

Strengthening the U.S. Digital Infrastructure for Fair Finance



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- Jo Ann Barefoot, Co-Founder and CEO, Alliance for Innovation Regulation
- Robin Carnahan, Data + Digital Fellow, Beeck Center for Social Impact + Innovation, Georgetown University
- Kelly Thompson Cochran, Deputy Director, FinRegLab
- David Ehrich, Co-founder, Alliance for Innovative Regulation
- Daniel Gorfine, Project Director, Digital Dollar Project; Adjunct Professor of Law, Georgetown University Law Center
- Aaron Klein, Fellow, Economic Studies; Policy Director, Center on Regulation and Markets, Brookings Institute
- Melissa Koide, CEO, FinRegLab
- Kabir Kumar, Director, Flourish Ventures
- Dan Murphy, Manager, Financial Health Network
- Sonal Shah, Executive Director, Beeck Center for Social Impact + Innovation, Georgetown University

The experts listed here do not necessarily collectively endorse all of the recommendations and findings in the report but present them jointly as a way to advance some ideas on the topic.

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Introduction

January 2021 will mark the start of a new year, a new Congress, and a new administration. While much uncertainty remains, undoubtedly the United States will still be contending with COVID-19 and the economic crisis. Increased urgency and attention, as well as developing consensus on proposed solutions, create immediate opportunities for meaningful progress toward a more fair financial system. Upgrading the digital infrastructure for finance can help all Americans, in particular those who have historically been underserved as well as those who are financially vulnerable, well beyond the current crises.

Gaps in the digital infrastructure impede progress towards long-term financial health, making it more difficult for low-income families and households of color in particular to build financial resilience and overcome systemic economic barriers. If the U.S. payment system was more real-time, low-income Americans could retain over \$10 billion annually in their own bank accounts, instead of paying check cashers, payday lenders, and bank overdraft fees.¹ A credit scoring and underwriting system with a wide range of data sources beyond credit-use history could potentially help tens of millions of Americans gain access to safer, more affordable credit, which in turn could help them access education, purchase homes, and build wealth.

The economic response to the COVID-19 pandemic exposed the inadequacies of digital infrastructure for finance. Compared to government relief programs in other countries, programs in the United States failed to achieve their intended outcomes in a timely manner, making it a lot harder for those Americans who needed the help the most. In the absence of real-time payments, the first batch of stimulus payments took three weeks to be sent and even then the money was not available for many until four-six days later. More than 80 million families waited even longer to receive any money and many still hadn't received their money more than four months later. In the absence of an identity system, some payments were sent to deceased people, and elsewhere fraudsters exploited state unemployment programs.

Near-term steps to address the underlying digital infrastructure can have a long-term impact on the entire financial system. This report focuses on recommended changes in six areas: [real-time payments](#), the [credit system](#), [digital identity](#), [regulatory system](#), [financial data infrastructure](#), and [central bank digital currency](#). For each, it highlights the immediate, first 100 days, and first year potential actions for federal regulators and agencies, Congress, and other stakeholders. Many recommendations highlight improvements to existing laws, policies, systems, and procedures that can be started or made within 2021.

¹ Aaron Klein, "[Potential Federal Reserve Actions to Support Interbank Settlement of Faster Payments Docket No. OP-1625](#)," The Brookings Institution, December 2018.

Real-Time Payments

Empower people to access their own money more quickly. Enhance the existing settlement system, leverage the Federal Reserve's legal authority to require immediate funds availability, and modernize and expand existing laws to ensure real-time funds for all payments.

Over the previous decade, the cost of slow payments to poorer 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.² The United States' antiquated payment system lags behind that of other countries, including the U.K. and China—it can still take three days or longer for customers to gain access to their own deposits. These lost days can make a huge difference in the lives of those who live paycheck to paycheck—for example, when the last day of the month falls on a Friday, rent is often due after a paycheck is earned, but before it is received. Those with variable income are most disadvantaged by this system, and it is estimated that just 8 percent of customers incur nearly 75 percent of all overdraft fees.³

The Federal Reserve has the ability to make changes that enable real-time payments but it has been slow to action. The planned government-run real-time payment system, FedNow, remains years away from implementation. This failure has left Americans particularly vulnerable during this economic crisis. In particular, the administration of the CARES Act Economic Impact Payments (EIPs) highlighted the government's limited ability to get funds immediately to those who urgently need support. The first batch of stimulus payments took three weeks to be sent and even then the money was not available until four to six days later.

