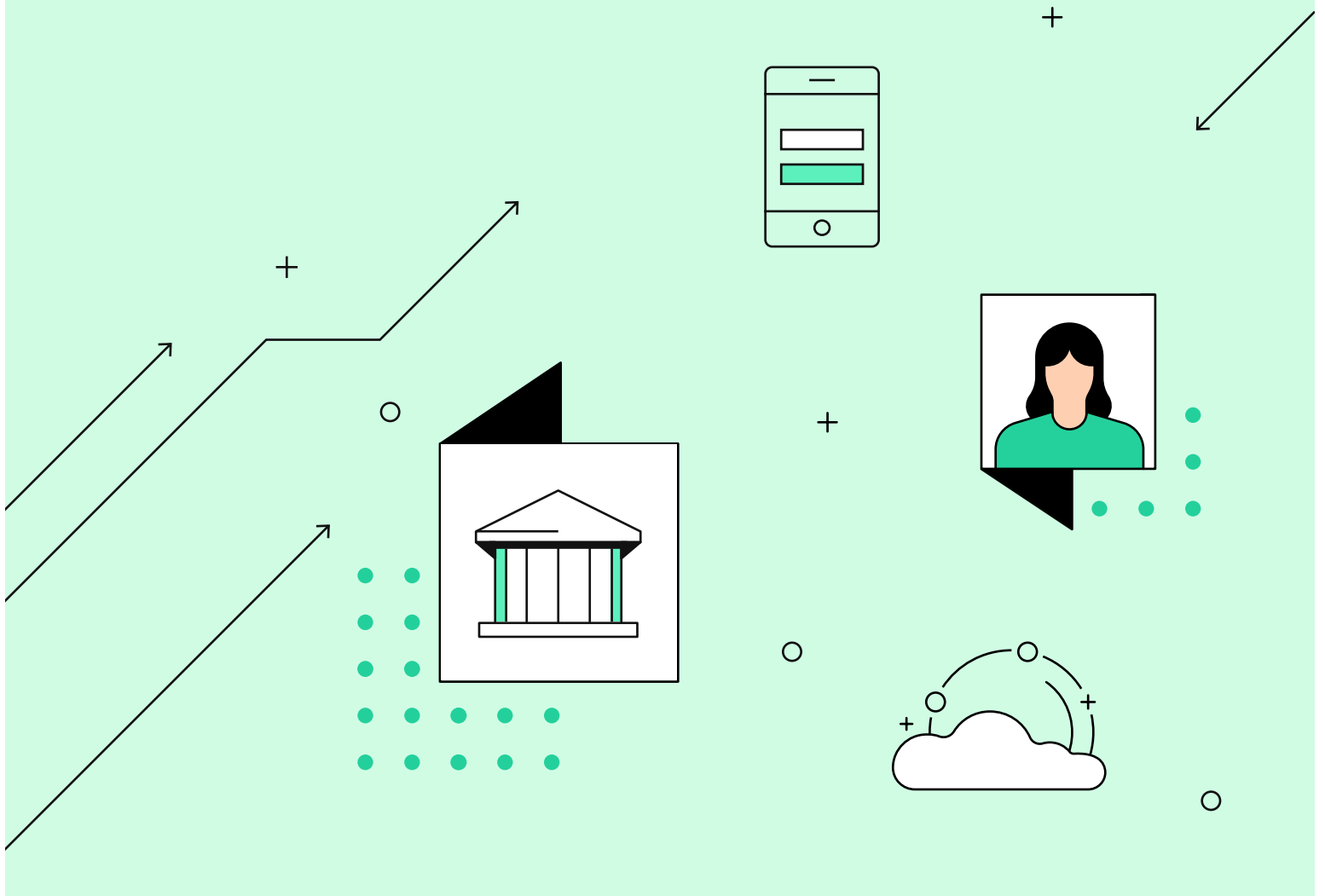

WHITEPAPER

Accelerate your open finance journey

Empowering customers with data connectivity



Executive Summary

The evolution of open finance in the US continues to grow and so have consumer expectations for when and how they share financial data with providers such as fintech applications. Nearly 9 in 10 Americans report using fintech apps and services today, up 30% from last year, driven by growth in digital payments and investing.¹ At the same time, 80% of Americans say they can now manage their money without a bank branch, instead favoring contactless digital solutions.²

