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The Transformation of Banking and Payments Through Open APIs

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Prepared for:

HPS ENABLING INNOVATIVE PAYMENTS

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EXECUTIVE SUMMARY

The Transformation of Open Banking and Payments Through Open APIs, commissioned by HPS and produced by Aite Group, analyzes the global trend to open application programming interface (API) banking and how banks can leverage the API economy to create value for their customers and generate new business. It is based on market intelligence and insights developed by Aite Group from previous research as well as available public sources.

Key takeaways from the study include the following:

- The increasing use of APIs is a major trend in retail banking and payments. Banks are beginning to expose their data for use by third parties, in particular financial technology firms, through open APIs. This development is known as open banking.
- Open banking through APIs is a global trend that, over time, will transform the industry in every region of the world. Open banking responds to customers' demand for more choice, better customer experience, and control over their data.
- Open APIs greatly facilitate collaboration between banks, other financial service providers, and technology companies. Banks can partner with fintech firms to deliver the best customer experience and get access to the latest technology. They can also partner with other financial service providers to quickly add new products for their customers. APIs allow banks to select the best products and solutions available in the market and avoid the need to build everything in-house.
- Open banking not only provides opportunities but also results in threats to banks. Open banking allows third-party providers to develop consumer banking services on top of the existing banking infrastructure, disintermediating banks. In Europe, as a result of the revised Payment Services Directive (PSD2), banks could lose payments revenue when third-party payment service providers (TPPs) start offering new payment services with free access to payment accounts. Banks should develop a strategy to provide other (non-PSD2 regulated) products to TPPs and charge for those value-added APIs.

INTRODUCTION

The increasing use of APIs is a major trend in retail banking and payments. APIs provide a standardized way for developers to interact with the bank and get access to its data and services. For this purpose, the bank publishes a precise specification that must be adhered to by developers of software applications. The API describes what functionality is available, the format used to communicate, and the conditions for using the service. By publishing an API, the bank makes it easier for developers to build applications that use that service. An API is called "open" when it can be accessed—under specified conditions—by third-party developers.

In our digital world, the use of open APIs has been fundamental to the growth of digital-native payment companies. But for retail banks, the use of APIs is a more recent phenomenon. Banks are beginning to expose their data for use by third parties, particularly fintech firms, through open APIs. This development is known as open banking. In Europe, PSD2 is a strong driving force for the payments industry to adopt open APIs. Banks have to allow TPPs free access to payment accounts for payment initiation and account information services. In other jurisdictions, regulators are taking similar measures to foster competition and stimulate innovation.

This paper analyzes the global trend to open banking and discusses how this trend will change retail banking and payments. The paper identifies the drivers for this global trend and examines how banks can leverage APIs and open banking to create customer value.

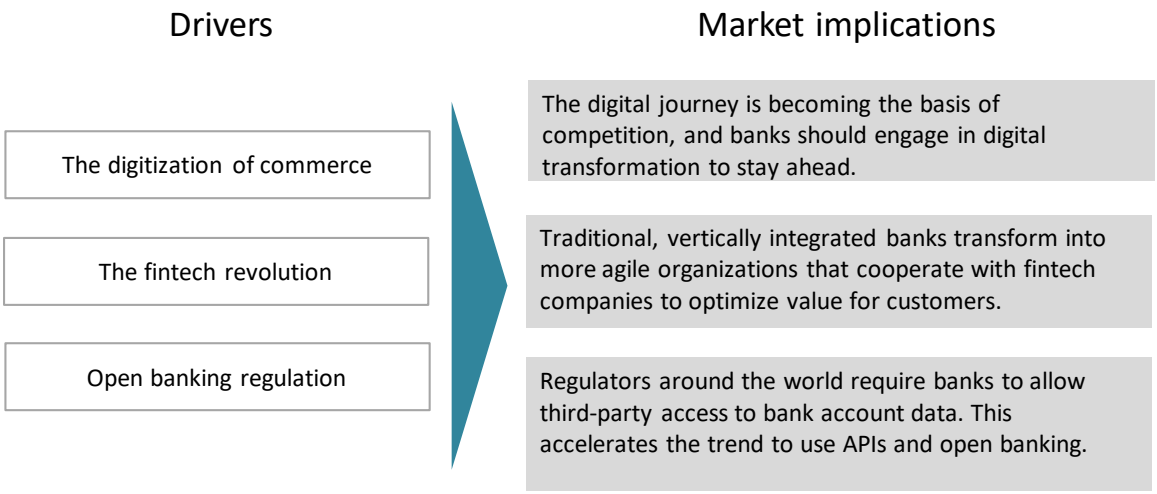
METHODOLOGY

This white paper was developed by Aite Group and commissioned by HPS. It is based on market intelligence and insights developed by Aite Group from previous research on a global basis, as well as available public sources.

THE OPEN BANKING TREND IN PAYMENTS

The use of API technology allows banks to offer a standardized interface for other companies to access their data and services, leading to the trend of open banking in payments. The drivers for this trend are the digitization of commerce, the fintech revolution, and open banking regulation (Figure 1).

