Asia is unbanked

67% of Asian firms with no loans or of Asian firms no line of credit

79%

of Asian SMEs no line of credit



Low attach rate of financial services

Average number of products owned:

Developed Asian economies -

3.2

Emerging Asian economies - skewed value of



Profitability under pressure Return on average equity (ROAE) of



Cost/asset ratio of

depicting significant opportunity to lift

Catalysts to Open Banking



Willingness: Six out of 10 consumers in Asia-Pacific are open to sharing information for personalized and better services¹



Regulation: Six out of 10 consumers in Asia-Pacific are open to sharing information for personalized and better services





Digitization: 80 percent smartphone penetration in Asia-Pacific, coupled with 72 percent of internet connections with above 2G speed, create an environment conducive to digital services growth²





Competition: 80 percent of customers in Asia-Pacifc are looking forward to financial products from technology companies

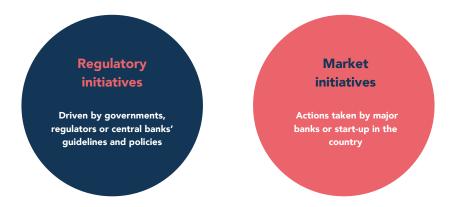
Benefits for Banks & Customers

BANKS	CUSTOMERS
Broaden reach	In control of their data
Increase revenue streams and profitability	Frictionless, "invisible" banking
Accelerate digital innovation	Access to innovative and personalized solutions
Deepen customer relationships and build loyalty	Plethora of choices

¹ Accenture's 2019 Global Financial Services Consumer Study

² GSMA Intelligence 2019

Twimbit evaluated 14 countries in Asia-Pacific that are moving forward in promoting more open banking systems, in collaboration with various third parties, to develop new customer-centric services. In evaluating the evolution and performance of open banking in Asia-Pacific, Twimbit's Open Banking Maturity Matrix maps the relative position of major Asia-Pacific countries across two distinct criteria:



From the findings, Twimbit placed each country's open banking maturity into four categories:



Twimbit | Research for the Future

Champion – High ratings in both regulatory and market initiatives



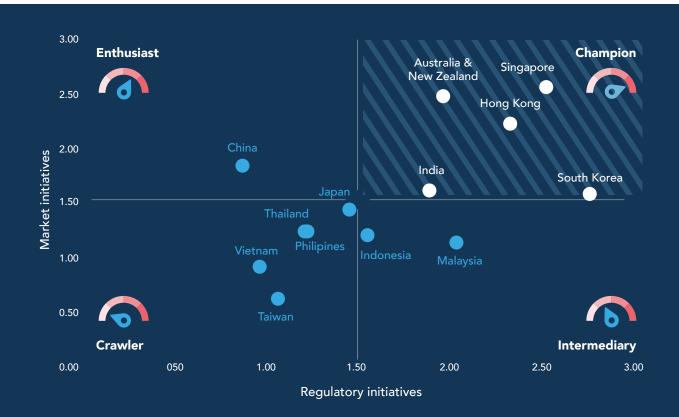
Enthusiast – High rating in market initiatives, and low rating in regulatory initiatives



Intermediary – Mid-range rating in both parameters



Crawler – Low rating on both parameters



Regulatory Initiatives

The open banking regulatory landscape across Asia-Pacific varies by country. Open banking is driven mainly by two financial initiatives announced by the Europe and United Kingdom governments – Second Payment Services Directive (PSD2) and Competition and Markets Authority (CMA).

