

The Role of Public and Private Capital in Digital Infrastructure for Finance in the United States

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Both public and private investments are needed to upgrade the underlying digital financial infrastructure in the United States. Gaps and challenges with key infrastructure components, especially with payments, identity, and data, impede both private innovation and the delivery of government services. This, in turn, undermines progress toward a fair financial system—making it more difficult for low-income families and households of color, specifically, to overcome systemic economic barriers.

We identify five priority areas where the United States financial system faces infrastructure gaps, discuss how those gaps impede both private innovation and public service delivery of services to build a fair financial system, and provide an indicative level of both public and private investment needed to address those gaps. Public investments and engagement ensure the full “public good” benefit of those infrastructure components. Ultimately, what is most significant is not the level of capital, or even the type of capital, but a recognition by the financial industry of the quasi-public good nature of digital financial infrastructure.

U.S. Financial System Faces Infrastructure Gaps in Five Priority Areas

In a recent report that laid out priorities for the new U.S. federal administration, we identified priority areas for digital infrastructure for finance: (1) payments, (2) identity, (3) credit, (4) data, and (5) regulatory.¹

1. Instant payments to make funds available within seconds

The United States’ antiquated payment system lags that of other countries, including the United Kingdom, China, and India. It can still take three days or longer for customers to gain access to their own deposits. The United States needs an instant payment system, where money sent from any account or wallet to another account or wallet is available for use within seconds. A credit union

The Community Development Innovation Review focuses on bridging the gap between theory and practice, from as many viewpoints as possible. The goal of this journal is to promote cross-sector dialogue around a range of emerging issues and related investments that advance economic resilience and mobility for low- and moderate-income communities and communities of color. The views expressed are those of the authors and do not necessarily represent the views of the Federal Reserve Bank of San Francisco or the Federal Reserve System.

1 Full report with policy recommendations available here: <https://flourishventures.com/diff>.

customer should be able to send money to a customer of another bank or to a customer of Venmo or CashApp or any other similar service—all within seconds. Over the past ten years, the cost of slow payments to low-income Americans was estimated to be over \$100 billion to payday lenders, check cashers, bank overdraft fees, and other costs, like late fees caused by delays, disproportionately impacting black and brown households.²

2. A system for individuals and businesses to identify themselves

The United States needs a digital identity system that allows any individual or business to identify themselves without compromising their privacy and security. The United States can achieve such a system without universal biometrics or issuing a national ID card. The ability for individuals and businesses to identify themselves—and for that identity to be verified—is fundamental across sectors to both use services effectively and to overcome fraud. Identity theft reports tracked by the Federal Trade Commission have more than doubled in the past two years, and Americans who are vulnerable because of income, age, or race and are not financially healthy are more likely to be victims of fraud.³

3. A credit-scoring system based on real-time data

America needs a credit-scoring system that is real time with decisions based on diverse sources of data. A new credit-scoring system needs to access better data and incorporate that data in models faster. The traditional credit information relies on historic credit usage and is likely to perpetuate inequities in lending. Up to 60 million American consumers lack sufficient credit history to generate “reliable” credit scores, and millions more struggle to access affordable credit because of low scores.⁴ Data gaps in the traditional credit reporting system disproportionately impact Black, Hispanic, Native, and low-income borrowers. Those gaps also impact consumers’ ability to obtain employment, insurance, and housing, as well as credit.

4. Open data for finance

America needs an open-data-for-finance system where consumers have greater control over their data for financial services and the data can be shared across providers in a manner that requires limited effort or manipulation once a digital ecosystem is established. Such a system could emerge when the rules for access, control, movement, and utilization of data for financial services are updated and standardized across use cases. Higher degrees of standardization could result in lower costs and give consumers greater control over their data.⁵ A wide range of financial use cases—identity, fraud, credit, insurance—could work better where consumers have control and providers have access to a wide range of data from different sources.