Figure 1: Drivers of the Trend to Open Banking in Payments



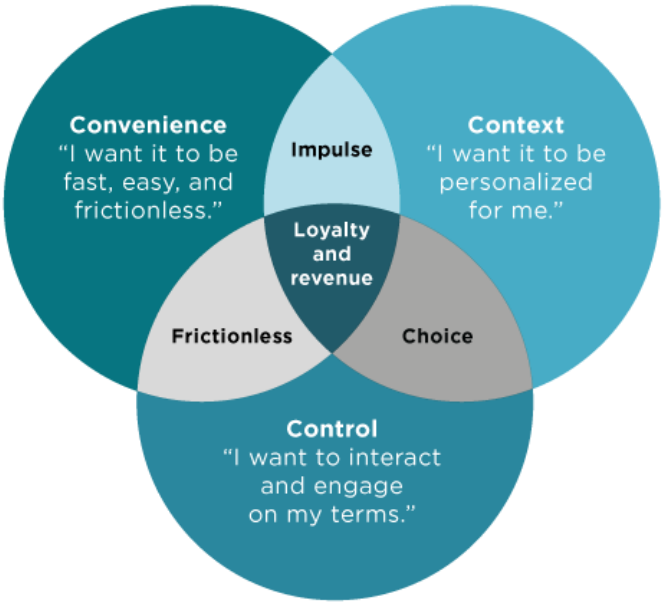
Source: Aite Group

THE DIGITIZATION OF GLOBAL COMMERCE

The digitization of global commerce drives merchant demand for payment innovation to deliver superior customer experiences. By 2021, retail e-commerce sales turnover is expected to grow to US$4.9 trillion, representing 17.5% of total retail sales. The lion's share of this volume (73%) will be transacted over mobile devices, aggravating customer demand for convenient and frictionless payments.[1] The digital checkout experience is, therefore, critical for merchants to drive conversion. The digital journey is becoming the basis of competition, with customers requiring a convenient and personalized experience. And they want to be in control, interacting on their own terms rather than the provider's (Figure 2).

1. "Worldwide Retail and Ecommerce Sales: eMarketer's Updated Forecast and New M-Commerce Estimates for 2016 to 2021," eMarketer, January 2018, accessed May 29, 2019, https://www.emarketer.com/Report/Worldwide-Retail-Ecommerce-Sales-eMarketers-Updated-Forecast-New-Mcommerce-Estimates-20162021/2002182.

Figure 2: Digital Experiences Are Becoming the Basis of Competition



Source: Discover at MPE Berlin

To succeed, businesses must remove friction for online consumers at every touch point. Retailers are losing US$10 billion every year due to poor customer experiences.[2]

The payments industry has responded with a wide range of innovations to improve the customer journey. But even for the largest institutions, it is challenging to develop and manage everything in-house. Banks should develop a strategy for digital transformation and move to open APIs. Open API banking enables the bank to respond quickly to changing customer demand by working with third-party developers that specialize in delivering superior customer experiences. The bank can also connect to open APIs of other financial service providers and integrate their products into its own offering. While still in initial stages, open banking will lead to the next wave of digitization in payments, reconfiguring age-old value chains and changing business models. This way, banks can create new value for customers and monetize the API economy.