The following parameters were considered during the evaluation process:

- Establishment of an open banking framework
- Intent and vision
- Progress on implementation
- Governance initiatives for the API ecosystem
- Initiatives to grow the overall fintech ecosystem
- Open banking timelines

Market Initiatives

Banks and fintech companies, including technology disruptors, are focused on the use of open APIs to build their open banking models. Twimbit evaluated the market dynamics that have a profound impact on industry participants and consumers under two sub-categories:

1. Initiatives by leading banks

- Adoption of APIs and delivery maturity
- Number of open APIs
- Presence of an API developer platform
- Collaborations with technology companies for the development of API applications
- The extent of external partnerships
- Number of fintech partnerships
- o Partnership categories (i.e. payments, P2P lending, financial aggregation)
- Data discovery and gathering capabilities of banks (i.e. use of apps, machine learning)
- Data monetization models (ability to sell data to external or third-party buyers)

~

2. Startup ecosystem

- Number of startups
- Investments made in startups



OPEN BANKING FRAMEWORK BENCHMARK ASSESSMENT

The benchmark assessment evaluates the Asia-Pacific countries on the following:

Innovation – Open banking APIs that drive innovation to address latent demand.

- New features or services solving consumer needs.
- Predefined APIs and incentives creating functional and reliable offers with a faster turnaround time to consumers.
- Improved consumer experience, innovation, and time to market.

Efficiency and convenience – The new operational model allows financial institutions to leverage an ecosystem of third parties and experts.

Openness in banking-, customer-, and payment-focused APIs – Adopts banking focus APIs (bank products and services information), customer focus APIs (customer information, authentication, verification), and payments focused APIs (deposits, fund transfers, loans, gateways).

Creation of API Ecosystem – Provision of a platform where third-party providers, developers, and banks can collaborate with the open APIs in place.

Financial stability – Eliminates the need for the middleman, ensuring a level playing field for third-party providers, banks, and fintech companies.

Monetization – Facilitates data monetization opportunities.



API ADOPTION & DELIVERY MATURITY BENCHMARKS

Under market initiatives, Twimbit assesses banks based on their relative maturity in the adoption and delivery of their API models:

Bank channels: Banks initiate their API strategy in a controlled environment, which is primarily aimed at internal efficiencies and collaborations.

API marketplace: Banks publish their APIs so developers can discover them. The marketplace also allows providers to monetize their APIs, usually by creating a variety of subscription plans.

API distributor: An extension to the bank's API marketplace, listing third-party financial services API offerings from partners and fintech, helping

API aggregator: An API aggregator/hub provides a single point of implementation for several different APIs.

Open banking APIs: Enable developers to integrate banking products and services into their apps. Smaller banks could use these APIs to extend their product and service offerings using APIs offered by a larger bank. Banks could also offer white label solutions for external providers to use under their brands.

Champion



The banks in the Champion category lead in both regulatory and market initiatives driving open banking development. These players are considerably ahead in terms of API ecosystem utilization, data monetization, and open banking evolution. For example, sandbox or development platforms, collaboration, and the number of open APIs.

Overview

Singapore, Hong Kong, Australia & New Zealand, South Korea, and India emerged as Champions. These markets demonstrate leadership and maturity in implementing progressive policies as well as promoting innovation and competition in terms of technology, business models, and financial services.

Regulatory Initiatives: Characteristics

An early adopter of open banking initiatives supporting the development of an API ecosystem

The banks in the Champion category have pursued open banking initiatives as early as 2017 through the establishment of an authority to look into open banking regulations.

- In November 2016, the Monetary Authority of Singapore (MAS), and the Association of Banks (ABS) in Singapore published the comprehensive Finance-as-a-Service: API Playbook roadmap, which introduced governance, implementation, use cases, and design principles for APIs as a guide for banks and financial service providers.
- MAS has produced API playbooks containing 400 recommended APIs and over 5,600 processes. Furthermore, in 2018, the government launched API Exchange (APIX) to serve as a centralized data-sharing platform.
- In Australia, Data61 has been working with the Australian Competition and Consumer Commission (ACCC), and the Office of the Australian Information Commissioner to develop draft technical standards to design APIs.
- In May 2019, New Zealand launched the API Center for two types of usersnamely, Standard Users, and Community Contributors.
- In 2019, 20 participating retail banks in Hong Kong made available more than 500 open APIs, enabling consumers to access information from a wide range of banking products and services.

