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# Developments in Open Banking and APIs: Where Does the U.S. Stand?

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## Introduction

Open banking has recently emerged as a global trend driven by innovation, regulation, the pace of financial technology (fintech), and consumer demand for more control over how their data is used. Open banking allows for the secure transmission of account data authorized by the customer to a third-party service provider (TPP).<sup>1</sup> While regulation is driving open banking in many countries, the emergence of fintech and financial institution (FI) innovation initiatives are the key drivers of open banking (e.g., third-party personal financial management tools to track spending and streamlined lending) in the U.S. A key benefit of open banking versus closed systems is the ability for FIs to offer customers enhanced financial services, share data with TPPs and offer consumers greater control over their data. FIs use application programming interfaces (APIs)<sup>2</sup> in collaboration with TPPs to enable new services and connect the FI application (app) to merchants, consumers, and companies. This brief describes some of the open banking initiatives in other countries, reviews developments in the U.S., and identifies important considerations for FIs and fintechs.

## Open Banking in Other Countries

The European Union is leading open banking initiatives following the launch of its regulatory framework in January 2018. The EU's Payment Services Directive 2 (PSD2)<sup>3</sup> and General Data Protection Regulation (GDPR)<sup>4</sup> govern data protection and privacy for all EU residents. PSD2 requires that: 1) FIs provide TPPs access to customer data via open APIs; and 2) FIs and their TPPs implement related data security controls.<sup>5</sup> These laws offer a framework for financial services organizations on how data can be shared

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<sup>1</sup> Open banking defines a system that offers businesses and customers a range of products and services based on open flows of data (often using application programming interfaces or APIs) as permitted by consumers. Open banking is applied into a broad range of financial services, including payments, giving consumers greater control over their financial data.

<sup>2</sup> An API is a set of functions and procedures allowing the creation of applications that access the features or data of an operating system, application, or other service.

<sup>3</sup> PSD2 is a data and technology-driven directive that aims to drive increased competition, innovation, and transparency across the European payments market, while also enhancing the security of internet payments and account access. A central requirement under PSD2 is for banks to grant TPPs access to a customer's online account/payment services in a secure, regulated environment.

<sup>4</sup> The GDPR (EU) 2016/679 is a regulation on data protection and privacy for all individual citizens of the EU and European Economic Area (EEA). It also addresses the transfer of personal data outside the EU and EEA areas. The legislation was in substantial part intended to provide more robust protections for personal information and harmonize the regulatory environment for international business by unifying the regulation within the EU.

<sup>5</sup> PSD2 requires that FIs and TPPs conduct risk assessments and implement related controls to mitigate identified risks, monitor transactions to identify red flags, and report incidents to national authorities. It also requires FIs and TPPs to adopt "strong customer authentication (SCA)" methods to all but low-risk transactions. This includes the use of authentication codes that: 1) contain the relevant details of the transaction, and 2) are sent on a separate channel than the one that executes the transaction. It also requires customers to confirm at least two of three elements (i.e., multi-factor authentication) for all but the lowest-risk transactions.

between FIs and TPPs, and how TPPs should protect the consumer data they collect and use.

In Asia, Singapore’s Monetary Authority leads the open banking movement with its standards framework, created in 2016, through collaboration with the country’s FIs. The Hong Kong Monetary Authority (HKMA) released its Open API Framework in January 2018, which aims to define the technical standards for a shared vision towards open banking. In Japan, the revised Banking Act requires FIs to develop APIs for use by external businesses. The Australian government is driving an open banking regime that requires its four largest FIs (Commonwealth Bank, Westpac, ANZ, and NAB) to make financial data available to consumers by July 2020.<sup>6</sup> Table 1 compares open banking initiatives across Singapore, Hong Kong, China, Japan, Australia, and New Zealand.