2 Aaron Klein, “Re: Potential Federal Reserve Actions to Support Interbank Settlement of Faster Payments.” Comment to Docekt No. OP-1625, Board of Governors of the Federal Reserve System, December 14, 2018. <https://www.federalreserve.gov/SECRS/2018/December/20181221/OP-1625/OP-1625-121418-133277-428769914666-1.pdf>.

3 See here for an analysis of fraud, identity theft, and other reports by the Federal Trade Commission over time: <https://public.tableau.com/profile/federal.trade.commission#!/vizhome/TheBigViewAllSentinelReports/TopReports>.

4 FinRegLab, “Fact Sheet: Cash-Flow Data in Credit Underwriting,” 2019.

5 A forthcoming analysis by McKinsey & Co. and McKinsey Global Institute, in collaboration with Flourish Ventures, characterizes the U.S. system by high degrees of openness, driven by private providers, but low levels of standardization and high costs.

5. *Digitally native regulatory and supervisory system*

America needs a modern, digitally-native regulatory system—designed to regulate and supervise the digital financial services landscape. The key component of such a system is digital reporting—the automated, digital, and friction-less reporting of financial, operational, and suspected financial crime and fraud data to the regulator by regulated entities.⁶ The power of effective supervisory systems to build a fair financial system cannot be overstated. Studies have shown that communities of color stand to benefit the most from financial system regulations and strong consumer protections.

Infrastructure Gaps Impede Private Innovation to Build a Fair Financial System

Despite the COVID-19 pandemic, 2020 ended as the most active year ever for private investments in start-up financial technology companies (fintechs), with close to 2,000 transactions and over 100 financing rounds of \$100 million or more. There were also 21 initial public offerings (IPOs)—a record level—which cumulatively raised over \$14 billion in proceeds.⁷

A small subset of these venture-backed fintechs are taking meaningful steps toward building a fair financial system. For example, several fintechs have introduced low-cost checking accounts—without minimums, overdraft fees, or other fees. Studies have shown that African American account holders often face discrimination associated with a checking account, which is seen as the entry point to the broader financial system.⁸ New customer-facing, financial technology companies—such as Chime, one of Flourish’s investments—now offer, in conjunction with their regulated bank partners, the cheapest checking account in the country with no overdraft and “gotcha” fees. At Bank of America and JP Morgan, 7–8% of share of profits is estimated to be from overdraft fees.⁹ Most of Chime’s customers are low- and middle-income.

However, these types of venture-backed, customer-friendly innovations could go further if the underlying infrastructure worked better. Although the United States has a vibrant financial innovation sector, based on the level of start-up activity and venture financing, new solutions and services are being built on top of pre-existing digital infrastructure. Moreover, it is harder to address systemic challenges in access and use and push the frontier of product innovation without a facilitative digital infrastructure. In fact, the extraordinary growth in fintech venture activity took place against the backdrop of rising structural unemployment in certain sectors and a K-shaped recovery that exacerbates inequality along racial lines. There would likely be more effective fintech innovations addressing those persistent challenges of inclusion, financial health, and equity if the underlying digital infrastructure for finance worked better.

For now, fintechs must find ways to overcome slow movement of money on the Automated Clearing House (ACH) for payments, for example, or address limited data from the credit bureaus

6 The United Kingdom’s Financial Conduct Authority originally piloted such an approach, described here: <https://www.fca.org.uk/innovation/regtech/digital-regulatory-reporting>.

7 FT Partners, “FT Partners Quarterly FinTech Insights and Annual Almanac,” 2021.

8 Jacob Faber and Terri Friedline, “The Racialized Costs of Banking” (Washington, DC: New America, 2018).

9 Aaron Klein, “A Few Small Banks Have Become Overdraft Giants,” (Washington, DC: Brookings Institution, 2020); and see here on Chime: <https://www.nerdwallet.com/best/banking/checking-accounts>.

to make it possible to extend credit to traditionally riskier borrowers or use a patchwork system of public and private databases for identification even to open basic bank accounts.

