

Open Bank, APIs, and Financial Services Ecosystems: The Future of Banking

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IMPACT POINTS

- The market is demanding that banks open their architectures. Ninety-five percent of representatives from European, Asia-Pacific, and North American banks report they are creating, documenting, and distributing application programming interfaces (APIs) for integrating internal systems, while 81% share APIs with trusted partners.
- Fifty-two percent of responding banks plan to start supporting an open-banking platform that allows developers access to the bank via published APIs in the next two years.
- Challenges associated with open API banking relate to integration issues with where the data is across the bank and where it will be shared, as well as automation issues. Banks also face the risk of being disintermediated from their customers.
- Open banking requires an upfront enterprise application (EA) and information technology (IT) portfolio management planning exercise to document where the data is, how it will be shared, and with whom it will be shared.
- Globally, banks today are concentrated on payment-centric API strategies. In the next two years, banks will move to a wider corporate transaction banking-based API plan, offering access to transaction banking processes: cash management, liquidity management, and treasury.
- Banks need to assess their role in the API ecosystem and champion the development of new products and services, or they will be disintermediated from their customers, at the risk of being relegated as back-end hidden utilities in much the same way that clearing and custody is the back-end hidden utility of securities trading.

INTRODUCTION

An API is like a user interface but with different users in mind, i.e., computer applications and their programmers. By publishing an API, a provider of a service (e.g., a bank) makes it easier for developers to build applications that use that service. Banks are beginning to expose their data for use by third parties, in particular fintech companies, through APIs. Banks can not only make their own product data available but can also allow their customers to share their bank data with third-party providers (TPPs), thus paving the way for “open banking.”

An API is called “open” when it can be accessed—under specified conditions—by third-party developers (from outside the service provider’s organization). In our digital world, the use of open APIs is common, even fundamental to the growth of companies such as Amazon, Google, Facebook, and other digital leaders. Forward-looking banks will start opening APIs as a competitive tool to collaborate with their corporate clients in business-to-business transactions that span all global corporate banking processes, such as cash management, cash forecasting, cash pooling, liquidity management, treasury, and trade finance.

In many ways, transaction banking equates to the manufacturing industry; transaction banking, like manufacturing, always has its focus on automation and enabling technologies to speed processing, improve quality, and reduce cost. Transaction banking is receiving heightened attention from fintech companies, which could impact traditional banks in similar ways to the automation of manufacturing, particularly in terms of staff reductions. The march to greater levels of automation is inevitable, so banks must choose whether to embrace automation to gain the benefits or reject it and potentially be replaced in the market.

Corporate customers are more technically focused, agile, and demanding than in the past, while banks have less money, less time, and a greater focus on security, which hinders their ability to focus on and deliver what’s needed in today’s competitive market. Collaboration with fintech companies is the most effective and efficient way for banks to progress.

Transaction banking IT architects and managers, product managers within various lines of business, operations managers, senior managers (e.g., chief technology officers, chief operations officers, chief financial officers), and dedicated API project owners will find this report helpful to determine how to make a business case for implementing APIs, and they will access example data to apply to the justification.

METHODOLOGY

This report reflects Aite Group’s market view based on recent research campaigns:

- Email interviews were conducted from March to April 2017 with 20 executives from global leading banks, technology companies, and industry organizations.
- Email survey and telephone interviews were conducted from October to December 2016 with product managers (e.g., payments, cash, or treasury management), line-of-business heads, digital channel managers, senior IT managers, and IT architects at 21 major Asia-Pacific, European, and North American (in Canada and the United

States) banks to gather information on banks' strategies for deploying APIs. The surveyed and interviewed banks are large financial institutions. Large banks of these sizes typically have sufficient IT resources to follow innovative technology and its uses, and tend to be the most involved in transaction banking.

- Data have also been sourced from annual reports, analyst presentations, and other public sources.

Given the size and structure of the study sample, the data is considered to give a directional indication of conditions in the market. Additionally, Aite Group had in-depth discussions with six established fintech vendors to understand how their bank clients approach API use, what issues the clients and vendors encounter, including making a business case, the level of client adoption of APIs, and recommended best practices for banks.

THE MARKET

APIs are software interfaces that enable different systems and applications to talk to each other and share processing and data. APIs are programmed using open standards and communication protocols that facilitate integration and data sharing without requiring additional infrastructure. APIs can be considered the “cement” that links all the IT infrastructure and application components together to create a good customer experience. Banks are learning how interconnected, API-driven communities stimulate innovation.

The European Payment Services Directive (PSD2) mandates that European banks allow third-party payments service providers (PSPs) free access to payment accounts for payment initiation and account information services by 2018. The directive represents a strong driving force for the payments industry to develop open-banking solutions, and API-based applications appear to be the common choice. Since PSD2 will not be enforced until 2018, European banks are faced with the decision of which strategy to adopt, compliance, and eventually, going beyond compliance to create a new business opportunity (Table A).

Table A: The Market

Market trends	Market implications
European regulation is implemented.	Banks and PSPs must expose APIs for account information and payment initiation services, accelerating the trend to open banking.
Programmable web is developed through APIs.	Service-oriented, open-banking architecture that is “programmable” by a third party is developing.
Open-banking strategy creates greater financial transparency for consumers and increased competition between financial services providers.	Increased competition will include an innovation drive and the harnessing of emerging technologies such as APIs.
New customer behaviors demand greater value from banks.	Collaboration occurs with fintech’s channel-agnostic interactions and ultimately the banking-as-an-app model.
Banks are less dedicated to running proprietary IT implementations.	Lesser control over IT requires stronger advice from fintech partners.
Corporate banking customers are demanding payments, cash management, and treasury services that mirror the speed and convenience provided by consumer applications and devices.	Banks have to fulfill these needs, regardless of whether the solutions are provided by the bank itself or by a third party.
The vast majority of APIs are still for the retail payments business.	Banks must develop dedicated APIs to deliver corporate banking services.

Source: Aite Group

Although Asia-Pacific and North American banks are not subject to PSD2, they see the directive pointing to an industry trend of open-banking-platform evolution, which these banks are already experiencing with new payments initiatives (e.g., mobile payment tokenization and New Payment Platform real-time initiatives in Australia, the Fast and Secure Transfers [FAST] electronic funds transfer service in Singapore, Faster Payments Service in Hong Kong, faster payments initiatives in the U.S., and payments modernization in Canada). Asia-Pacific banks' common solutions look to provide standard services for these scenarios and different systems. Further, in October 2016, the Australian government Productivity Commission issued a "Data Availability and Use" draft report for public comment. Unlike PSD2, which addresses electronic payments, and the U.K. HM Treasury's¹ endorsement of the Open Banking Working Group, which is working toward using APIs to make accessing banks' customer and aggregated data a reality, Australia has not singled out banks and payments for openness. Australia's document focuses on making public sector data transparent but constructs the beginning argument for nearly all data to be available and shared.