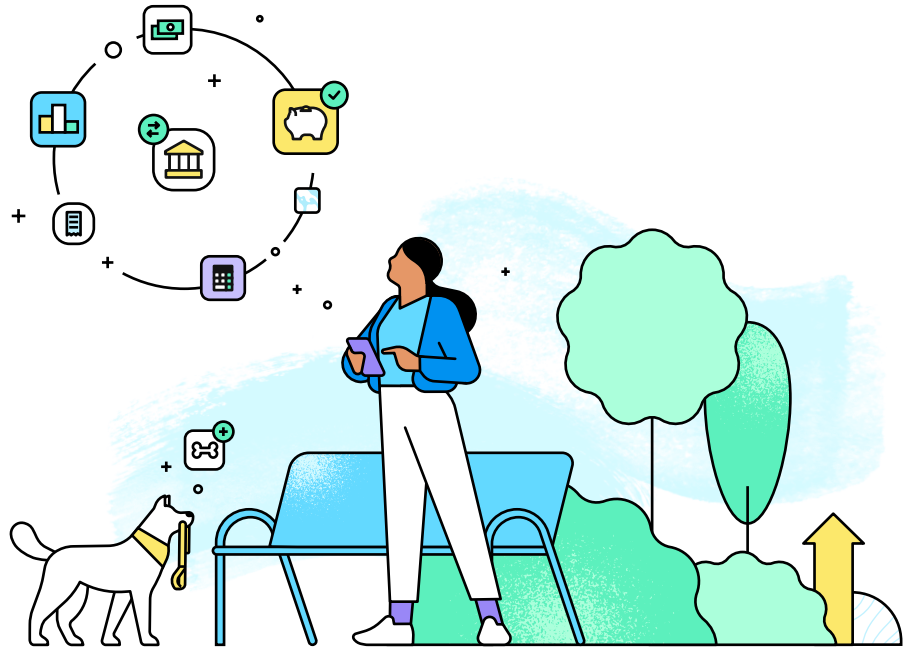
These market forces are driving financial institutions to build open finance infrastructure and ensure customers can securely share their information with financial services providers of their choosing. Yet, it can be difficult to know how to get started given the rapid growth and shifts in consumer behavior. This whitepaper will help you understand the key elements of open finance and how to accelerate digital innovation for your financial institution.

This whitepaper answers the following questions:

- What is open finance?
- What are the key principles?
- What are the benefits for financial institutions?
- How does open finance work?
- What are the core elements financial institutions need to build?
- How should financial institutions think about partnering?
- What common misconceptions should financial institutions avoid?
- Regulation isn't here yet, why is it necessary to get started now?

¹ 2021 Fintech impact survey (The Harris Poll)

² The Fintech Effect - Spotlight on COVID (The Harris Poll)



What is open finance?

Three in four consumers (76%) say they consider the ability to connect their bank to apps and services a top priority when choosing banks.⁴

Open finance describes a financial ecosystem in which consumers can control their data and choose to share it with financial services providers that offer them data-driven products and services. To manage their financial lives properly, consumers need insight into all of their data -- from their checking and savings accounts to investments and liabilities. Open finance goes beyond open banking, which strictly focuses on checking and payments. It aims to provide consumers and small business owners with the ability to seamlessly access and manage all of their financial data using authorized apps and services. This allows consumers to use fintech applications to improve how they budget, pay bills, invest and make financial decisions.

When surveyed, consumers say they adopt fintech because it saves them time (93%), money (78%), and reduces fear and stress (73%). Over half of fintech users save at least 30 minutes and \$50 a month when they use technology to manage their finances. A majority of fintech users (73%) believe that technology helps them make smarter financial decisions. When surveyed, three in four consumers consider the ability to connect their bank to apps and services a top priority when choosing banks.³

^{3 & 4} 2021 Fintech impact survey (The Harris Poll)



Consumers use open finance in countless ways. Online broker Robinhood reported that funded accounts grew by 151%, to 18 million in March of 2021, up from 7.2 million in March of 2020. Customers of personal finance app Capital save, on average, \$5,000 per year. Stash, an investment platform, reports that a majority of Stash customers are first-time investors. While these applications enable consumers to live healthier financial lives, the growing demand of consumer-permissioned financial data requests being used to invest, trade and save money, can place pressure on financial institution's data infrastructure.