**Table 1 | Open Banking Comparison Across Several Countries (Singapore, Hong Kong, China, Japan, Australia, and New Zealand)**

Country	Approach	Mandate Authority	Open Banking Framework Release Date	Other	Example
<b>Singapore</b>	Market-driven	Monetary Authority	2016 - API Playbook released in cooperation with the Association of Banks	Voluntary adoption by FIs.	In 2017, DSB Bank launched its largest API developer portal with more than 155 APIs available. <sup>7</sup>
<b>Hong Kong</b>	Market-driven	Monetary Authority	2018 (January) Published Open API Framework	FIs decide which TPPs to collaborate with using bilateral agreements.	HKMA launched Open API on its website in July 2018. Approximately 130 sets of information covering financial data and other banking information were made available for Open API by phases, including statistics on HK dollar exchange rates, interest rates, the banking sector and the Exchange Fund, as well as press releases and Coin Cart schedule. Stakeholders and consumers can use the information for research or to develop new applications.
<b>China</b>	Market-driven			Driven by big tech companies Tencent and Ant Financial.	When a consumer/small business applies for a loan on Ant Financial’s Mybank, the loan is automatically offered to one or multiple FIs across an API. <sup>8</sup>

<sup>6</sup> PriceWaterhouseCoopers (2018, April). Open banking; US is next. *Financial Crimes Observer*. Retrieved from <https://www.pwc.com/us/en/industries/financial-services/financial-crimes/library/open-banking.html>.

<sup>7</sup> ndgit (2019) *Open banking: The global evolution in banking*. Retrieved from <https://nextdigitalbanking.com/open-banking-whitepaper?lang=en>.

<sup>8</sup> *Ibid.*

<b>Japan</b>	Regulatory	Banking Act	2018 – Revised Banking Law (2017 initial release) <ul style="list-style-type: none"> <li>2018 amendments set requirements for FI/fintech partnerships to formalize registration rules, standards, and development of open API systems by June 2020</li> </ul>	80 percent of FIs must have APIs in place by 2020.	Mitsubishi UFJ Financial Group is providing TPPs secure access to its databases as part of its open banking projects. <sup>9</sup>
<b>Australia</b>	Regulatory	Customer Data Right (CDR) Legislation	2019 (August) <ul style="list-style-type: none"> <li>CDR gives customers control of their data and enables them to share it with third-parties (similar to GDPR)</li> <li>Data Standards Body (DSB) – lays foundation for cross-industry data sharing</li> </ul>	Top four FIs must comply by February 2020. Smaller FIs must comply by February 2021.	No examples available.
<b>New Zealand</b>	Market-driven	Payments NZ (government-owned)	2018 – API Pilot Program announced by Payments NZ with six participants: ASB, BNZ, Datacom, Paymark, Trade Me, and Westpac (FIs and TPPs)	Development and testing of new API specifications over a five-phase process.	The “Jude” app allow users to link all their bank accounts to its platform, enabling account management through a single digital portal. <sup>10</sup>

## Open Banking in the U.S.

The U.S. is the least likely among global governments to enact open banking regulation, particularly given its more complex and fragmented bank regulatory system. However, regulators, technology companies, and FIs are making advances.<sup>11</sup> To date, U.S. regulators have taken a more hands-off approach by issuing non-binding guidelines, thus allowing industry stakeholders to pave the way forward. U.S. regulators acknowledge that although there is a market and demand for open banking, the current regulatory structure prioritizes consumer protection.<sup>12</sup> In 2017, the Consumer Financial Protection Bureau (CFPB) published its [Consumer Protection Principles: Consumer-Authorized Financial Data Sharing and Aggregation](#) to address security, privacy, and informed consent, among

<sup>9</sup> *Ibid.*

<sup>10</sup> Wells, R. and Anderson, K. (2018, June 26). *Open banking - what it means for New Zealand's financial services sector*. Retrieved from <https://minterellison.co.nz/our-view/open-banking-what-it-means-for-new-zealands-financial-services-sector>.