1. "A Better Deal: Boosting Competition to Bring Down Bills for Families and Firms," HM Treasury, November 2015, accessed December 19, 2016, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/480797/a_better_deal_for_families_and_firms_print.pdf.

THE NEED FOR APIS

Opening internal systems through APIs is not an easy task, but the potential benefits have the power to offset the unavoidable challenges: One API can be utilized to connect back-office transaction services with multiple channels (e.g., mobile, web, tablet), allowing the bank to decouple its internal environment (resource layer) from the customer-facing apps (client layer). The bank is able to more flexibly distribute its products through third-party channels provided by fintech partners, facilitating innovation and reducing time to market.

The connectivity provided with APIs can be bidirectional, enabling banks to track changes across channels and feed information to the bank's internal systems. Content can be reused more easily, enabling self-service for fintech partners that consume the bank's internal resources made available via the APIs. The participation of multiple fintech developers that plug in to APIs allows banks to spread the cost of innovation and shorten the time to market for bank-provided transaction services.

While market forces drive the development toward open banking, Europe sees an acceleration of this trend by regulation. PSD2 provides the legal foundation for the creation of an EU-wide single market for payments. PSD2 requires European banks (and more generally, PSPs) to give regulated TPPs access to customer account data (account information services, or AIS) and allow them to initiate payments on the customer's behalf (payment initiation services, or PIS). PSD2 will lift the monopoly that banks currently have over their customers' data. For example, fintech companies can more easily consolidate account data to provide customers with a single window on their personal finances.

Corporate banking is becoming very relevant to banks' revenue results because it is a highly margin-focused business. Since bank relationship managers are primarily focused on solutions and products that bring immediate revenue results, banks seek help from innovative incubation projects (which corporate banking APIs are) to build the case for relationship managers. Wholesale banking is a source of profit for banks, and wholesale clients are steadily demanding access to services that go beyond payments, or rather, that integrate payments with the cash management, liquidity management, treasury, and trade finance portions of a bank's business. APIs allow corporate banks to reduce servicing costs for internal and external channels, improving agility and lowering operational costs to run on multiple connectivity rails.

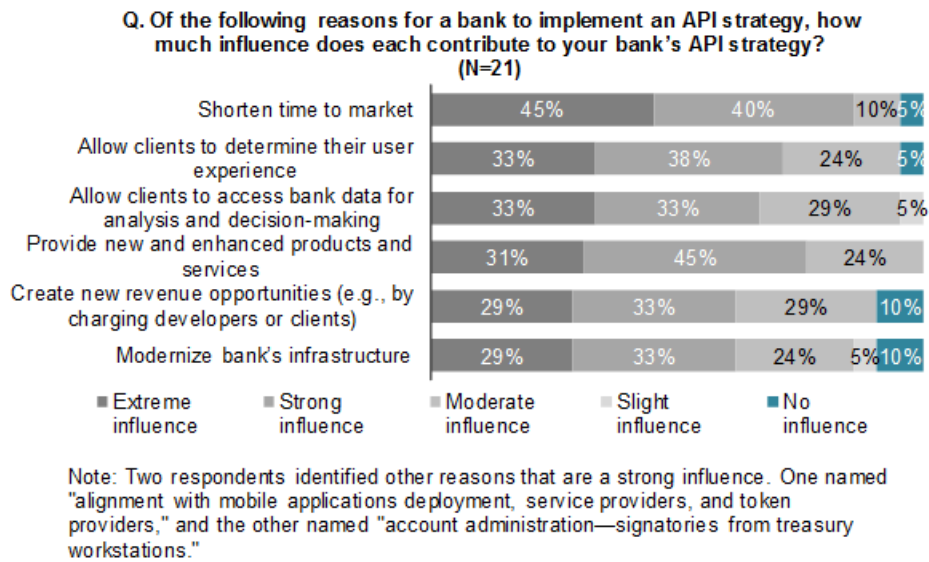
Aite Group has provided a list of reasons for banks to wish to implement an API strategy. Governmental directives, regulations, or initiatives are considered separately and are shown in Figure 1. The three reasons to implement an API strategy that received the highest "extreme influence" responses are aligned with clients' needs as follows:

- Shorten time to market (an extreme influence for 45%)
- Allow clients to determine their user experience (an extreme influence for 33%)
- Allow clients to access bank data for analysis and decision-making (an extreme influence for 33%)

"Alignment with mobile applications deployment" was entered to specify the answer of "other" and received the lowest percentage of responses. Aite Group suspects that if the bank

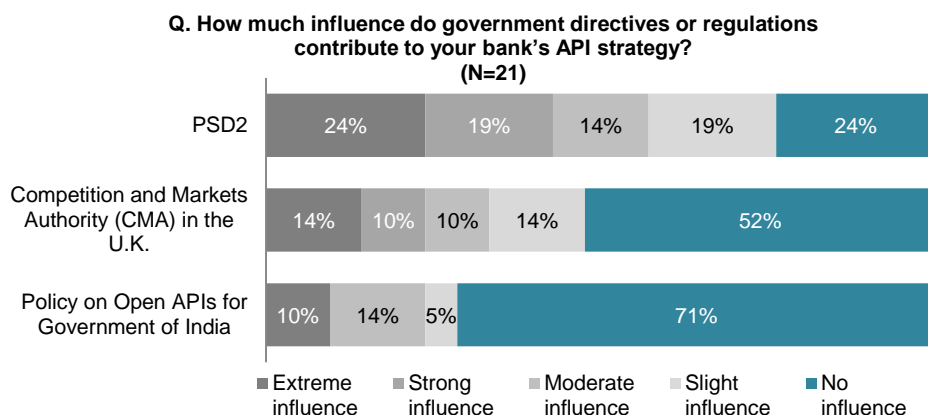
respondents had been from a retail bank instead of transaction banking, alignment with mobile applications would have been deemed of greater influence, given the greater adoption of mobile applications by consumers over businesses.

Figure 1: Client Needs Are Important Reasons for APIs



Source: Aite Group survey with 21 product, IT, and line-of-business managers at Asia-Pacific, European, and North American banks, October to December 2016

Similar to fast payments, governmental requirements frequently propel adoption. Since there are no universal governmental directives or regulations for the world as a whole, each of the listed items is most relevant for a subset of the bank respondents located in the region to which the directive or regulation applies. Of the surveyed banks, the same percentage (24%) indicates that PSD2 has an extreme influence as that which indicates it has no influence (Figure 2). This dichotomy of responses is attributable to many respondents not residing in the European Union, where the PSD2 applies most directly. Regardless, when governments are involved with policies that impact banks' API strategies, those policies have a great level of influence.