- In India, the Reserve Bank of India (RBI) aims to set up a framework or sandbox outlining central body guidelines and initiatives for API-based product development. The federal body makes APIs available through IndiaStack, which provides government agencies, businesses, and developers access to technology platforms via the Aadhaar national identity number system.
- 2 Focused on driving collaboration and inclusion of fintech companies to promote innovation and competition in the banking industry

All countries within the Champion category actively explore API standards and security frameworks as the foundation for their own open banking initiatives. Notable efforts include:

- Collaboration between the Australian Competition and Consumer Commission (ACCC), Data61, banks, and fintech participants to test Australia's open banking system. Under the pilot project, the big four banks are required to publicly share product information about deposit and transaction accounts as well as credit and debit cards via APIs. The project aims to test the performance, reliability, and security of its open banking system. To date, 40 fintech players have shown interest, of which ten have been selected to test open banking systems by February 2020.
- Among the region's pioneers in fintech collaboration, South Korea's Financial Services Commission (FSC) has introduced new rules that requires the country's banks to open their payment networks to other banks and qualified third-party fintech firms to boost innovation and competition. In order to ensure fair competition, the FSC is also cutting transaction fees by 90 percent. For phase two, the FSC has proposed legislation to establish "clear legal grounds" for an open banking system.
- Adopted a phased strategy and approach to implementing open data for payments and banking services
- Implemented open banking within the prescribed timeframe of at least two to three years

Market Initiatives: Characteristics

- The banks, with up to 75 percent market share in the Champion category, are the primary drivers of open banking initiatives. They offer over 200 open APIs to their partner ecosystem in the region. Leaders include:
 - Development Bank of Singapore (DBS Bank) and Oversea-Chinese Banking Corporation, Limited (OCBC Bank) in Singapore
 - Nonghyup Bank in South Korea
 - ICICI Bank in India

Banks advancing in the API delivery maturity cycle

The banks in the Champion category are moving towards a collaborative ecosystem through new banking distribution channels, API marketplace builders, and open banking models.

- United Overseas Bank (UOB) Singapore's The Travel Insider is the first online
 travel marketplace designed by a bank that assists customers in searching,
 planning, and booking their holidays with greater ease. Working with online
 travel giants, Agoda and Expedia, UOB is the first bank in Southeast Asia to
 offer an online travel marketplace using the APIs of Agoda and Expedia to
 draw the best options from over a million hotel and flight possibilities.
 Examples of other successful ventures include soCash, MSG, and
 PropertyGuru.
- Introduction of API developer sandboxes to encourage products, services, or solutions innovations

The banks in the Champion category have developed 20+ sandboxes in aggregation to facilitate the creation of new products and services, as shown below.:

Country	Bank	Sandbox/Platform	
(\$?	Development Bank of Singapore (DBS Bank)	DBSdevelopers	
Singapore	Oversea-Chinese Banking Corporation, Limited (OCBC Bank)	Connect2OCBC	

Country	Bank	Sandbox/Platform	
Australia & New Zealand	Australia and New Zealand Banking Group (ANZ Bank)	Partnership with Data Republic	
	Commonwealth Bank of Australia	CBA Developer portal	
	National Bank of Australia (NAB)	NAB Developer portal	
	Westpac Banking Corporation (Westpac)	QuickStream	
	ASB Bank	ASB API Developer Portal	
Hong Kong	The Hongkong and Shanghai Banking Corporation (HSBC)	HSBC HK developer portal	
	Bank of China (Hong Kong) Bank of China (Hong Kong) Developer Platform		
	Hang Seng Bank	Hang Seng Developer Portal	
	Standard Chartered Hong Kong	aXess	
India	HDFC Bank	HDFC Developed Portal	
	State Bank of India (SBI)	SBI Developer Portal	
	ICICI Bank	ICICI Developed Portal	
	Kotak Mahindra Bank	Kotak Mahindra Developer Portal	
	Axis Bank	Yes	
South Korea	KEB Hana Bank	Hana API Developer Portal	



Banks creating ecosystem partnerships to provide best-in-class solutions for customers

While DBS Bank is developing internal capabilities to build platforms, numerous other banks are leveraging partnerships with technology solutions providers to digitally transform and capitalize on the benefits of open banking.