Key principles of open finance

Plaid aligns around these principles which are in service of the Financial Data Exchange (FDX)⁵ and Consumer Financial Protection Bureau (CFPB).⁶

Control	Consumers have the right to access their financial data but must explicitly consent to how the data will be shared and used.
Security	Data must remain secure at all parts of the ecosystem.
Durability	Infrastructure must consistently provide consumers access to all of their information in a fast and seamless manner.
Transparency	All parties involved in data access should have transparency into consumer and ecosystem behavior.
Data minimization	Consumers should share the least amount of data needed to still power their use case with the apps and services they want to use.

⁵ Financial Data Exchange, "[Financial Data Exchange Refines Vision for Consumer-First Financial Data Sharing Practices](#)"

⁶ Consumer Financial Protection Bureau, "[CFPB Outlines Principles For Consumer-Authorized Financial Data Sharing and Aggregation](#)"

What are the benefits of open finance for financial institutions?

Account primacy

Financial institutions retain account primacy by enabling their consumers to connect to the products and services they want. Consumers who link apps and services to their financial accounts become more engaged with their primary account. For example, at Plaid we observed a 7% increase in transaction frequency and a 9% increase in the number of consumers depositing their payroll into their primary financial account after linking that account to a fintech app through Plaid.

Increase the bottom line

Consumers who link apps and services to their financial accounts increase card spend and increase the institution's interchange revenue by over \$26 per user for debit transactions and over \$99 per user for credit transactions.⁷

Additional benefits available with strategic partnerships:

Gain control and transparency through secure integration

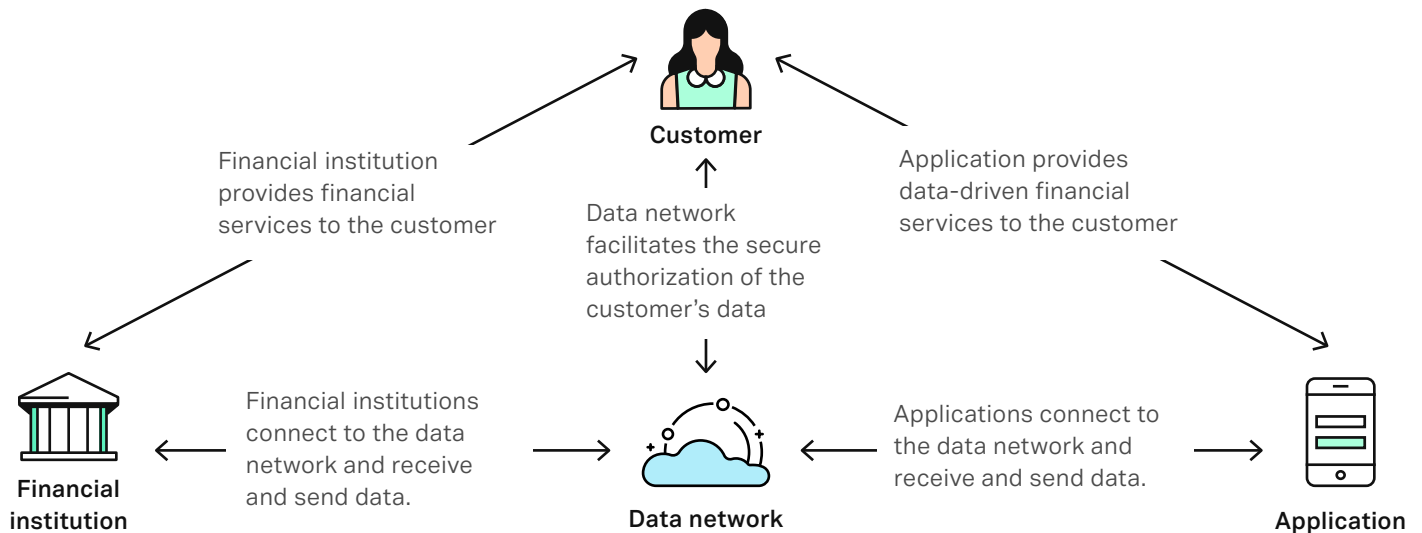
Financial institutions can see how their customers are using apps and services to gain insight into their evolving financial needs and create innovative, customized products and services. At the same time, consumers can see all of their data connections at once and select which data they choose to share with each fintech app or service.

Manage traffic and reduce costs

Traffic management can help manage traffic spikes and therefore cost, reduce the data being shared, and increase security using innovative back end architecture.