Figure 2: Governmental Directives' or Regulations' Influence on Banks' API Strategies

Note: Four respondents provided other answers: "real-time payments solutions for clients and agencies" is an extreme influence for one respondent, "integration strategy" is an extreme influence for one respondent, "anticipated action by U.S. and Canadian regulators" is a moderate influence for one respondent, and "Payments Canada modernization" is a moderate influence for another.

Source: Aite Group survey with 21 product, IT, and line-of-business managers at Asia-Pacific, European, and North American banks, October to December 2016

THE RISE OF THE NEOBANKS

Neobanks are a special kind of fintech startup that provide digital banking services. While incumbent banks are facing a long and complicated process to make the digital transformation, neobanks are digital by design. They don't have branches, and the delivery channel is often mobile only. For neobanks, the use of APIs is fundamental to their strategy—enabling a differentiated customer experience through partner apps, connecting with social media and other third-party platforms, and bundling third-party services into their product offering. Among many examples of neobanks are Atom Bank, N26, and Fidor in Europe, Moven and Simple in the U.S., and WeBank and MYbank in China.

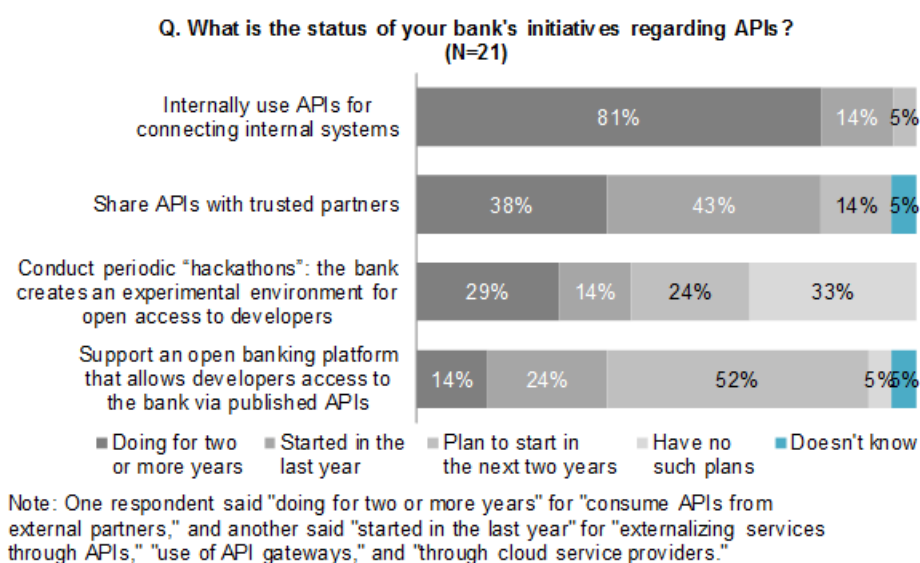
Neobanks have been hyped to disrupt existing banking models, but this is not likely to happen soon. The scenarios that are playing out are partnerships between neobanks and incumbents, and acquisitions of neobanks by large banking groups. Fidor bank, for instance, was acquired by BPCE (France), and Simple was acquired by BBVA Compass.

Neobanking is part of a larger trend toward digital, mobile-only banking. La Caixa (Spain), for instance, started imaginBank, a mobile-only banking service that has many of the qualities of a neobank. Neobanks serve as targets for traditional banks to realize their digital strategy, either by acquisition or as a model to create a digital bank in-house.

BANK STRATEGIES FOR DEPLOYING APIS

While APIs have traditionally been a resource to tightly integrate the bank's internal IT systems, the real value—although it's more complex to achieve—is to expose APIs to external systems and provide a horizontal view of the bank's services via a layer (i.e., a portal) that fintech developers can consume by accessing the bank's services. A large percentage of bank survey respondents have been using APIs for more than two years or have started in the last year. In fact, 95% report using APIs for integrating internal systems, while 81% share APIs with trusted partners. More than half (52%) of responding banks plan to start supporting an open-banking platform that allows developers access to the bank via published APIs in the next two years (Figure 3).

Figure 3: API Initiatives at Banks



Source: Aite Group survey with 21 product, IT, and line-of-business managers at Asia-Pacific, European, and North American banks, October to December 2016

Banks' views regarding the market and their desired role within it to contribute to the API strategies makes banks question whether they should perceive third-party developers as competition or potential partners. Similar consideration applies to partnering with other banks, mostly depending on how corporations react to the introduction of open APIs by their banks and fintech companies. As banking platforms open up, banks must be very clear to explain what protects clients' data privacy and ensures only authorized use of that data. Fintech companies and banks hoping to assume PISP and AISP roles must consider these issues around client data.

API business models are well-known in today's digital world. There are many different API business models that organizations are adopting in today's digital world. However, they can generally be divided into three categories. (Table B).²

Table B: API Business Models

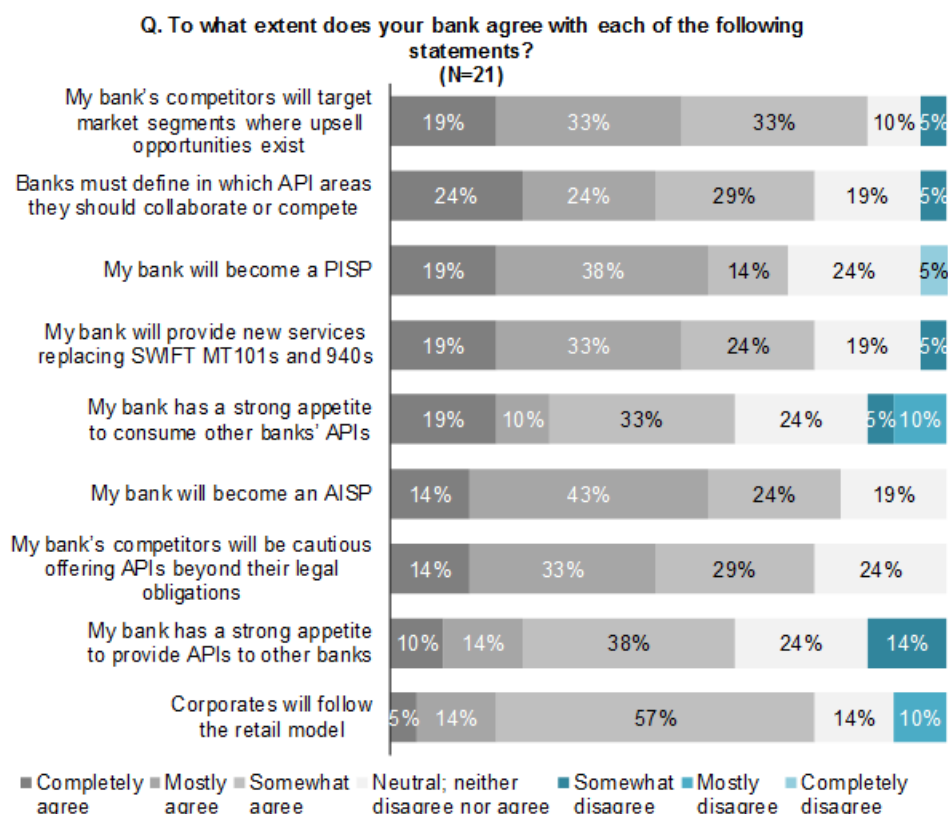
Category	Revenue source
Developer pays	Direct, such as pay as you go.
Developer gets paid	Developer brings new business deals.
Indirect	Content acquisition or upsell to premium plan (e.g., Salesforce).