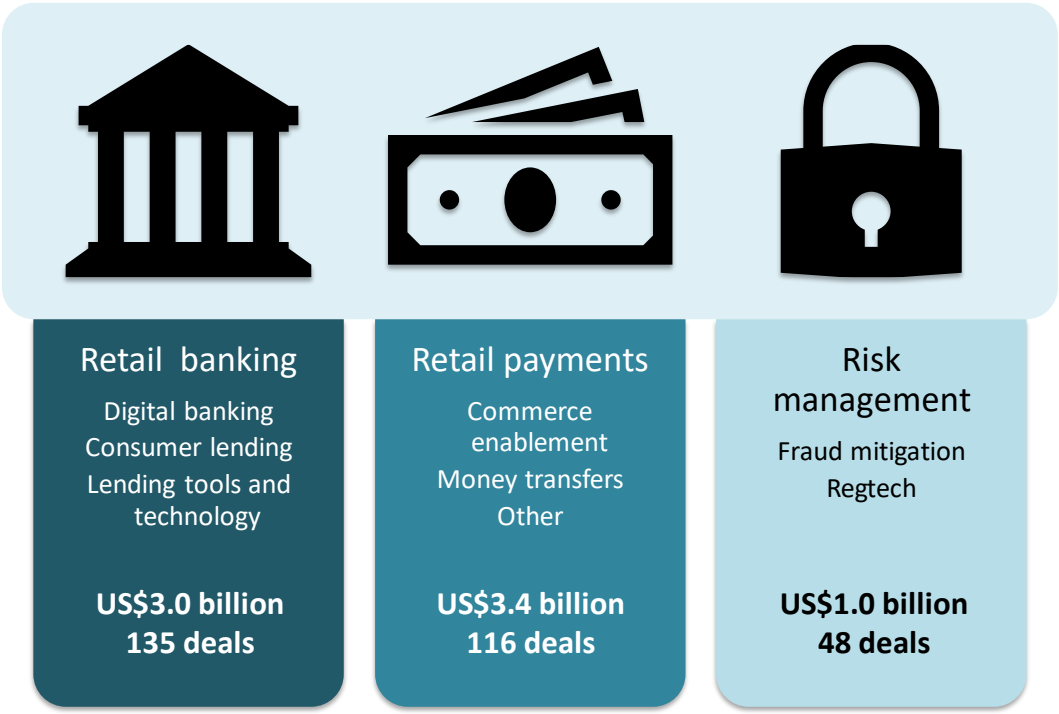
THE FINTECH REVOLUTION

The fintech sector has revolutionized retail banking and payments, using modern technology to deliver a new type of purely digital banking that threatens the status quo of traditional banks. Fintech companies develop products at the intersection of the financial services and technology

2. See Aite Group's report *MPE 2019: Collaborating to Realize Next-Generation Payments*, April 2019.

sectors. Payments is a leading area in fintech development; in 2017, global investment in retail payments accounted for 46% of total investment in the retail banking area.[3]

Figure 3: 2017 Global Investment in Fintech for Retail Banking and Payments by Business Area



Source: Aite Group, Bureau Van Dijk

Fintech firms are focused on improving the end-user experience, and they have proven to be better at that than traditional providers. While fintech firms typically ride the existing banking infrastructure for transaction clearing and settlement, they hold the relationship with the customer. Banks are therefore at risk of being disintermediated from their customers. Consumer banking and payments are the parts of the financial sector that are most at risk from disruption by fintech firms.

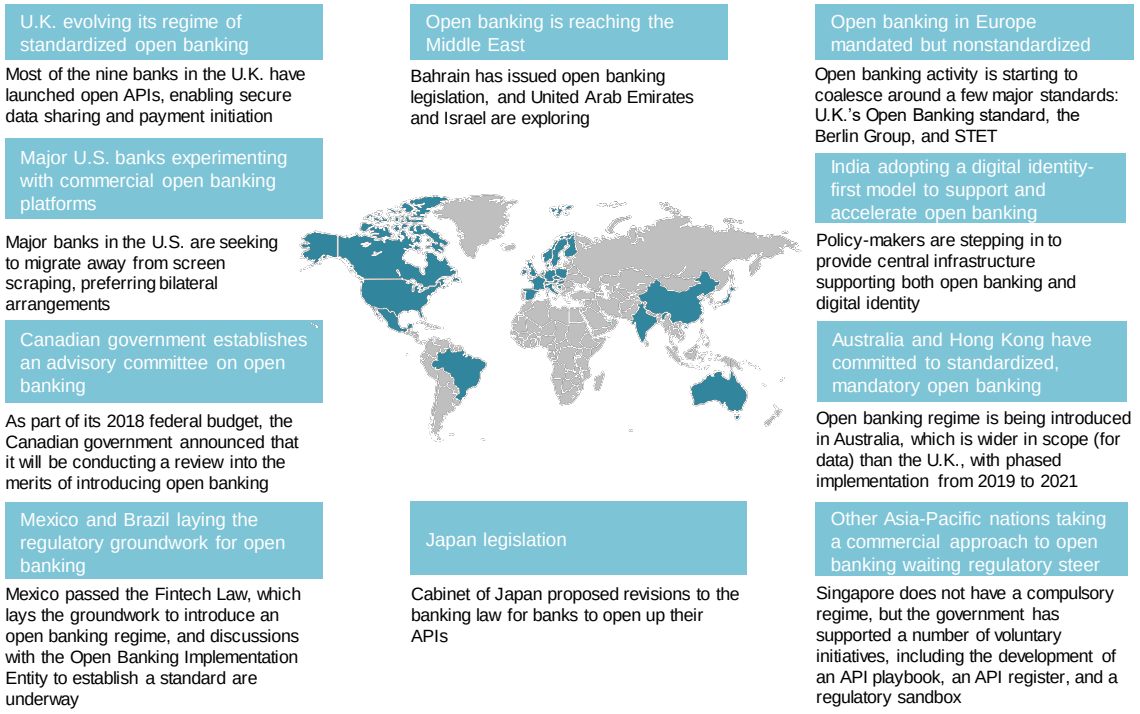
Banks have responded to this threat by partnering with fintech companies. Banks still have a large and loyal customer base. They know the identities of their customers and their financial histories. Such a customer base is invaluable to fintech companies. There is a natural partnership between banks 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.

3. See Aite Group's report *Global Investment in Fintech for Retail Banking and Payments: Still Making Waves*, August 2018.