It is common for both banks and fintechs to charge for instant availability of funds—person-to-person transfers, government transfers, salaries, or other transfers—either through fees or small-dollar credit models, which places a greater burden on families living paycheck to paycheck. Those with variable income, often disproportionately represented by households of color, are most disadvantaged by this system. The Consumer Finance Protection Bureau (CFPB) estimates that just 8 percent of customers incur nearly 75 percent of all overdraft fees.¹⁰ In fact, a real-time and instant U.S. payment system would make it possible for low-income Americans to avoid paying check cashers, payday lenders, and bank overdraft fees and retain over \$10 billion annually in their own bank accounts.¹¹

Fintech businesses and other providers need access to diverse data sources to assess risk and be in a position to extend credit to borrowers with lower traditional credit scores. Most credit extended today is still based on traditional credit reports. Consumer advocates and others have made the case that traditional credit reports are likely to reflect and perpetuate previous inequities created by historical discrimination on the basis of race, ethnicity, and gender in employment, education, housing, and lending. At the same time, because of their focus on historic credit use, traditional credit reports and credit scores provide only a partial assessment of a borrower's finances.¹² A credit scoring and underwriting system with a wide range of data sources beyond credit-use history could potentially help tens of millions of Black, Brown, Native American, and low-income Americans gain access to safer, more affordable credit, which, in turn, could help them access education, purchase homes, and build wealth.

Credit decisions based on a wide range of data would be easier if the United States had an open system for access to a wide variety of data sources – cash-flow data, utility payments data, income verification data, and so on—currently held in data silos. Private investment in companies like Plaid and Finicity aims to address this gap by aggregating access to a wide range of data sources via application programming interfaces (APIs). Those investments could go further if there were more public investments to open access to government data and policy actions to ensure that access to privately held data is not blocked.

Innovation in identity systems also faces bottlenecks. Fintechs are finding success by simplifying access to a patchwork of data sources through sophisticated and robust APIs. However, most still rely on the same underlying data sources, which, in turn, impacts the inclusiveness of identity verification systems and their success at mitigating fraud. Identity theft reports tracked by the Federal Trade Commission have more than doubled in the past two years.¹³ African American survey respondents were at least twice as likely as Latinx and whites to have had someone use their name to attempt to

10 Trevor Bakker et al., "Data Point: Checking Account Overdraft." (Washington, D.C.: Consumer Financial Protection Bureau, July 2014), https://files.consumerfinance.gov/f/201407_cfpb_report_data-point_overdrafts.pdf.

11 Mary Beech, "Strengthening the U.S. Digital Infrastructure for Fair Finance." (Washington, D.C.: Beech Center for Social Impact + Innovation, Georgetown University, November 2020), https://beechcenter.georgetown.edu/wp-content/uploads/2020/11/US_DIFE.pdf.

12 FinRegLab, "The Use of Cash-Flow Data in Underwriting Credit: Market Context & Policy Analysis" § 2.1 (2020).

13 See: <https://www.ftc.gov/enforcement/consumer-sentinel-network/reports>.

take out credit and three times as likely to have had someone take over their social media or email account.¹⁴ As a result, it is not surprising that African Americans are more than three times as likely, and Latinx two and one-half times as likely, to have experienced debt-related fraud than whites and more than two times as likely to have been a victim of income-related fraud.¹⁵

Infrastructure Gaps Also Impede Government Service Delivery

When the digital infrastructure for finance—payments, identity, credit, data, and regulatory—does not work well, it impacts both the private sector’s ability to innovate and the government’s ability to deliver timely and effective services.

The shortcomings of America’s digital financial infrastructure were made evident when the government responded to the economic fallout of the pandemic. A study of 12 programs across seven countries found the U.S. response more ambitious than most, as a percentage of GDP, but least effective at achieving intended outcomes, driven largely by infrastructure gaps for payments, identity, and data.¹⁶ The programs did not always reach the intended beneficiaries and experienced the most fraud. Delays in stimulus payments meant that recipients of the CARES Act spent an estimated \$66 million at check cashers for timely access to money.¹⁷

In Singapore, on the other hand, public investments made prior to the pandemic—specifically, linkages established among existing government datasets—allowed pandemic stimulus payments to be distributed instantly. In addition to linking databases, investments had been made to create the “CorpPass” digital ID system, which assigns a unique ID to businesses linked to data on the tax payment and employee wages from the government’s myTax portal. As a result, under Singapore’s Job Support Scheme funds were transferred automatically and within minutes to eligible businesses in amounts calculated based on payroll, with no application process needed.