Source: Aite Group

The question is which models are available for banks to monetize the opportunities that open banking offers. Aite Group suggested a number of possible API implementation models and asked banks to indicate the one they are most likely to implement (Figure 4). Note that, next to these models, there are also opportunities for banks to assume the role of a third party themselves, e.g., as an AIS or PIS provider, within the scope of PSD2.

2. Adapted from John Musser, "API Business Models: 20 models in 30 minutes," accessed November 14, 2016, <https://www.mashery.com/resources/videos/api-business-models-20-models-30-minutes-john-musser-api-science-0>.

Figure 4: Bank Expectations Regarding API Deployment and Business Paradigms



Source: Aite Group survey with 21 product, IT, and line-of-business managers at Asia-Pacific, European, and North American banks, October to December 2016

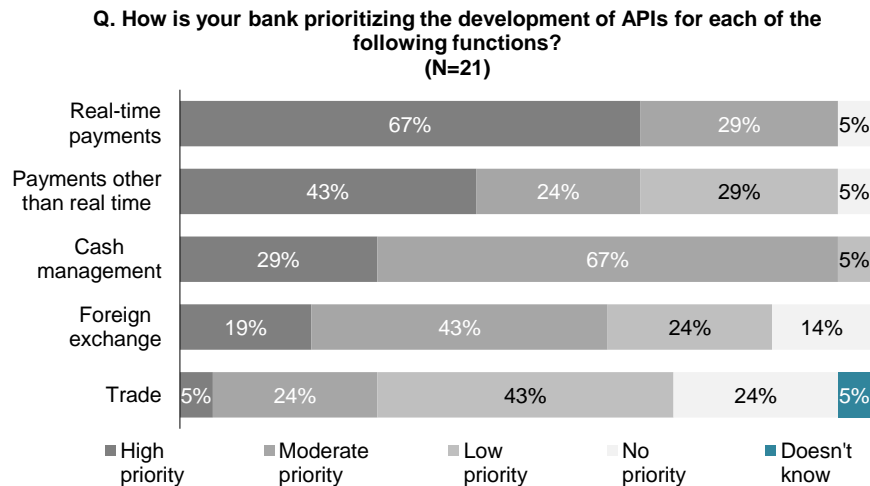
Bank survey respondents somewhat agree (i.e., composite agreement answers greater than 60%) with each of the statements about API deployment and business paradigms that Aite Group presented. The dominant combined statement is “My bank’s competitors will target market segments in which upsell opportunities exist,” with 86% of respondents in agreement. Banks are clearly considering APIs as competitive differentiators.

The statement with the second-highest agreement level is “My bank will become an AISP.” That finding is unsurprising, since corporate clients desire multibank reporting of balances and other banking activities, and becoming an AISP is a good course of action to deliver such services. Four other statements each received agreement answers from 76%, although the intensity of agreement varies: “Banks must define in which API areas they should collaborate or compete,” “My bank will provide new services replacing SWIFT MT101s and 940s,” “My bank’s competitors will be cautious offering APIs beyond their legal obligations,” and “Corporations will follow the retail model.” Conversely, low percentages of these banks were neutral or disagreed to any extent.

Transactional banks’ API strategies should follow their functional priorities and the business proposition for deploying APIs. Two-thirds of bank survey respondents identify real-time payments as a high priority for developing APIs. Combining high- and moderate-priority

responses, real-time payments, and cash management tie as the highest-priority functions at 95% of responses. Trade lags at 29% (Figure 5).

Figure 5: Top Business Priorities for API Development—Payments and Cash Management



Note: Two respondents identified other functions that have moderate priority. One said "bank account management," and the other said "liquidity management."

Source: Aite Group survey with 21 product, IT, and line-of-business managers at Asia-Pacific, European, and North American banks, October to December 2016

MONETIZING OPEN BANKING

Banks that are open to new technological solutions often face challenges creating a business case for deploying them. Cost can be determined, but revenue sources are not obvious and are difficult to estimate.

Aite Group identified five open-banking models for API use: bank channel, app market, distributor, aggregator, and banking as a platform (Figure 6).³

3. See Aite Group's report *The Programmable Bank: How Banks Can Deploy and Monetize Open APIs*, November 2016.

Figure 6: Open-Banking Models

Bank channel	App market	Distributor	Aggregator	Banking as a platform
<ul style="list-style-type: none"> • Use APIs as a channel for own bank products • Value: faster development, better UX • Business model: traditional • Examples: many banks as part of digital strategy 	<ul style="list-style-type: none"> • Expose bank services through open APIs to third-party developers • Value: create ecosystem around bank services • Business model: charge API calls; or revenue share if third party brings clients • Examples: BBVA api_market, Credit Agricole API CA Store, Capital One Devexchange 	<ul style="list-style-type: none"> • Integrate/bundle external financial services with own offerings • Value: deliver best-in-class products with partners • Business model: revenue share from service providers; new customers • Examples: N26 	<ul style="list-style-type: none"> • Aggregate multiple APIs from financial service providers into a single API • Value: multibank offering; standard solution for third-party providers • Business model: service and transaction fees • Examples: Figo; many (nonbank) personal financial management (PFM) providers (Yodlee, Strands, Treefin) 	<ul style="list-style-type: none"> • Offer open banking platform including APIs to other financial institutions • Value: enable banks to accelerate their digital strategy • Business model: license maintenance fees, revenue share • Examples: Fidor, CBW/Yantra, Open Banking Platform

Source: Aite Group

The bank-channel model is, for most banks, the first step in the digital transformation to open banking. Banking services are exposed through (private) APIs to customer-facing applications, such as mobile banking. The development of these applications can be done internally or by third-party vendors, but the API is not exposed publicly. The bank benefits from the advantages of the API approach by faster time to market and more flexibility in the development of customer applications, optimizing the user interface. The bank-channel/internal-API model allows the bank to start an API strategy in a controlled environment first. The requirements for documentation, security, and operational risk management are more relaxed as compared to open APIs.