OPEN BANKING REGULATION

With the arrival of the programmable web, fintech companies have been looking to get access to bank account data for reporting and transaction initiation. However, banks were not ready to open their customers' accounts to third parties through APIs, forcing fintech providers to use screen-scraping techniques to get access to bank accounts without the bank's involvement. In a number of countries around the world, regulators have stepped in to foster innovation and stimulate competition, forcing banks to provide third-party access to bank accounts and enable open banking. And in countries such as the U.S., even in the absence of open banking regulation, banks are moving to the use of APIs and open banking (Figure 4).

Figure 4: Global Open Banking Initiatives



Source: EY, Aite Group

With the PSD2 deadline looming in September 2019, Europe is ahead of the open banking development. PSD2 requires banks to provide TPPs access to bank account data for account information and payment initiation services. This is under the condition that customers (account holders) give their consent.

To achieve this, banks must provide a secure interface for TPPs to exchange information. The regulation specifies two interface options for banks. They can either offer a dedicated interface (API) or allow the TPP to access the banks' regular online client portal (e.g., e-banking). Most banks will realize a dedicated interface through an API. The compliance requirement therefore accelerates the use of APIs in Europe and beyond.

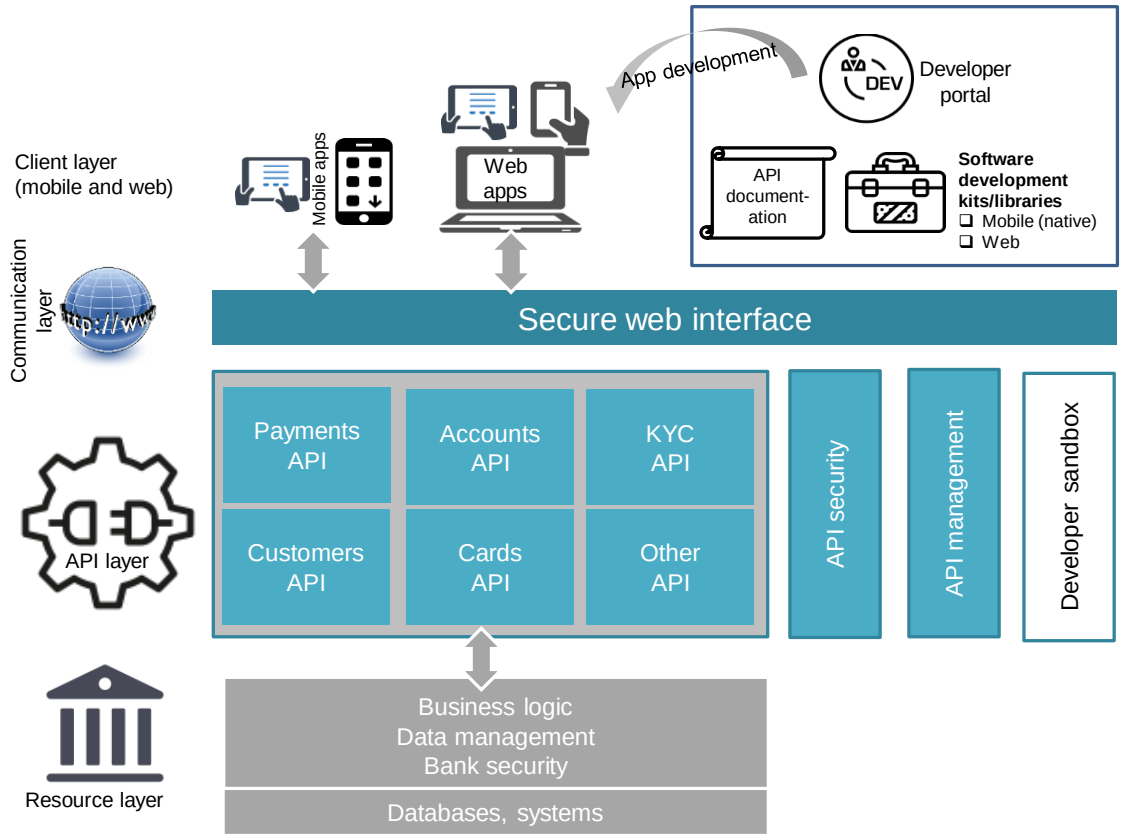
THE OPEN API APPROACH

Open API banking is a global trend that, over time, will transform the industry in every region of the world. Open banking responds to customer demand for more choice, better customer experience, and control over their data.

API banking allows the bank to decouple its internal environment (resource layer) from the customer-facing apps (client layer). The bank is able to flexibly distribute its products through third-party channels provided by fintech partners, facilitating innovation and reducing time to market.

Banks can expose APIs—e.g., for making payments—by providing access to account data, performing Know Your Customer (KYC) checks, getting information about customers, managing cards, and using many other products (Figure 5).