<sup>11</sup> Capgemini Research Institute. (2019). *World payments report 2019*. Available at <https://worldpaymentsreport.com/resources/world-payments-report-2019/>.

<sup>12</sup> Based on discussions at the June 2019 Mobile Payments Industry Workgroup (MPIW) meeting held at the Federal Reserve Bank of Boston. Retrieved from <https://www.bostonfed.org/publications/mobile-payments-industry-workgroup/regulatory-and-payments-industry-stakeholder-perspectives.aspx>.

other topics.<sup>13</sup> In 2018, the U.S. Treasury issued [\*A Financial System That Creates Economic Opportunities Nonbank Financials, Fintech, and Innovation\*](#), which compares open banking and faster payments.<sup>14</sup>

As a result, FIs and technology companies are driving the impetus for open banking in the U.S., as they seek enhanced and expanded digital services for their customers. For example, in 2017, Wells Fargo entered a data exchange agreement with Intuit to expand functionality for their shared customers by giving customers greater control over their financial data.<sup>15</sup> Technology companies, such as Envestnet Yodlee, offer financial data APIs that provide access to the majority of U.S. FIs. Plaid delivers an API platform for TPPs to connect to FIs for account access and authentication.<sup>16</sup> Other providers, such as Stripe, connect their API systems to FI platforms.

Several industry groups have also created frameworks to develop common standards for open banking. The Financial Data Exchange (FDX) has aligned a cross-section of FIs, fintechs, and financial services groups around a single data-sharing standard to accelerate the adoption of open banking API frameworks and standardize the transfer of data. An industry-backed standard could potentially supplant a growing patchwork of incompatible APIs and custom data-sharing arrangements.

The National Automated Clearing House Association (NACHA) has partnered with Accenture to create the API Standardization Industry Group (ASIG) to develop a tool for FIs, businesses, fintechs, and other industry stakeholders to standardize the use of APIs in the U.S. financial services industry. ASIG has identified 16 specific APIs across three categories for further development based on their overall impact to the payments industry: 1) fraud and risk reduction, 2) data sharing, and 3) payment access.<sup>17</sup>

Finally, the Financial Services Information Sharing and Analysis Center (FS-ISAC) has developed an API to support the secure transfer of data that aligns with PSD2 requirements to help FIs use uniform systems when conducting business in the U.S. and EU.<sup>18</sup>

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<sup>13</sup> U.S. Consumer Financial Protection Bureau. (2017, Oct. 18). *Consumer protection principles: Consumer-authorized financial data sharing and aggregation*. Retrieved from <https://www.consumerfinance.gov/data-research/research-reports/consumer-protection-principles-consumer-authorized-financial-data-sharing-and-aggregation/>.

<sup>14</sup> U.S. Department of Treasury. (2018, July). *A financial system that creates economic opportunities - Nonbank financials, fintech, and innovation*. Retrieved from [https://home.treasury.gov/sites/default/files/2018-08/A-Financial-System-that-Creates-Economic-Opportunities---Nonbank-Financials-Fintech-and-Innovation\\_0.pdf](https://home.treasury.gov/sites/default/files/2018-08/A-Financial-System-that-Creates-Economic-Opportunities---Nonbank-Financials-Fintech-and-Innovation_0.pdf).

<sup>15</sup> Palmer, Greg (2019, Jan. 4). It's safe to bet on open banking. *Fintech Futures*. Retrieved from <https://www.fintechfutures.com/2019/01/its-safe-to-bet-on-open-banking/>.

<sup>16</sup> PYMNTS.com (2020, Jan. 14) Visa's \$5.3B fintech play, wrapped in Plaid, *PYMNTS.com*. Retrieved from <https://www.pymnts.com/visa/2020/visa-buys-fintech-plaid-for-5-3-billion/>. Plaid was acquired by Visa in January of 2020 underscoring the importance of data access and connectivity across traditional financial institutions and fintech upstarts.