The app-market model is the natural next step for a bank to consider if it is comfortable with the internal API architecture developed for the bank-channel model. The APIs are made available to third-party developers (e.g., fintech companies, enterprises, other financial institutions) through a developer's portal. This means that the bank creates an ecosystem in which not only bank-owned apps but also third-party-developed apps can be made available to customers. To make the discovery of such apps as easy as possible, the bank can maintain its own app market, showing all apps that are integrated with the bank's services. Customers can then install these apps, e.g., through iOS or Android app stores. As these are separate apps, the look and feel will be different from that of the bank's apps. The bank will normally charge the third party for the use of the API (i.e., the "developer pays" model).

In the distributor model, the bank will connect through back-end APIs (often called "connectors" in this context) to external financial service providers. This way the bank does not have to develop everything in-house to offer a full range of banking services. At the same time, the bank

is able to integrate the external services and offer them through the (front-end) APIs to its customers, maintaining a single user interface for the bank's customers. The business model behind this will be a revenue share between the bank and the external financial service provider.

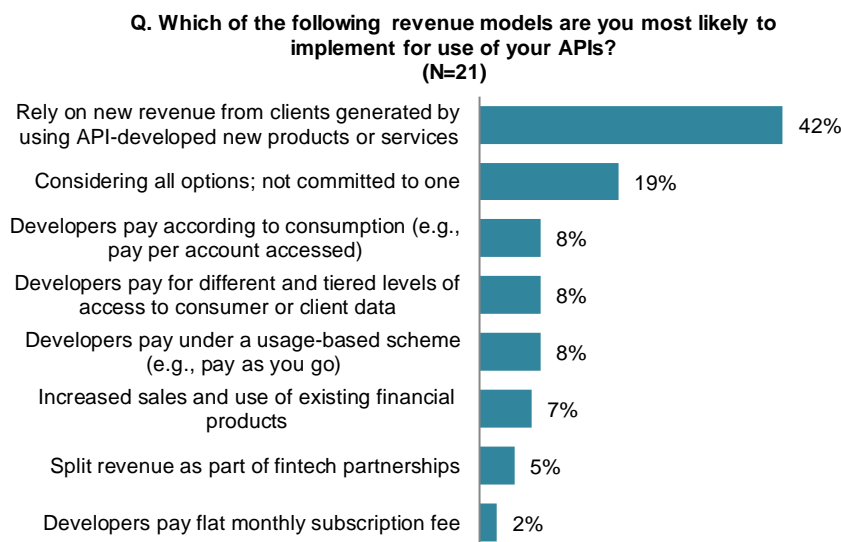
The role of an aggregator in open banking is to connect to multiple banks (through their APIs) and offer their combined services through a single API to the aggregator's customers.

The digital transformation from a legacy bank system to an API-powered infrastructure can be challenging for banks. But there are alternatives available in the market. Digital (neo) banks that have developed a digital-banking infrastructure are offering that platform for other banks to use to accelerate their digital strategy. Examples of such offerings are Fidor (Germany) and CBW Bank (U.S.).

Open banking provides not only opportunities but also threats to banks. How are banks positioned to capitalize on open banking? Compared to other market players, including neobanks, fintech companies, and TPPs, incumbent retail banks have a number of strengths they can rely on. They have a large customer base, and the bank knows each customer's identity as a result of mandatory KYC processes. And these customers trust their bank the most for keeping their money safe. Banks have ages of experience with the implementation and operational requirements of risk management, compliance, and security regulations. And banks own the banking "rails"—the infrastructure for payment processing, clearing, and settlement.

Aite Group suggested a number of possible revenue sources from the implementation of APIs and asked banks to indicate the one they are most likely to implement (Figure 7). Of the proposed revenue models, some require developers to pay for access to bank data and capabilities, which align with the app market, aggregator, and banking-as-a-platform models. Revenue sharing is part of the app market, distributor, and banking-as-a-platform models.

Figure 7: Most Likely Revenue Model Banks Will Implement



Source: Aite Group survey with 21 product, IT, and line-of-business managers at Asia-Pacific, European, and North American banks, October to December 2016

A number of bank survey respondents chose more than one answer or indicated they have not committed to a specific revenue-generation model, so Aite Group expects that multiple pricing models will be deployed by each bank. Bank respondents most often (42%) choose to “rely on new revenue generated from clients by using API-developed new products or services.” The second-highest answer (19%) is that a revenue model has not been chosen. The percentage of banks that are most likely to charge developers is less than 10% in all cases, indicating that transaction banks may be more likely to adopt the bank channel, app market (under revenue share), distributor, or banking-as-a-platform (under revenue share) models.

THE CHALLENGES ASSOCIATED WITH OPEN API BANKING

The connectivity channels opened by APIs bring the additional opportunity to access data and consume services from multiple bank systems, which corporate users are demanding. Banks are struggling between the temptation to provide new and enhanced products and services and the concern that opening APIs may be risky (as security protocols must be enhanced), may not necessarily be a competitive advantage (because there is no immediate business threat), and may be too complex to get fintech developers engaged.

Prudence takes the lead, and today financial institutions are, for the most part, still developing their APIs for basic PISP and AISP compliance features. The opening of APIs to execute corporate transaction banking services will be opportunistic and mostly decided by market occasions, further exacerbated by difficult implementation processes due to not-yet-finalized standards and security protocols for APIs. Challenger fintech developers are more entrepreneurial because having access to open-bank data and clear, secure ways to integrate it with shared customer data will mean they can quickly develop new, or better, products and services. For instance, lenders use historic transactional data to determine someone's risk level for paying off a loan. This data is only available to a customer's account provider, which means third-party lenders may not be able to offer the best terms to people looking for a loan. If customers could securely share their transaction data with third parties through an open API, potential credit providers could use it to better target their loans.

The PSD2 practically forces banks in the European Union to publish open APIs for AIS and PIS. To make things worse for banks, TPPs do not require a contractual agreement with the bank to get access to these services. This will make it difficult for banks to charge for the use of the API. To develop an API just to become compliant with the PSD2 will, therefore, only destroy value, and banks are thinking of broadening the scope of their API offering to monetize the opportunities of open banking.