Benchmarks Exist for the Level of Public and Private Capital to Address Infrastructure Gaps

The United States could address those infrastructure gaps with both new private and public capital investment and forward-looking digital public policy efforts. It could benchmark its investments, and potential quantifiable returns as a percentage of GDP, against those made by countries like India, Singapore, Estonia, and others.

To achieve improvements in payments infrastructure so that it is instant, from any account to any account, and low-cost, the United States could follow a private sector–led investment approach. The U.S. government could encourage and support private consortia to do what a privately backed

14 Brooke Auxier et al., “Americans and Privacy: Concerned, Confused, and Feeling Lack of Control Over Their Personal Information” (Washington, DC: Pew Research Center, 2019).

15 The FTC’s Fraud Survey defines “income-related fraud” to include work-at-home programs, business opportunities, pyramid schemes, and government job offers, and “debt-related fraud” to include credit repair, debt relief, mortgage relief, and advance-fee loans. Federal Trade Commission, “Combating Fraud in African American and Latino Communities: The FTC’s Comprehensive Strategic Plan.” Report to Congress (Washington, D.C., June 2016).

16 Olivia White, et al., “COVID-19: Making the Case for Robust Digital Financial Infrastructure,” (New York: McKinsey Global Institute, 2021).

17 Aaron Klein, “Want Your Next Stimulus Check Faster? Congress Needs to Change Just One Line of Law,” (New York: Brookings Institution, 2020).

but government supported nonprofit, the National Payments Corporation of India, was able to achieve with the Unified Payments Interface (UPI) in India. Launched in 2016, that system now has an estimated volume 50 times that of instant ACH in the United States, illustrating that a private-sector approach with government oversight and supervision could achieve widespread instant payments faster.¹⁸

Although estimates of the full cost of UPI development are unclear, studies have estimated that it could cost less than half the \$600 million the Indian government spends each year to maintain physical money systems.¹⁹ The UPI system achieves the goals of instant payment while allowing private innovation from large and small players. Just prior to the emergence of the pandemic, Google, which found success with Google Pay by leveraging UPI, wrote to the U.S. government advocating for the Indian system as a model for instant money movement.²⁰ Google made specific recommendations to support real-time, low- and high-value payments, standardized messaging protocols with extended metadata, and clear standards for an API layer that enables licensed nonfinancial institutions and third parties to access and submit requests into this payment system.

India's nationwide digital identity system could also provide useful benchmarks for the level of public and private investment needed in the United States. At the upper end of the estimate range, India's digital identity system required an upfront public-sector investment of close to \$10 billion, or about \$10 per Indian resident.²¹ With that benchmark in mind, a similar investment in the United States could be close to \$3 billion, even though India's system, which involves full biometrics of every resident above the age of five in a central database, goes a lot further than what might be needed in the United States.

Although India has already benefited from its digital identity system—for example, a three-fold increase in basic account access and a reduction in leakage and fraud in government services—a study estimates that India still stands to benefit up to 6 percent of 2018 GDP, or over \$400 billion, from its digital identity systems.²² In the United States, on the other hand, an estimated impact of a U.S.-specific digital identity system could be sizable—close to 4 percent of 2018 GDP, or close to \$1 trillion, which assumes a level of private innovation and new services. However, even an investment in a basic and foundational authentication system (U.S. government-developed Login.gov or the Federal Data Services Hub) that is universally accessible by both public and private actors could result in at least 0.5 percent of favorable GDP impact.