**The benefits of addressing payments delays has
a real impact on people's lives.**

The benefits of addressing payments delays has a real impact on people's lives. Real-time payments provide money immediately to families, reducing uncertainty and enabling better-informed spending decisions. Real-time payments can also play a powerful role in helping lower-income Americans avoid high cost services.

² Klein, "[Potential Federal Reserve Actions to Support Interbank Settlement of Faster Payments.](#)"

³ "[Data Point: Checking account overdraft.](#)" Consumer Financial Protection Bureau Office of Research, July 2014.

Eliminating just ten percent of fees from overdrafts, payday loans, and check cashing would restore possibly [\\$10 billion a year](#) to working families.

Immediate Actions: In 2018, less than one percent (178 million of 23 billion) of payments made on the automated clearing house (ACH) network—an electronic funds-transfer system that facilitates payments—were completed in the same day.⁴ Most payments on the ACH, including direct deposits and bill payments, rely on Fedwire—a real-time gross settlement system of central bank money—or the National Settlement Service (NSS)—a multilateral settlement service owned and operated by the Federal Reserve Banks—which keep limited weekday hours and don’t open on weekends and holidays. While a step in the right direction, recent changes to extend Fedwire and NSS operating hours don’t go far enough. Instead, operating hours for both should be expanded to 24 hours a day, 7 days a week, and 365 days a year. This straightforward change would not just have an immediate impact on Americans’ lives, but would also lay the groundwork necessary to enable instant payments and reduce system risk for mobile payment providers.

In addition, the [Federal Reserve has the legal authority](#) under Expedited Funds Availability Act (EFAA) Section 402 to require immediate funds availability to customers for payments, and the ability to issue regulations that leverage this existing authority. While there are different perspectives on the scope and source of this statutory authority, many experts agree that the Federal Reserve can take action to better enable more real-time payments without further Congressional action.

Actions Within the First 100 Days: The Federal Reserve should prioritize its role as payment system regulator over that as an operator. This includes conducting a complete examination of existing regulatory authority, in order to leverage that authority to promote real-time funds availability.

If the Federal Reserve does not act to assert this authority, the next stimulus package should clearly define and grant the Federal Reserve authority as it relates to real-time payments. In order to mitigate the pitfalls of the previous round of CARES Act payments to individuals, provisions could be modeled after the Payment Modernization Act of 2019, which updates the EFAA to require financial institutions to recognize funds in real time. This would be a popular proposal, as it won’t cost taxpayers, yet offers tangible benefits to Americans, in particular in a time of crisis.

⁴ [“ACH Network Moves 23 Billion Payments and \\$51 Trillion in 2018,”](#) Nacha, February 2019.

In order to prevent some of the pitfalls of the previous COVID relief payments, the Department of Treasury (Treasury) should consider using alternative means to distribute funds, including private sector real-time payment systems, as opposed to the existing Federal Reserve ACH system. Treasury should also collect and maintain routing information linking taxpayers to their bank accounts to facilitate future COVID and other direct payments. The “Digital Identity” section provides information on recommended approaches for digital identity more broadly.

In order to ensure real-time funds for all payments, Congress should modernize and expand the EFAA.

Actions Within the First Year: In order to ensure real-time funds for all payments, Congress should modernize and expand the EFAA. In parallel, the Consumer Financial Protection Bureau (CFPB) should examine the role of delayed payments in driving demand for predatory credit services and bank overdraft fees. A complete examination would include an assessment of consumer benefits and potential for harm from faster receipt of funds, including faster or instant salary payments.

If the Federal Reserve and Congress do not act to establish the Federal Reserve’s authority on immediate funds availability, alternative models will emerge and gain traction, as has happened in China. However, to avoid the pitfalls seen in China, where the primary payment systems run through technology companies largely outside the banking system, the United States would need an overarching legal and supervisory framework which emphasizes interconnection, consumer protection, data privacy, and inclusion. Furthermore, as alternative payment models will continue to grow in the United States regardless of government action on real-time payments, Congress and regulators should proactively establish this legal and supervisory framework.