While fintech providers are typically riding the existing banking infrastructure, they hold the relationship with the customer. Banks are, therefore, at risk of being disintermediated from their customers by fintech companies. This could lead to a disruption of traditional banking models. Banks have responded to this threat by partnering with those fintech companies. Banks still have a large and loyal customer base. They know the identities of their customers and their financial histories. Such a customer base is very valuable to fintech companies. There is a natural partnership between banks and fintech companies; the bank provides the services and the core banking infrastructure, and the fintech company delivers the consumer experience, e.g., through mobile apps. For this partnership to work, banks have to open up their services to fintech companies through APIs. The fintech revolution is, therefore, a strong driver toward the provisioning of APIs by banks.

Banks are also not fully aware of how to make the API platform "sticky" enough to customers, especially in those circumstances when the API-based applications are not coming directly from the bank but through an intermediary provider. Further discussion must be dedicated to the functional level offered, i.e., what API services to provide and translate to meet corporate clients' requirements. Many banks rely on hackathons to get inspiration and learn how to drive

innovation, but interviewed bankers feel that these events generally don't bring real value for two main reasons:

1. It is rather difficult to produce value for a bank after only a few days of hackathon work.
2. Fintech developers are technically skilled but not similarly proficient with corporate business processes.

Banks must meet corporate users' expectations, and they want to access the full corporate transaction banking application landscape via banks' APIs. The financial services market belongs to a wider, demand-driven world, so it becomes a competitive strategy to fulfill corporate customer demand. As it is rather difficult to anticipate all corporate users'—and fintech developers'—possible needs, prioritizing the offering of appropriate APIs becomes more guesswork, which endangers the bank's brand recognition should it not provide the expected APIs. Banks should work closely with clients to determine and deliver what they need via APIs, which, like mobile, become yet another delivery channel. Paraphrasing a McKinsey study, the challenge comes not from fintech companies but from customer expectations.⁴

The most effective API development life cycle begins with understanding the customer's desired experience and expectations, then moves to the developer, who programs the appropriate APIs, which are then passed over to the bank's API team, which finalizes the bank's back-end software changes and adaptations. This process flow cannot be done in isolation as a mere technical exercise; API development plans must be part of the bank's CEO and board agenda, certainly not limited to the information and technology officer.

To launch APIs as products, banks need tools and resources, defined roles and responsibilities, and key performance indicators. The bank's top management must secure the necessary support for the IT function, which is under constant pressure to balance the need to continuously develop new APIs with the following technical and organizational imperatives that have a strong impact on budgetary constraints:

- Ensure IT delivery capacity
- Achieve operational excellence to reduce costs
- Invest in onboarding techniques to build deeper customer engagement
- Deliver new products and services
- Invest in a digital API platform

Achieving a digital approach requires a business to be the master, in all ways, of every technology on its enterprise so that the value of each can be maximized as a result of its interaction with other technologies and their combined impact on the customer and the value

4. Shital Chheda, Ewan Duncan, and Stefan Roggenhofer, "Putting Customer Experience at the Heart of Next-Generation Operating Models," McKinsey & Company, March 2017, accessed April 10, 2017, <http://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/putting-customer-experience-at-the-heart-of-next-generation-operating-models>.

they receive from a company's goods and services. Given the speed at which some disruptors have achieved digitization, business leaders should take care to ensure they have the ability to rapidly extend to new customer segments, markets, and channels all of the existing IT assets, data sets, and mashups in their enterprise. This requires knowing what technologies are possessed, which are most proficient, which are redundant, how much each costs, and how each relates to another and the new business requirements that exist as a result of the digitalization phenomenon. A general lack of knowledge about the enterprise's assets and their interdependencies can cause senior management to pursue a more limited scope of initiatives than the enterprise can actually support.

EA/IT PORTFOLIO MANAGEMENT

Knowledge about an organization's infrastructure provides the ability to gauge the scope and types of transitions an enterprise can handle without disruption, increasing the enterprise IT's resilience by serving up extensive data about asset and process interdependencies as well as the availability of backup assets. Instant access to information about the interdependencies among all assets in an enterprise can also be a potent resource when mitigating the impacts of cybercrime.

In addition to providing visibility into the enterprise that broadens the scope of management's initiatives and the persistence of the resulting projects, properly managed EA and IT portfolios enable management teams to detect gaps between their intended and actual enterprises and find ways to close those gaps. Many organizations, and not just large ones, are an accumulation of various legal entities, autonomously formed lines of business, and acquisitions. Although such organic expansion enables revenue growth, it also causes ungainly IT sprawl that typically contains redundant assets that incur unnecessary costs related to software, maintenance, and consultants. The adoption of automated tools for identifying all the assets on an enterprise, including the interdependencies among them and how they align with organizational strategy, enables cost reductions that include the elimination of redundant assets, the avoided acquisition of redundant assets, and the ability to pursue more cost-reduction projects that remain on scope.

Aite Group finds that systems built to support EA management and IT portfolio management can bring order, governance, cost reduction, and strategic conformance to an organization's otherwise unwieldy IT landscape. Among the benefits of such a deployment are the following:

- **Strategic tenacity:** At the project level, the granularity of knowledge about an enterprise architecture, including how it will be impacted by projects and other types of technological transitions, means that project teams have the information they need to anticipate potential disruptions and address them with preventative measures such as contingency plans. The resulting reduction in operational risk to the enterprise enables organizations to retain the scopes of their projects and initiatives, rather than losing scope and the associated benefits to the mitigation of potential enterprise disruptions.
- **Strategic boldness:** Enhanced by strategic boldness at the project level, organizations can pursue their strategic goals more aggressively by putting more projects on their

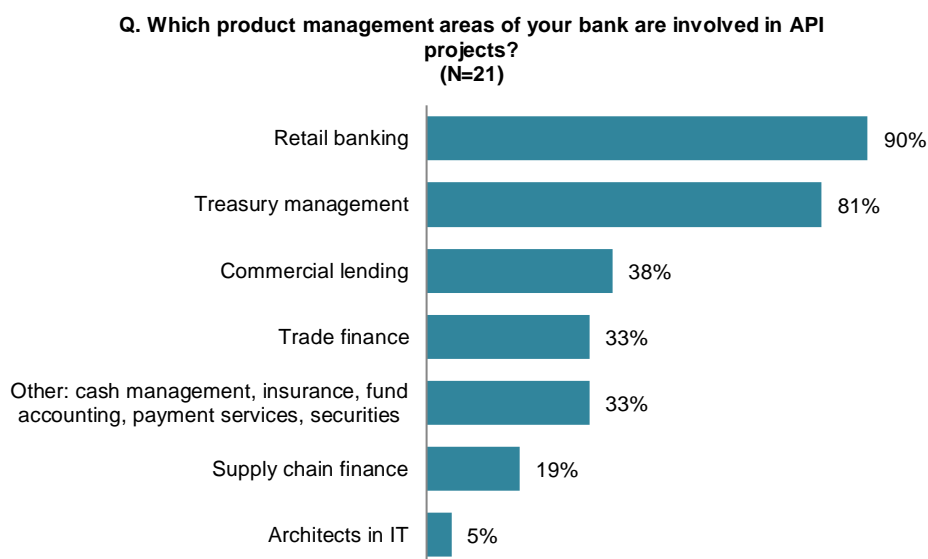
transformation roadmaps. This is further supported by the increased agility resulting from the IT asset base's successful rationalization.