The United States also needs meaningful investment in enabling an open-data-for-finance architecture. Here, too, both public and private investments are needed. Plaid, Finicity, and other data infrastructure, venture-backed fintechs have raised billions over the past five years to build access to a variety of data sources beyond checking account data. As a result, the United States has a higher degree of private sector-led “data openness” than the United Kingdom and other countries

18 Aaron Chaze, “India Sparks a Real-Time Payments Revolution,” *Global Finance*, March 3, 2020.

19 Ashish Das, “Deviating from the BHIM-UPI Law” (Mumbai, India: Indian Institute of Technology Bombay, 2020).

20 Mint, “Google Wants U.S. Federal Reserve to Follow India’s UPI Example and Build ‘FedNow,’” 2019.

21 Tilman Ehrbeck et al., “Inclusive Growth and Financial Security: The Benefits of e-Payments to Indian Society” (New York: McKinsey & Co., 2010).

22 Olivia White et al., “Digital Identification: A Key to Inclusive Growth” (New York: McKinsey Global Institute, 2019).

but very low degrees of standardization and therefore higher costs.²³ Appropriate policy actions, such as upgrading the patchwork of laws governing data access and use, as well as public investment in opening government data, could accelerate the evolution of this open data for finance system.

The United States could build a type of federated system over time, leveraging existing data held by both government and the private sector, as has been done in Estonia.²⁴ For example, government data on income, school loans, and other sources, made available via APIs to qualified fintech providers and other institutions, could help expand the frontiers of innovation. Federal regulators could also facilitate the portability of “know your customer” (KYC) data between regulated financial providers to expedite the KYC process and limit data aggregation, as demonstrated in Luxembourg and Singapore.²⁵

Estonia’s open data system is estimated to have had an upfront cost of \$140 million and an annual maintenance cost of under \$70 million.²⁶ An open-data-for-finance system in the United States, with solutions like shared KYC systems, could result in meaningful economic value of over 1 percent of U.S. GDP by 2030.²⁷

In addition to both public and private investments, forward-looking, digitally smart policy changes will be needed to address infrastructure gaps. For example, to enable private-sector investment in payments, Congress would need to modernize the Expedited Funds Availability Act (EFAA) to ensure real-time funds for all payments. To achieve a universal identity framework, the National Institute of Standards and Technology would need to revisit and finalize SP 800-63-3, the Digital Identity Guidelines. To support private investment in open data for finance, the CFPB, under the authority it has through section 1033 of the Dodd Frank Act, would need to clarify rights and procedures to access bank and prepaid account data and clarify whether and how such information is subject to other protections.

Digital Infrastructure Investments as Quasi-Public Goods

Payments, identity, data, and other digital infrastructure components are not purely private goods or public goods. Those infrastructure components do not fit the definition of a pure public good in economics, which is defined as non-excludable—i.e., everyone can benefit from its use once the public good is provided—and non-rivalrous or non-depletable—i.e., one person’s enjoyment of the good does not diminish what is available to other people. Moreover, exclusive private ownership of these critical infrastructure components could lead to monopoly ownership and pricing with a sub-optimal outcome for the financial system, which would then require regulating those components as utilities.

Although not purely a public good, digital infrastructure for finance can be considered a quasi-public good—it has public good characteristics in that it generates positive, societal externalities, such as enabling the development of a fair financial system, when widely available and accessible.

23 Forthcoming analysis by McKinsey & Co. and McKinsey Global Institute

24 *Economist*, “Covid-19 Strengthens the Case for Digital ID Cards,” September 5, 2020.

25 Jamie Lee, “MAS to Reboot e-KYC Project,” *Business Times*, November 13, 2019.

26 Charles Orton-Jones, “The Inside Story of Building a Digital Nation,” CMI, 2019; Leonid Bershidsky, “Envy Estonia’s Digital Government,” Bloomberg, 2015.

27 Forthcoming analysis by McKinsey & Co. and McKinsey Global Institute

Both public and private actors need to recognize the quasi-public good characteristics of those infrastructure components and make the necessary investments with that framework in mind. As a result, both public and private capital is needed, with rules and standards established through government engagement, and policies and regulation that enable appropriate levels of private investment and usage. Similar to how these systems have evolved in other countries, those public-oriented investments are foundational and, in turn, will enable more private investment and innovation.

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