<sup>17</sup> For more information, see <https://www.nacha.org/content/api-standardization>.

<sup>18</sup> Morgan, Rob. (2018, Feb. 13). FS-ISAC announces API to facilitate customer data sharing. *ABA Banking Journal*. Retrieved from <https://bankingjournal.aba.com/2018/02/fs-isac-announces-api-to-facilitate-customer-data-sharing/>.



U.S. FIs view open banking as a catalyst for digital transformation. However, they face challenges stemming from their reliance on legacy mainframe systems and the complexities associated with automating, digitizing, and scaling. Fintechs find it difficult to plug into these mainframe systems. While many large FIs are moving to cloud-based infrastructure, the cost of scalability and elasticity remain an obstacle to implementation.

To compete in this emerging ecosystem, FIs may consider new business models to accelerate digitization. Financial institutions wanting to exploit the latest developments in innovation need a clearly defined strategy for open banking, including how they would leverage APIs to maximize the consumer experience. For example, Standard Chartered uses APIs to extend its digital banking reach. After the company created a global open banking team to understand the differing needs across its markets, Standard Chartered learned that the strategic goal should not be to create multiple APIs, but to understand how APIs will be used and the overall benefit to the customer and the ecosystem.<sup>19</sup>

According to an Oracle 2018 global retail banking survey, consumers are demanding smarter and more relevant digital banking experiences. Approximately 69 percent of consumers want their entire financial lifecycle on digital channels and 30 percent are open to trying a fintech or challenger bank.<sup>20</sup> This shift in consumer demand is driving FIs to go beyond traditional online and mobile retail banking offerings to alternatives that can increase consumer engagement. For example, many FIs are considering open banking in collaboration with fintechs through APIs, to leverage both their strengths, and improve customer experience in a better way than each company could do on its own.

However, it is important that consumers understand what open banking means. The Unlimited Group interviewed adult UK consumers to gauge their awareness, understanding of benefits, and security concerns that could affect growth.<sup>21</sup> The study found that 78 percent of UK consumers lacked awareness of the existence of open banking 12 months after it launched and some perceived that “open” banking inferred a lack of security.

In the U.S., consumer preferences for open banking are mixed. According to a 2019 Deloitte Open Banking Survey, consumers seem receptive to the concept with one in five U.S. consumers finding open banking valuable with more interest among millennials (22-36) and Gen Z (18-21) populations (one-half of Gen Z respondents and 39 percent of millennials).<sup>22</sup> The study also shows concerns among U.S. consumers about the privacy

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<sup>19</sup> Cuthbertson, R. and Bhandari, N. (2019, Sept). APIs – shaping the future of banking. *Euromoney*. Retrieved from <https://www.euromoney.com/article/b1h3krqm9cqmrs/apis-shaping-the-future-of-banking>.

<sup>20</sup> Oracle Financial Services. (2018). *The new digital demand in retail banking: From customer experience to engagement across life moments*. Oracle Financial Services Global Retail Banking Survey 2018. Retrieved from <https://www.oracle.com/a/ocom/docs/dc/new-digital-demand.pdf>.

<sup>21</sup> Unlimited Group. (n.d.). *Open banking: a revolution stalled*. 2<sup>nd</sup> Ed. Retrieved from [https://www.unlimitedgroup.com/wp-content/uploads/2018/12/LG-Unlimited-Open-BankingReport\\_Splendid\\_v03\\_LR.pdf](https://www.unlimitedgroup.com/wp-content/uploads/2018/12/LG-Unlimited-Open-BankingReport_Splendid_v03_LR.pdf).