- **Strategic alignment:** By broadening the scope of outcomes at both the individual project and project roadmap levels, IT departments are better able to align themselves with their management teams' goals.
- **Reduced costs:** Enterprise-wide, deeply granular, and rich visibility of data about the redundancies and interdependencies among assets enables organizations to identify and eliminate redundant assets and prevent new redundant assets from being acquired, resulting in significant cost reductions.

Considering all the above, any bank API program must include an upfront enterprise application and information technology portfolio management planning exercise to document where the data is, how it will be shared, and with whom it will be shared.

As is the case with many new technologies introduced to banks' customers, the retail bank had a lead role in API deployment, since consumers tend to be early adopters of innovative technology. The retail banking contribution is reflected in the 90% of survey respondents that listed retail bank product management participation (Figure 8). At 81%, treasury management is the second most frequently named product management group. Aite Group sought out bank representatives from transaction banking, so we might have expected a lower percentage for retail banking and a higher one for cash management and payment services, but bank responses did not support that expectation. In a relatively short period of time, Aite Group expects more involvement from transaction banking, since that area of the bank is increasingly interested in API applicability.

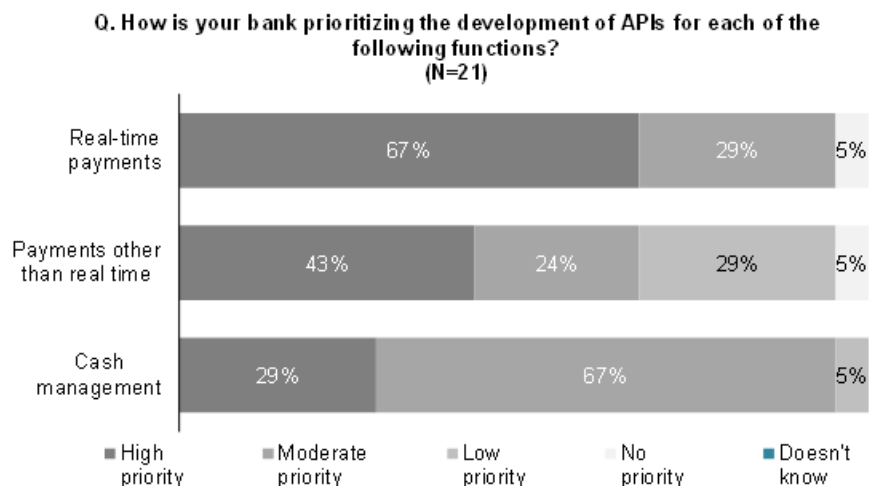
Figure 8: Product Management Areas Involved in API Projects



Source: Aite Group survey with 21 product, IT, and line-of-business managers at Asia-Pacific, European, and North American banks, October to December 2016

The advent of regulatory regimes that trigger the use of APIs (e.g., PSD2) is, however, closing the gap between retail and corporate cash management (Figure 9).

Figure 9: Top Business Priorities for API Development: Payments and Cash Management



Note: Two respondents identified other functions that have moderate priority. One said "bank account management," and the other said "liquidity management."

Source: Aite Group survey with 21 product, IT, and line-of-business managers at Asia-Pacific, European, and North American banks, October to December 2016

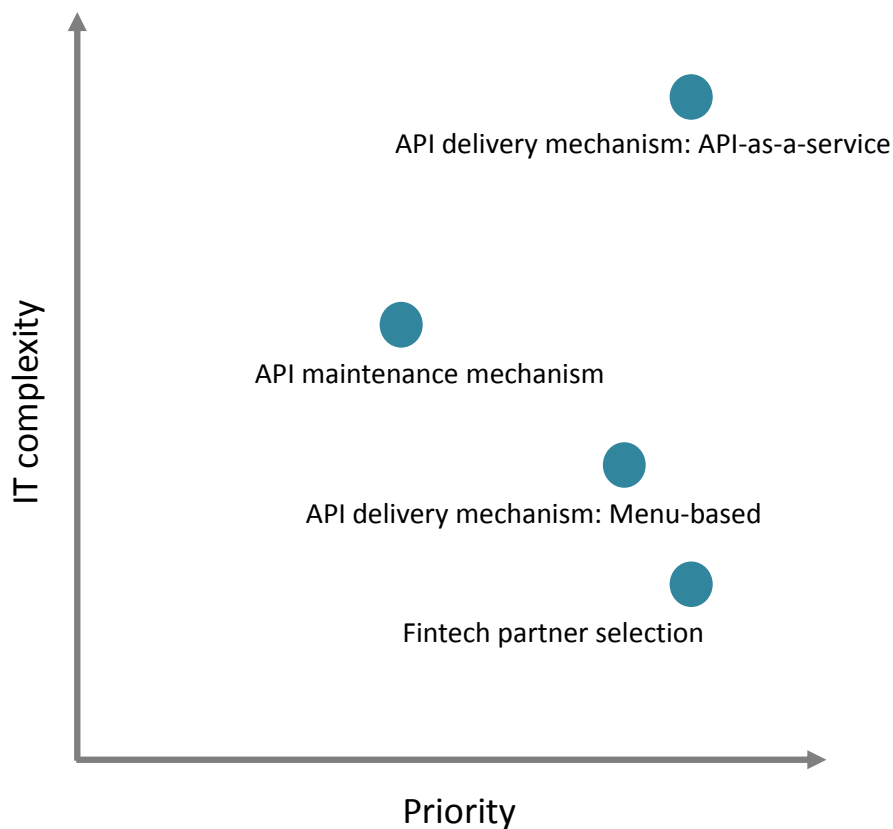
An API provides a way for developers to communicate with the provider of a service. For this purpose, the provider publishes a precise specification that must be adhered to when developers want to access the service. The API describes what functionality is available, the format used to communicate, and the conditions for using the service. As open APIs can be accessed—under specified conditions—by third-party developers (from outside the service provider's organization), an open API specification is publicly available, but the service provider may limit the functionality or data available depending on the contractual agreement.