Figure 5: Schematic Overview of Open Banking Architecture (With Example APIs)



Source: Aite Group

Developers get access to the APIs through a developer portal (website). This portal should contain all the required documentation to facilitate development and make life as easy as possible for the programmer (optimizing developer experience):

- User-friendly documentation, including examples about each API's use and function

- Software development kits (SDKs), which are scripts and libraries in different programming languages and for each environment (desktop, web, iOS, Android, Windows) to provide developers with ready-made tools
- Engineering support (developer helpdesk)
- "Sandbox" (test environment) to enable the developer to test its new app with dummy bank data
- Procedure and contract to request access to production environment

The APIs are the interface between the developer world and the bank's core systems for payment processing, account management, card issuing, and other systems. Banks can choose to develop the API platform in-house or work with a solution provider, such as HPS, to reduce time to market and reduce cost.

API ADVANTAGES AND OPPORTUNITIES

The advantages of the API approach are summarized in Table A.

Table A: Advantages of the API Approach

API feature	Description	Value for service providers	Value for developers
Flexibility	The API separates or "decouples" the client (application) from the way the service is technically implemented.	The bank is free to change its systems without destabilizing clients, as long as the API specification remains the same.	Developers can create great applications without having to know the details of the service implementation. They only have to respect the API specification.
Modularity	Complex, monolithic server applications are divided into smaller services (microservices) and are exposed through APIs.	The design of the application is improved. Services are easier to deploy and maintain. Services are individually scalable.	Developers only use the APIs they need, speeding up development time. APIs can be easily combined with other APIs to create new products.
Productization	Open APIs are managed as products.	This creates an ecosystem consisting of developers and service providers to drive innovation and improve customer value. Banks can monetize APIs by charging for use (or other pricing models).	Developers experience faster and easier development of new applications using standard tools and libraries offered by the service provider.

Source: Aite Group

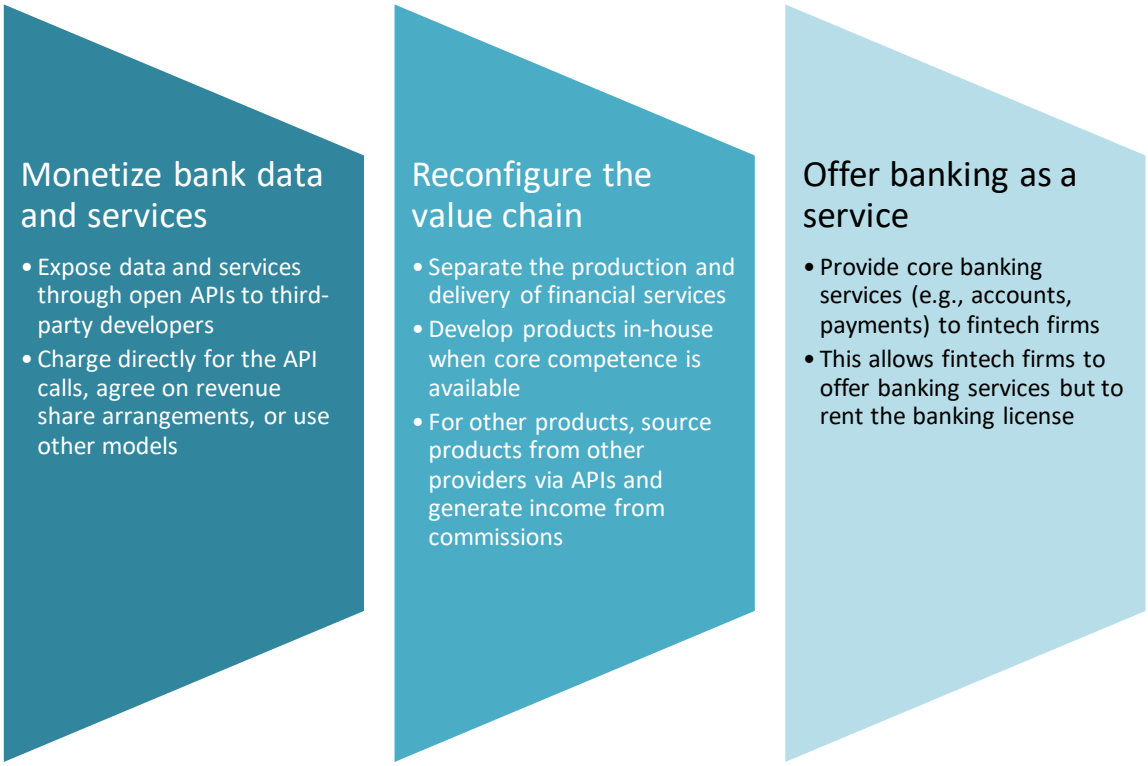
The API is the visible packaging of the bank's services to the developer community, and through them, the end user. Therefore, the API can be seen as a digital banking product, and it should be marketed as such. Banks should do the following:

- Package services in logical API products (payments, accounts, and so on)
- Implement API product planning and life cycle management
- Interact actively with and get feedback from end users, e.g., through social media
- Explore partnerships to reach new customers or widen product offerings

MONETIZATION OF OPEN API BANKING

Several models are available for banks to monetize open API banking (Figure 6).