⁷ Internal Plaid Exchange Case Study

How does open finance work?



Open finance data connectivity involves four stakeholders who play a unique role enabling consumers to safely and securely share their financial information. In the open finance ecosystem, consumers can choose to permission their data to be shared with applications, financial institutions and data networks in any direction, meaning both financial institutions and applications can be data recipients.

1 Customers

Customers connect with the applications whose services they want to use. They then connect with the data network and data provider to authorize data connectivity needed to power that use case.

2 Financial institutions

Financial institutions hold consumer financial data that they collect in the process of delivering products and services. They share consumer-permissioned data with the consumers' desired data recipients, often via data networks. Financial institutions also receive data from the data network and leverage that data to provide value to their consumers. It is important to note that both applications and financial institutions can be data providers and data recipients, bi-directionally sharing and receiving consumer-permissioned data with the data network.

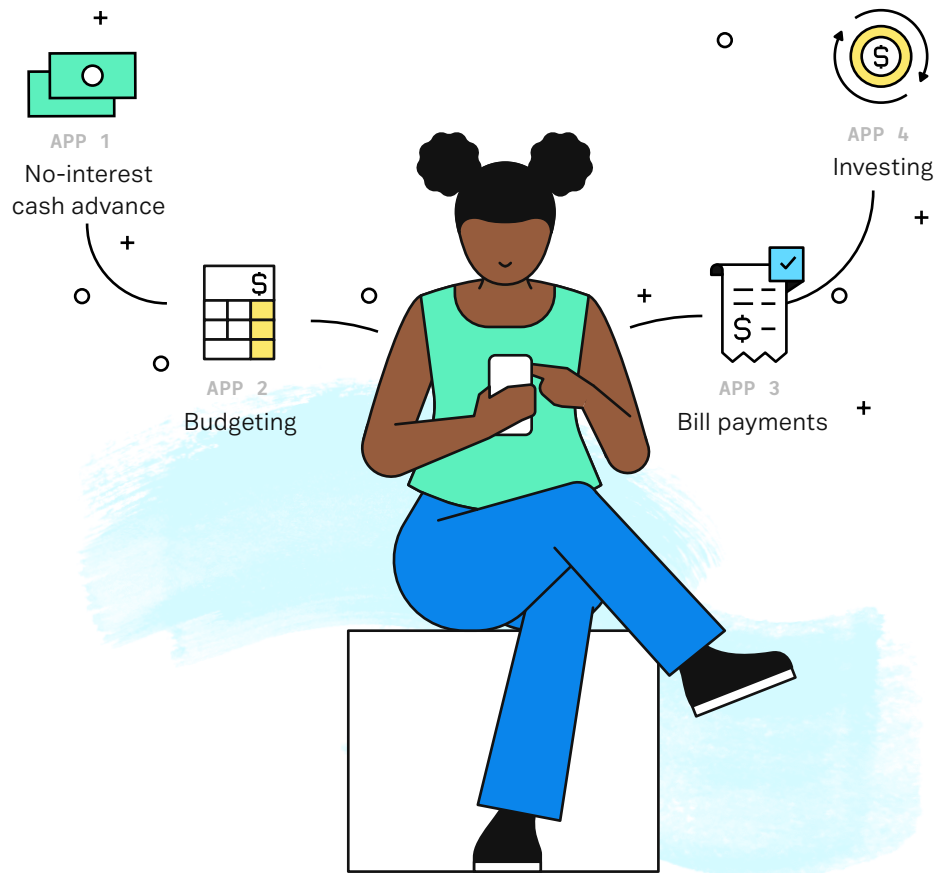


3 Data networks

Data networks allow financial institutions and applications to help their customers access open finance, and to receive consumer-permissioned data from other providers. Data networks are often referred to as data aggregators.

4 Applications

Applications provide data-driven services to consumers. They first connect to their customer and then to the data network which passes authorized data the customer needs to power their use case (budget, pay bills, invest, etc) or transaction. Applications are often referred to as Fintechs, but can range across different industries.

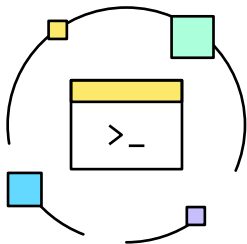


What happens when a bank customer downloads a new application and wants to connect it to their bank account? First, the bank customer opens their app, requests connectivity and selects their bank from a list. They enter their login credentials and then verify their identity. The customer authorizes the financial data they want to share, and opts into using the data network to share their data with the new application. Finally, the customer is alerted that they have account connectivity between their bank and their new application. This connectivity enables them to use the application to budget, pay bills and make financial decisions.