When exposing APIs to external developers, the bank has to decide which target group it wants to reach and how it wants to manage the relationship with the selected audience. The API is the visible packaging of the bank's services that faces its consumers, i.e., the developer community, and through them, the end user. Therefore, the API can be seen as a digital banking product, and it has to be marketed as such. Banks will soon find that developing and exposing APIs is just the beginning; the real metric to gauge the effectiveness of an API strategy is the APIs' adoption. Experience shows that APIs must be atomic and stand-alone; usability is key. For instance, if a corporate user wants to execute a cash sweep, the liquidity API engine must receive the proper parameters to run, and each parameter will have to be passed individually through the atomic structure of the API. API interactions must be simplified so the developer understands quickly and knows what data to pass. The usability of an API is the key to its adoption and success.

To break APIs at a granular level for better usability, corporate banks must consider optimizing their transactions portfolios and decommissioning products that are peripheral or that generate limited value. They must plan to unbundle monolithic IT systems into reusable service

components. Larger banks can afford to change their back-office infrastructure to connect the various functional services and to give API-based access to external parties. Aite Group asked several global banks what priorities they have to resolve before deciding to deploy transaction banking services APIs. Major priorities center on the delivery and maintenance mechanisms of an API portfolio, and range from menu-based independent delivery to an API-as-a-service model in which banks deliver services via a cloud layer that exposes their APIs and takes care of security and permissions. The complexity of the IT ecosystem to manage constitutes the second focus area when selecting the right API service provider (Figure 10).

Figure 10: Banks' Priorities for Transaction Banking APIs



Source: Aite Group estimates, based on interviews with global banks, March and April 2017

To create their own open-banking ecosystem while maintaining control, banks must develop APIs and provide robust software development toolkits that consume the APIs with controlled mechanisms that enable commercial clients to engage with the banks and process transactions securely. Most large banks are creating their own portfolio of apps delivered through proprietary portals. Since these apps are likely connected via APIs to the banks' back-office systems, it might be more effective to open these APIs to partners that demonstrate creativity and agility in creating apps for treasury clients. Banks can then better focus on strategizing which APIs to develop next, based on the intelligence built from analyzing corporate customer use and transaction life cycles.

Banks have to manage complex legacy infrastructures, and a transformation to open banking will require huge investments and a multiyear program to fully realize the potential. But culture, not legacy systems, was often mentioned by interviewees for this research as the most important hurdle to digital innovation. Annual budget cycles, biannual-release-planning cycles, traditional development methodologies, and above all a lack of senior management affinity with API strategy and open banking were mentioned as factors opposing change. Actually, PSD2 was welcomed by some, as it forces management to consider APIs and open banking.

To ensure adoption and distribution of their APIs, banks must follow the basic rules of any innovative IT application's launch:

- Create scale through reuse
- Enable self-servicing
- Retain visibility and control

These rules must then be applied to the set of APIs that a bank may want to develop. Front-end APIs, for example, must orchestrate the bank's services with the client's multichannel user interfaces. The problem banks must solve is how to best engineer an API's front end to expose the banks' legacy services; this also depends on the bank's size. Tier-1 banks cooperate directly with solution vendors because payment transactions—the most frequently offered service—must go through systems and applications that banks have likely acquired from third parties. Tier-1 banks' digital strategies cross multiple lines of business, so it becomes extremely relevant to establish how APIs will be used within the corporate organization and which bank systems will be engaged. If not properly managed, this complexity in the back office exacerbates the front-end portion of the service access. Enabling access at the front end to multiple corporate banking services may result in the unintended consequence of having to log in to multiple screens to access the various services and country-specific (i.e., currency, language, regulations) applications. Integration with back-office systems would end up being very complicated and would certainly not meet the needs of the corporate customer in search of simplicity and ease of use.

While Tier-1 banks begin consolidating some common practices, mid-tier banks do not yet show any extended API growth strategy, as they are mainly expecting the bare minimum solution set for compliance. Despite this reactive attitude overall, during our conversations with banks and their representatives in preparing this report, some domestic banks commented that they are considering the opportunity to offer—at a later stage, once regulatory compliance is achieved—treasury services to small and midsize enterprises (SMEs). Since fintech firms are concentrated on servicing large banks, some aggressive portal vendors may plug in to banks' APIs and expose services to SMEs through a thin-layer treasury gateway. Such vendor platforms will act as front ends, removing the need for a bank to build and manage its own portal. This will allow Tier-3—and below—banks to concentrate on building and exposing the APIs.

The expected evolution of APIs is that they will shift from being mere tools for payments execution to being data collection and processing agents. APIs will not be limited to providing multichannel connectivity for file sharing but will be used for risk mitigation support (e.g., fraud prevention); the API agent, for instance, will run real-time validation calls on the client's

transactions rather than running post-transaction batch controls. APIs can be considered an additional layer of fraud prevention.

Aite Group anticipates that forward-looking banks will not only open up their own systems via APIs for others to consume but will also work to innovate and enrich their services by using other organizations' APIs. There is a caveat, though: APIs may expose a bank's weak spots. For example, if a retail bank with a wide customer base but with a poor credit card offering wants to open its accounts via an API to increase its business, it may risk exposing its inefficiencies. Backfire situations such as the one described are compelling reasons for banks not to rush to share their services via APIs unless they are forced to.

CONCLUSION

Banks:

- Start the digital transformation with internal APIs, then move to open banking when the organization is ready. The app-market model is the logical first step toward open banking.
- Market APIs as products targeted at the developer audience. Assign a product manager for each API, preferably with profit-and-loss responsibility.
- Partner with fintech companies and develop a financial ecosystem to create the best experience for customers and generate new revenue from API products. Expose APIs for access to savings, loans, mortgages, customer identity checks, and data analytics—of course, with customer consent and within the boundaries of consumer legislation.
- Identify key corporate business processes that most benefit from direct access to a bank's back-office services; don't overly rely on fintech partners. This is a task a bank must perform in line with its corporate customer base.
- Move steadily beyond payment-centric APIs and explore corporate banking services.
- Establish resources, defined roles and responsibilities, and key performance indicators to deploy an effective API strategy.

RELATED AITE GROUP RESEARCH

Corporate Banking API Strategies, May 2017.

APIs: Enhanced Global Transaction Banking Through Cooperation, February 2017.

The Programmable Bank: How Banks Can Deploy and Monetize Open APIs, November 2016.

The Changing Rules of the European Payments Game, October 2016.

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