<sup>22</sup> Deloitte (2019, Oct.). *Open banking: switch or stick? Insights into customer switching behaviour and trust*. Retrieved from [http://images.content.deloitte.com.au/Web/DELOITTEAUSTRALIA/%7Bc4424870-fdef-4b12-b03a-d7203fa9b14a%7D\\_OpenBanking\\_Survey\\_2019\\_final.pdf?elq\\_mid=2642&elq\\_cid=280819](http://images.content.deloitte.com.au/Web/DELOITTEAUSTRALIA/%7Bc4424870-fdef-4b12-b03a-d7203fa9b14a%7D_OpenBanking_Survey_2019_final.pdf?elq_mid=2642&elq_cid=280819).

and security in the use of their personal information. According to the study, consumers expressed interest in the potential for financial services and management to be made easier, including the ability to compare bank services, integrate financial data, and personalize budgeting tools.

## Conclusion

Currently, the evolutionary path of open banking in the U.S. remains uncertain, including whether there will be a level playing field for FIs and fintechs. For example, open APIs enable more seamless data flows between FIs and fintechs, which in turn have the potential to greatly enhance services for customers. APIs also allow FIs to share data with strategic partners and accelerate innovation. However, to realize these gains, standardization of data-sharing technologies will likely play a pivotal role in supporting the continued emergence of successful open banking initiatives.

Furthermore, consumer preferences and level of comprehension are still unclear. Important questions remain about how to properly treat consumer data and what measures are required to ensure that consumers are protected. U.S. FIs, fintechs, and TPPs will need to gain consumer trust by providing secure services and sufficient education about open banking and the new services available prior to any formal rollout.

If open banking is successful, it will likely benefit consumers by offering a broader view of their data across accounts, and by enabling them to move and control access to their data. This will create a paradigm shift in how FIs treat the issue of ownership, storage, and use of the data that they capture.

In the future, many open banking and payment services will likely be conducted via mobile phone. Mobile wallets, in particular, offer a powerful application because they are cost-effective, widely available to consumers, and positioned to adapt to evolving consumer needs for personalized financial services. Mobile wallets may also play a role to strengthen security through better data sharing for authentication. Open banking has the potential to support new partnerships and influence significant innovations in the mobile space, leading to new payment products and services, particularly as FIs and TPPs try to develop enhanced and more personalized customer experiences.

Opening a bank's platform to third-party applications can offer a means to create synergies with innovative technology businesses to build new customer experiences that are convenient and advantageous. However, open banking raises many concerns around privacy, access to consumer data, and the level of consumer understanding about how their data is securely shared and deleted. As in banking in general, trust is a critical success factor for open banking. A key driver to building trust in the digital world is ensuring data handling practices meet legal, regulatory, and other consumer expectations, including that such data is not lost or stolen, and that it is only used for the purposes for which customers grant permission.



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If the direction in the U.S. is towards the advancement of open banking, it may be helpful for U.S. regulatory agencies, such as the Federal Reserve Board of Governors, Federal Trade Commission, and Consumer Financial Protection Bureau, to conduct a study on consumer preferences and perceptions of open banking while the U.S. market is still in its infancy. Developments in open banking and APIs is a topic that U.S. industry stakeholders in various forums will likely continue to monitor and explore. The Federal Reserve Bank of Boston's Payment Strategies plans to conduct in-depth research on this topic with forthcoming publications.

## About the Author



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Susan is a seasoned payments professional with 18 years of experience in the industry. As the Director, Payment Strategies, she leads and directs departmental projects and external workgroups to provide the payments industry, regulatory community, and Federal Reserve System with a forum for balanced, in-depth research and analysis of market trends, policy development and other issues affecting the payment system, with an emphasis on international and domestic standards, emerging technology, and security of the mobile/digital payments channel. Susan has led projects, developed deep subject-matter expertise, and published whitepapers on a broad range of payment topics, including tokenization, APIs and open banking, card-not-present fraud, mobile and digital wallets, host card emulation, 3-Domain Secure, and standards developments.

Susan received her B.S. in Political Science from the University of Toledo, her M.P.A. in Public Administration from Cleveland State University and holds a Ph.D. in Public Administration & Policy from Virginia Polytechnic Institute & State University.