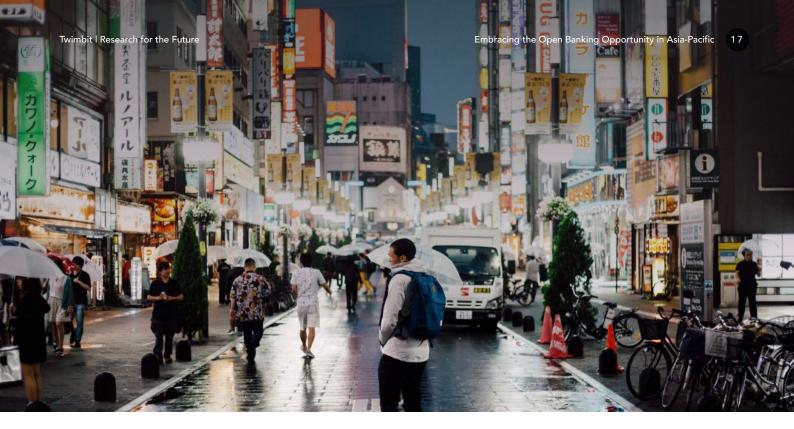
A high degree of collaboration with fintech startups

Banks are launching programs/startup initiatives to create solutions in collaboration with fintech firms.

- DBS Bank has launched the Startup Xchange program to attract startups to co-create solutions with the bank.
- OCBC Bank runs the Open Vault program to co-create innovative solutions with fintech companies.
- Commonwealth Bank of Australia, as part of its AUD5 billion digital investment plan, has categorical plans to invest in fintech, over the next five years.
- Nonghyup Bank of Korea is supporting the growth of 33 fintech firms through its Fintech Innovation Camp Program.
- ICICI Bank has set up the Fintech Innovation Hub, with investments in five startups.

Implementation of data monetization strategies, primarily focusing on:

- Improving internal efficiencies
- Achieving differentiated products and/or services
- Delivering enhanced customer experiences



Startup Ecosystem

All six countries assessed have well-developed fintech ecosystems. The following chart highlights the number of startups in each of these markets:

Number of Fintech Startups

Updated as of 2019



In 2019, India's fintech startups raised \$2.6 billion, the highest ever in a calendar year. With the 180 rounds of capital raising in 2019, the overall investments in the fintech sector was \$7.4 billion.

Enthusiast



For Enthusiast, the evolution of open banking is largely driven by market participants without any or limited intervention from governing bodies. Market forces, including demand, technology, and competition, could compel leading industry participants to innovate and advance aggressively.

Overview

China is the only market identified as an Enthusiast by Twimbit, exemplifying the success of the country's less regulated and organic approach in driving fast-paced banking innovation among market participants. Chinese consumers, who are among the most digitally-connected in the world, are also fundamental drivers of the country's thriving open banking market.

Market Initiatives: Characteristics

Strong focus on innovation and experimentation

- Bank of China was among the first in the world to launch its open platform in 2013, with close to 1,600 interfaces made available till date.
- China Construction Bank and Industrial and Commercial Bank of China have opened about 50 APIs, subsequently developing the ICBC Developer Platform. Vibrant innovation culture supported by robust involvement of fintech and TPPs, aid banks in expanding customer reach, embedding into the customer lifecycle via services such as e-commerce, and creating a vast ecosystem of products and services across diverse industries.

Active participation of Chinese fintech giants setting the stage for the rest of Asia

- Alipay launched open banking initiatives by aggregating bank accounts behind the Alipay wallet.
- Ant Financial and Tencent are leveraging open APIs to allow third parties to offer customers products and services, as well as make data more portable within their ecosystems.
- In 2017, Ping An Insurance introduced the Smart Insurance Cloud platform offering open-source APIs to its partners.
- WeBank recently launched the '30' paradigm of open banking services, namely Open Platform, Open Innovation, and Open Collaboration.

Intermediary



An Intermediary is typically a follower of open banking initiatives. One essential characteristic in this category is that despite regulatory guidelines and initiatives, only a limited number of market leaders have taken the initial steps in embarking on the open banking journey.