Figure 6: Monetization of Open APIs



Source: Aite Group

Banks can leverage these models as follows:

- Banks can focus on the monetization of their data and services by exposing such data and services through open APIs to third-party developers. For instance, account data can be made available for personal financial management or credit-scoring applications. Another example is when developers such as fintech firms use the

bank's payments API to offer payment applications to merchants. Banks can charge developers directly for the API calls, agree on revenue share arrangements, or agree on other models for revenue generation.

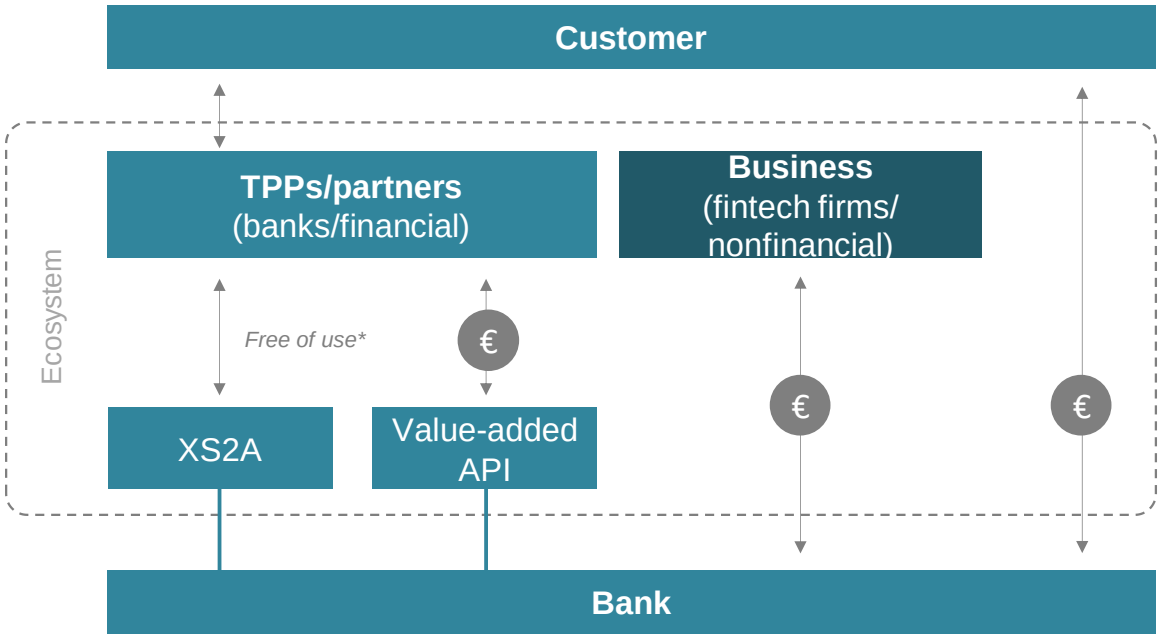
- Banks can reconfigure their value chain and separate the production and delivery of financial services. APIs allow banks to connect to other financial service providers and offer best-of-breed products to their customers. If a bank believes it has core competence for certain products, it will choose to develop in-house. Otherwise, the bank will source products from other providers. In the latter case, the bank can generate income from commissions. For instance, N26 in Germany has a partnership with TransferWise to offer cross-border payments to its customers.
- New entrants in financial services, such as fintech firms and neobanks, can go to market quickly by having access to banking as a service. This allows the provision of banking services while renting the required license from a third party.
  In the U.K., Starling Bank is one example of a (neo)bank that offers banking as a service. For instance, customers of Raisin, a marketplace of savings products, will get access to online banking services through Starling Bank.

Open banking not only provides opportunities but also results in threats to banks. Open banking allows third-party providers to develop consumer banking services on top of the existing banking infrastructure, disintermediating banks.

In Europe, for instance, PSD2 regulates that TPPs have the right to access the payment account held by banks for the purpose of providing account information and/or payment initiation services. Banks could lose payments revenue when TPPs start offering new payment services with free access to payment accounts. TPPs do not need a contract with the bank to provide those services, so it will be difficult for banks to charge for them, and they have to provide the "XS2A" (access to account) API for free. Clearly, banks that decide to do the minimum and just become PSD2 compliant will only lose value. These banks are at risk of losing payment revenue and being disintermediated from their customers. And under PSD2, they will still be owning full liability toward their customers for unauthorized transactions.

Therefore, banks should provide other (non-PSD2-regulated) products to TPPs and charge for those value-added APIs (Figure 7).