While this experience appears quick to the customer, things are more complex on the back-end between the financial institution, data network and application. To enable consumer-permissioned connectivity, a financial institution needs to manage the authentication and authorization process, deliver fast and secure connectivity and ensure that only the data necessary for the specific use case is shared.

What are the core open finance elements financial institutions need to build?

To efficiently connect to the open finance ecosystem, financial institutions need to have infrastructure in place, including the following elements:

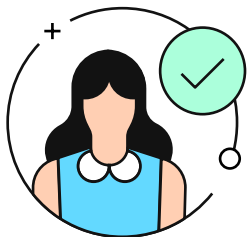


Data connectivity

Financial institutions need a way to connect permissioned customer account information to the open finance ecosystem to enable customers to live a full financial life. Financial institutions can gain connectivity with an API program that leverages a data network to connect seamlessly to thousands of apps and services that their customers want to use.

A financial institution's API outlines which specific data fields (customer data) can be shared with the financial ecosystem. These APIs should only include the data fields powering customer use cases. This approach will reduce build time and enable data minimization and optimal traffic management. Partnerships with data networks like Plaid can add value by providing recommendations on the optimal data fields consumers are using to manage their connectivity to the thousands of different apps and services. APIs that don't leverage this expertise can include hundreds of data fields, adding complexity and expense.

Plaid can also help you interpret the FDX guidelines for building interoperable APIs.⁸ FDX provides both an API specification and implementation guidelines, each of which can support the API journey. FDX is a standard that is regularly modified to keep pace with innovation and consumer trends and is a great resource for financial institutions.⁹

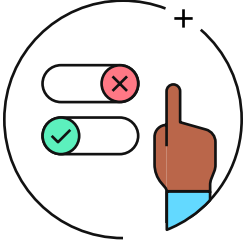


Authentication

Authentication is the process that verifies a consumer owns the account they want to access. It's critical to preventing fraud, protecting data security and privacy and keeping the open finance ecosystem safe. When authenticating consumer data between financial institutions and applications, the industry standard is OAuth. OAuth removes risk of credential sharing and storage by guaranteeing that the credentials are entered on the financial institution's domain and enabling credentials to be replaced with tokens for ongoing data access.

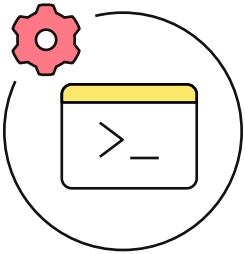
⁸ Financial Data Exchange Releases FDX API 4.6

⁹ Note: Financial institutions should explore ways to contribute to the FDX standard to better suit their needs. Today Plaid works with large, medium, and small financial institutions to add dimensions to the FDX standard that work for all parties.



Authorization

Authorization is the process by which consumers actively select which data types they want to share with which apps and services. Authorization management entails three functions: onboarding applications, issuing access tokens, and proliferating consumers' changes. All of these require authorization managers to track consumer permissions as they change in real-time, and proliferate these changes across the ecosystem. Consumers are able to manage their authorizations both in the initial linking flow, and also at data management dashboards after they've connected. As consumers add and remove use cases, and add and remove data types within those use cases, authorization management becomes increasingly complex.



Open finance ecosystem management

Once an open finance solution is connected to the ecosystem, it's necessary to manage its daily operations. At any given time, consumers may want to revoke access and make new connections. Fintech apps are constantly being onboarded or removed. You need to assign cybersecurity resources to identify and resolve any security issues. The technology team needs to ensure that the infrastructure is being continuously updated to the latest standards and can manage consumer traffic requests. Finally, a chief privacy officer should ensure compliance with data security and privacy guidelines.



How should financial institutions think about partnering?

Creating an open finance solution in-house can be daunting. It's complex, can take time, and can be expensive. Financial institutions want to build a compliant and secure open finance program with minimal effort and cost, but often face resource and time constraints. Financial institutions can accelerate their open finance journey by partnering with data networks like Plaid.

Plaid offers open finance solutions that are fast, secure, and flexible, based on years of experience connecting millions of accounts. Plaid can work with institutions to execute an enhanced implementation that leverages techniques such as single token to reduce data traffic and enhance privacy. We can meet institutions wherever they are on their open finance journey.