Overview

Malaysia and Indonesia are classed as Intermediaries with gradual growth in open banking initiatives, largely due to limited regulatory guidelines and low digital readiness.

Market Initiatives: Characteristics

Malaysia

- Maybank,considered the country's frontrunner in open banking efforts, launched the Maybank Sandbox developer portal equipped with 20 APIs, enabling 85 operations.
- CIMB first introduced its fintech incubation program focused on encouraging and guiding startups on their API platforms, followed by the introduction of a point-of-sale and payments platform.
- Hong Leong Bank conducted a LaunchPad contest to develop innovations, resulting in the launch of five successful applications in 2018.

Indonesia

- Bank Central Asia (BCA) is integrating applications with bank's APIs through a sandbox (with associated pricing models).
- In 2019, Bank Mandiri, in partnership with Kalibrr, hosted a competition to design prototype mobile applications for different banking needs, such as payments, account opening, and borrowing, using Bank Mandiri APIs.
- Bank Rakyat has partnered with Apigee, a subsidiary of Google Cloud, to provide API management and monetization solutions.
- Bank Central Asia is a major driver of fintech partnerships, with investments worth US\$15 million into fintech startup since 2017.
- In 2019, BCA partnered with AgenKan, Amalan, Bamms, Bizhare, Crowde, IndoGold, Jari, Kendi, Go-Jek, and Tokopedia to join its startup accelerator program.
- Bank Rakyat finances fintechs through their Bahana Artha Ventura, investing US\$13 million in Investree Radhika Jaya and Go-Jek in 2019.

Key Imperatives for Successful Implementation of Open Banking

1.



Unlocking the power of data-driven decision making

While banks are a treasure trove of consumer data, they are not always effective at monetizing this asset to be profitable for all parties. As such, banks need to build capabilities to capture value from critical data and deliver meaningful, actionable insights. Advanced analytics, algorithm programs, as well as quality data collection and management are useful tools to nurture data discovery and infrastructure readiness.

2.



Moving the revenue needle

Banks that get this right can tap into a range of benefits from reaching unserved customer segments to opening up new revenue streams. We expect 60 percent of banks in Asia-Pacific to invest in technology to monetize data in the next 12 to 18 months, suggesting that the business of data monetization is likely to accelerate.

3.



Defining API architecture

Traditional banks are built around models of vertical integration, covering all aspects of the value chain from servicing to risk and balance sheet management. Open banking frameworks impose legal guidelines relating to access rights for third-parties, consent-based data sharing, data security, and dispute resolution of personal financial data. The regulations also direct retail banks to share their current account data with authorized third parties through APIs. Technically, implementation of these services would require information architectures based on APIs to ensure end-to-end comparison services, automatic savings, and credit scoring. These architectures have the potential to create a myriad of business opportunities for both consumers and producers of financial data.

4.



Growing and maintaining a strong developer community

Banks who effectively and seamlessly engage with third-party developers, and facilitate an open banking ecosystem through its platforms, will benefit from an early-mover advantage. In exchange, this will strengthen the bank's API offerings and ecosystem that drives customer value creation.

5.



Collaboration and partnerships hold the key to open banking success

The early adopter banks capitalized on partnership opportunities. In turn, the banks improve on agility, reduce OPEX and deliver a frictionless customer experience. Some banks are also collaborating with partners to penetrate adjacent markets, target new customers, or expand their offerings.

ANZ partnered with the Data Republic to access its data-sharing platform which enables ANZ a secure way to store, categorize, and share data with third-party providers (TPPs).

HDFC moved to Oracle Cloud Infrastructure, to be able to integrate its new services and other digital banking services, including the thousands of API solutions, for example, with online insurance providers, e-commerce sites, travel portals, online food delivery apps, are already available from the bank into other mobile applications, net banking, search engine results and so on.