Figure 7: Possible Business Models in an Open Banking Ecosystem



Source: Deutsche Postbank, Aite Group

Value-added API products could provide the following:

- Raw data not only from payment accounts but also from savings accounts, credit accounts, loans, mortgages, etc.
- Enriched or calculated data—e.g., categorization of account activities, liquidity forecasts, or credit scores
- Combined data—e.g., for identity/authorization services (KYC), money-saving offers based on transaction history, or income tax preparation
- Payment initiation and account information services

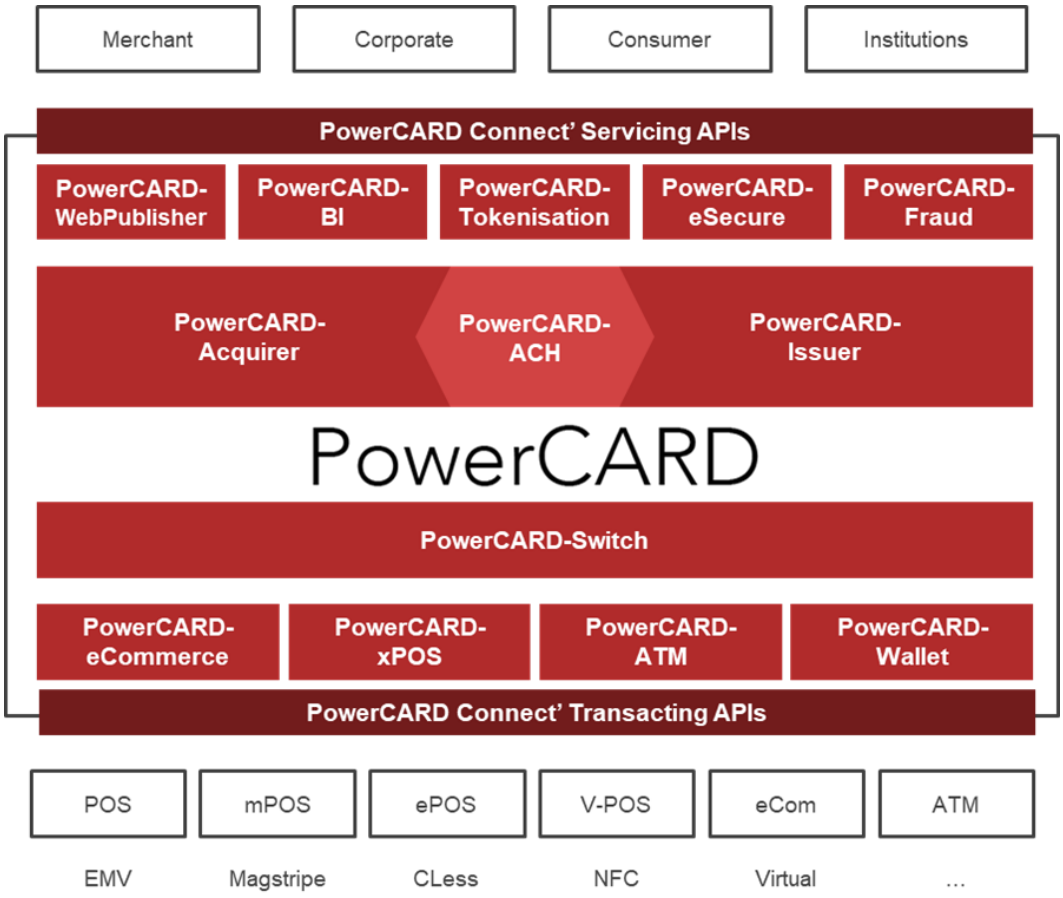
Banks are in an excellent position to provide payment initiation and account information services. Rather than allow an intermediary in the value chain, as pictured in Figure 7, banks can develop such new payment models themselves.

ON THE ROAD TO OPEN BANKING WITH HPS: THE POWERCARD OPEN PAYMENT PLATFORM

The global payments landscape is complex and diverse. Banks need to develop innovative solutions in ever-shorter time frames in order to respond to customer demand for frictionless and real-time payments, consumable at any time and over any channel. At the same time, compliance with changing payment regulation is an increasing burden on investment budgets. The reality is that it has become virtually impossible for a single payment provider to deliver the full customer proposition on its own. Banks and other payment service providers (PSPs) are seeking collaboration with partners that can help them deliver superior customer experiences, reduce time to market, and create new business opportunities.

HPS offers its PowerCARD suite of solutions that covers the entire payment value chain by enabling innovative payments through its open, modern and digital platform that allows the processing of any transaction coming from any channel initiated by any means of payment (Figure 8). PowerCARD is structured as a set of independent solutions that can be integrated to form comprehensive solutions or deployed separately according to customer needs or timing.