Other benefits include:

Data minimization

Plaid can limit what data customers share with apps and services during authorization by leveraging knowledge of the data requirements for each fintech use case. This enhances data privacy and reduces data traffic.

Traffic optimization

Plaid streamlines and reduces the data being shared and increases security using innovative token architecture.

Direct connections

Plaid's platform directly connects to 5,500+ fintech apps which ensures security and control while minimizing risk.

Open finance partnership considerations

These are the most important characteristics to consider when selecting a partner to build and manage an open finance solution.

Direct access to fintechs	Direct connections with fintech apps and services help ensure maximum security, control and privacy.
Connectivity expertise	Ensure the partner has technical expertise and experience managing consumer permissioned connections across multiple applications and financial institutions.
Scalable solutions that evolve with industry trends	Find a partner that can innovate as the industry changes and make it easy to update an open finance implementation.
Data privacy protection through data minimization	Reduce privacy risk by only using the data needed for each use case that the consumer is consenting to share with the app or service.
Traffic management	You want a partner with the ability to manage traffic spikes and lower costs.
Consumer control	Enable consumers to see all of their data connections in one place and select which data they share with each app or service.
Speed to market	A good partner has the ability to quickly and easily stand up a complete open finance solution.

What common misconceptions should financial institutions avoid?

“I have to build everything in-house if I want data transparency and control.”

Financial institutions gain data transparency and control whether they build and manage their technology in-house or partner with certain data networks. Plaid has solutions that allow financial institutions and their customers to easily monitor and control data usage. Plaid can also provide unique insights that can help monitor and reduce fraud.

“It’s hard to see the return on our investment from providing better data access for customers.”

When you deliver an effective user experience and data access in seconds, customers notice and are more engaged and profitable. As noted above, financial institutions report that once customers link their accounts to apps and services, they transact more often and are more likely to deposit payroll directly into their accounts. These customers also generate more interchange revenue. In addition, reducing call center traffic lowers operating costs.

“I don’t have the resources to get started.”

Financial institutions can build their open finance infrastructure using a phased approach that helps mitigate resource strain. For example, Plaid offers financial institutions the functionality to quickly build an open finance program by tokenizing user credentials for the purposes of data retrieval without an API build. This puts you on a path to quickly adopt open finance and information security standards.

Regulation isn't here yet, why is it necessary to get started now?

While today financial institutions are obligated to make their customers' data accessible to them under Section 1033 of Dodd-Frank, more formal rules enforcing open finance regulatory requirements in the US are imminent. The CFPB took the first step towards engaging in a rulemaking when it issued an Advanced Notice of Proposed Rulemaking (ANPR) on Section 1033 of the Dodd-Frank Act in November 2020.¹⁰ This was followed by President Biden's executive order in July, 2021 encouraging open banking rulemaking. The executive order, "encourages the CFPB to issue rules allowing customers to download their banking data and take it with them."¹¹

Consumer preferences are also accelerating the shift to open finance. The demand for financial data connectivity will only continue to grow now that 9 in 10 Americans report using financial apps and services.

Conclusion

Financial institutions develop open finance solutions to provide secure data connectivity for their customers. But there are many additional benefits. Open finance solutions also deliver customer value with seamless connectivity and increased data security, transparency and control.

It's easier than ever to build the technology infrastructure now that key protocols and specs are defined. Partners like data networks give critical support with best-in-class solutions and expertise. Financial institutions keep pace with their customers, maintain account primacy and deliver extraordinary value by ensuring the interoperability of their customers' accounts.

Plaid partners with financial institutions to develop and implement open finance strategies. Learn more at <https://www.plaid.com/use-cases/open-finance>.

¹⁰ Consumer Financial Protection Bureau, "[Advance Notice of Proposed Rulemaking](#)"

¹¹ The White House Briefing Room, "[FACT SHEET: Executive Order on Promoting Competition in the American Economy](#)"

Plaid is a data network that powers the tools millions of people rely on to live a healthier financial life. Plaid works with thousands of companies like Venmo, SoFi, and Betterment, several of the Fortune 500, and many of the largest banks to make it easy for people to connect their financial accounts to the apps and services they want to use. Plaid's network covers 11,000 financial institutions across the US, Canada, UK, and Europe. Headquartered in San Francisco, the company was founded in 2013 by Zach Perret and William Hockey.