6



Establishing a revenue-sharing ecosystem

Banks can capture the right opportunities by working closely with TPPs and creating revenue-sharing models. A majority (>80 percent) of the Asia-Pacific banks are looking at developing a profitable archetype by building a collaboration model with the TPPs to benefit their Small and Medium Enterprise (SME) and corporate customers. The crucial factor here is the establishment of a clear understanding of the guidelines when it comes to distribution, customer relationship, and revenue sharing.

7.



Prioritizing security

Banks must allay consumer fears about the risk of fraud or data breaches in adopting open banking practices. They need to begin developing strategies to modernize their applications by implementing an application security strategy for 360° protection that goes beyond just testing for software vulnerabilities.

8.



Modernizing IT

Legacy infrastructures are huge bottlenecks for banks, increasing the complexities of introducing new technologies. Infrastructure uptime, availability, and cost of development are other impediments to growth as the volume of APIs and data usage rises. Often, integrating with fragmented systems and providing the necessary communication and links require additional capabilities. As such, banks need to have an aggressive approach towards IT modernization, processes, and infrastructure to support the long-term success of an open banking strategy.

Open Banking Journey

Relative importance of the eight imperatives across various stages of evolution in Asia Pacific

We identified eight distinct imperatives to achieve long term success for open banking programs. Given the diversity of Asia-Pacific, banks within a market can be at different stages of open banking adoption. Consequently, the relative roles and importance of these imperatives would vary as well.

In the following table, we prioritize the eight imperatives based on the Twimit Open Banking Maturity Matrix to help banks decide on their investments and efforts:

Imperative	Crawler	Intermediary	Enthusiast	Champion
Unlocking the power of datadriven decision making	****	****	****	****
Moving the revenue needle	****	****	****	****
Defining the API architecture	****	****	****	****
Growing and maintaining a strong developer community	****	****	****	****
Collaboration and partnerships	****	****	****	****
Establishing a revenue-sharing ecosystem	****	****	****	****
Prioritizing e security	****	****	****	****
Modernizing e IT systems	****	****	****	****



Outlook & Opportunities

Banks across Asia-Pacific are beginning to recognize the promise of open banking in – harnessing the power of disruptive technologies from numerous start-ups to address large untapped market segments in the region. We anticipate open banking to have far-reaching implications on:

Underserved segments

- Unbanked customers represent one of Asia's biggest challenges due to regulatory issues, lack of compliance, and poor accessibility, which in turn, restricts the ability of banks to serve this segment effectively.
- Southeast Asia and South Asia have nearly 860 million unbanked adults that can be brought into the financial services economy via the open banking strategy.
- Classified as high risk, the SME segment remains underpenetrated by the banking sector. Due to regulatory issues, lack of cash-flow visibility, and low appetite for risks, banks have steered clear from serving the full spectrum of SMEs. Agile startups and technology challengers can leverage the power of data to serve this segment.



The increased pervasiveness of financial services

- Startups and global fintech giants are driving innovations to seamlessly embed banking services into consumer lifestyles. The ability to provide frictionless services could help improve the overall per capita consumption of banking and financial services. We envisage the attach rates of financial services surging by over 300 percent in the coming decade.
- While consumer banking is the most immediate opportunity, SMEs and corporate banking are expected to be mid- to long-term growth drivers. The ability to provide data to these companies enables them to leverage the ecosystem, presenting a completely untapped opportunity. These platforms enabled by APIs could open up a whole gamut of new services, from advisory, business services, software to traditional banking services. Partnerships with a diverse range of companies will be critical for success.
- Open banking is poised to become a catalyst to achieve the incremental US\$1
 trillion revenue opportunity in Asia-Pacific over the next decade. This revenue
 growth is contingent on incremental growth in investment, and therefore, has a
 non-linear impact on profitability.

Open banking is undeniably shaping up to be one of the biggest growth drivers for the financial services industry in delivering completely new service propositions for customers. What remains to be seen is how well the banks capitalize on this megatrend. Will they play it to their advantage or risk losing the incremental revenue and value creation to the emerging financial services companies of tomorrow?

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twimbit

Our research is:



Easy to consume with our unique mobile-first approach



Affordable and accessible



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