Figure 8: HPS PowerCARD Architecture



Source: HPS

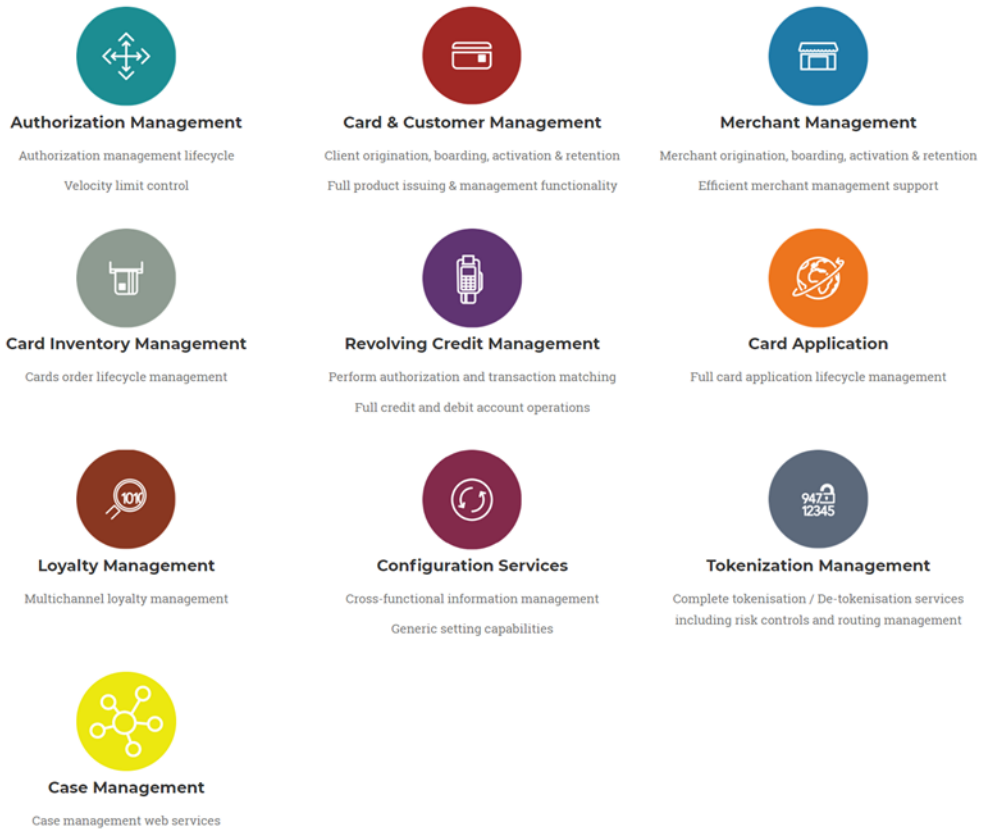
The platform will help issuing and acquiring banks open their systems and connect to any third party through PowerCARD Connect's rich set of APIs, which interact in real time with any of the digital channels. It supports transacting and servicing through more than 200 APIs.

Examples of use follow:

- Digitalization of cardholder and merchant life cycle (e.g., instalments on mobile and changes to PIN ,cards' controls, and settings)
- Third-party integration (fintech providers, solution providers)
- PowerCARD deployment with new architectures whereby systems connect with APIs through an orchestrator, which manages the various workflows and optimizes the processes and functionalities

Those APIs are available via a web portal providing the list of available APIs, API definitions, and a sandbox to be able to test projects with the desired APIs. APIs are grouped by business functions as shown in Figure 9.

Figure 9: PowerCARD Web APIs



Source: HPS

CONCLUSION

Banks should develop a strategy for digital transformation and move to open APIs.

- Banks should focus on the monetization of their data and services by exposing such data and services through open APIs to third-party developers. For instance, account data can be made available for personal financial management or credit-scoring applications. Another example is when developers such as fintech firms use the bank's payments API to offer payment applications to merchants. Banks can charge developers directly for the API calls, agree on revenue share arrangements, or agree on other models for revenue generation.
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- New entrants in financial services, such as fintech firms and neobanks, can go to market quickly by having access to banking as a service. This allows the provision of banking services while renting the required license from a third party.
- In Europe, PSD2 regulates that TPPs have the right to access the payment account held by banks for the purpose of providing account information and/or payment initiation services. As a result, banks could lose payments revenue due to increasing competition from TPPs. To compensate, banks should provide other (non-PSD2-regulated) products to TPPs and charge for those value-added APIs.
- Issuing banks, acquiring banks, and other PSPs should collaborate with partners that can help them deliver superior customer experiences, reduce time to market, and create new business opportunities. Partnering with a payment software expert such as HPS will help them open their systems and take the path to digital transformation. HPS has an extensive and successful track record in providing innovative payment solutions to the market.

ABOUT AITE GROUP

Aite Group is a global research and advisory firm delivering comprehensive, actionable advice on business, technology, and regulatory issues and their impact on the financial services industry. With expertise in banking, payments, insurance, wealth management, and the capital markets, we guide financial institutions, technology providers, and consulting firms worldwide. We partner with our clients, revealing their blind spots and delivering insights to make their businesses smarter and stronger. Visit us on the web and connect with us on Twitter and LinkedIn.

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ABOUT HPS

HPS is a multinational company and a leading provider of payment solutions for issuers, acquirers, card processors, independent sales organizations, retailers, mobile network operators, and national and regional switches around the world. PowerCARD is HPS' comprehensive suite of solutions that covers the entire payment value chain by enabling innovative payments through its open platform that allows the processing of any transaction coming from any channel initiated by any means of payment. PowerCARD is used by more than 400 institutions in over 90 countries. HPS has been listed on the Casablanca Stock Exchange since 2006 and has offices located in major business centers (Africa, Europe, Asia, the Middle East).

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