	Immediate	First 100 Days	First Year
Increase Access to Real-Time Payments	<p>Fed: expand Fedwire and NSS operating hours to 24 hours a day, 7 days a week, and 365 days a year to enhance the existing settlement system.</p> <p>[Regulatory Action] Use existing regulatory authority to mandate real-time funds availability for consumers under EFAA Section 402.</p>	<p>Fed: [Regulatory Action] Prioritize role as payment system regulator over that as operator. Conduct complete examination of existing regulatory authority to leverage that authority to promote real-time funds availability.</p> <p>Congress: [Congressional Action] If the Fed does not act, the next stimulus package should clearly define and grant the Fed authority as it relates to real-time payments.</p> <p>Treasury: Consider using alternative means to distribute funds, instead of the existing Fed ACH system. Collect and maintain routing information linking taxpayers to their bank accounts for future COVID and other direct payments.</p>	<p>Congress: [Congressional Action] Modernize and expand EFAA to ensure real-time funds for all payments.</p> <p>CFPB: Examine the role delayed payments take in driving demand for non-bank credit and services and bank overdraft fees. Better understand consumer benefits from faster receipt of funds, including salary.</p> <p>Congress, regulators, and agencies: [Congressional and Regulatory Action] As non-bank payment systems gain traction, the government needs an overarching legal and supervisory framework which emphasizes interconnection, consumer protection, data privacy, and inclusion.</p>

Credit System

Expand safe and affordable credit access by supporting the use of cash-flow and other data sources. Issue more comprehensive guidance on alternative financial data and evolve credit scoring and underwriting infrastructure to include more diverse and real-time data sources.

The U.S. credit system has become increasingly reliant on electronic data sources and automated scoring and underwriting models over the last several decades. While these changes are credited with reducing costs, increasing consistency, and expanding credit access, the traditional credit information system is still subject to significant gaps and limitations. These issues are important because lack of access to safe, affordable credit can make it more difficult for households both to bridge short-term gaps and to build long-term wealth through investments in education, homeownership, and small business formation.

An estimated 45 to 60 million consumers lack sufficient credit history to generate reliable credit scores, and millions more struggle to access affordable credit because their scores are low.^{5,6} Data gaps in the traditional credit reporting system disproportionately impact Black, Hispanic, Native, and low-income borrowers, and can impact consumers' ability to obtain employment, insurance, and housing, as well as credit.

Moreover, because traditional credit reports and credit scores focus primarily on historic credit use, they provide only a partial assessment of applicants' finances. The COVID-19 pandemic has highlighted the challenges of data inputs that are limited in scope and do not provide real-time cash-flow, income, or employment information. Concern about the reliability of traditional data and models is one of many causes of lenders tightening origination standards, which can have significant effects on recovery efforts.

To expand access for historically underserved populations and address concerns about risk management, more creditors are exploring the use of "alternative data" in underwriting, including cash-flow information from bank accounts and other sources, as well as utility payments, which show consumers' ability to meet recurring obligations over time. Industry efforts to make rental and utility data more readily available for use in credit underwriting are also continuing and, particularly for utility

⁵ Kenneth P. Brevoort, Philipp Grimm, and Michelle Kambara, "[Data Point: Credit Invisibles](#)," [Consumer Financial Protection Bureau Office of Research](#)," 2017.

⁶ James R. Brown, J. Anthony Cookson, and Rawley Z. Heimer, "[Growing Up Without Finance](#)," SSRN, March 2020.

data, are reaching significant scale.⁷ While some international research suggests that non-financial data (such as “digital footprint”⁸ information about computer and cell phone usage patterns) could also be used to predict credit risk, such sources require additional testing and policy analysis with regard to reliability, fairness, privacy, and other issues before they are considered for adoption.

Research in the United States shows that alternative financial data exhibits a great deal of promise. Notably, [a recent study](#) found that cash-flow metrics being used by several consumer and small business lenders were generally as predictive as—if not more than—traditional metrics, and demonstrated good predictive value across demographics.⁹ More importantly, the study also found that these lenders served consumers who may have historically faced constraints on their access to credit.

Further government action can enable and encourage uptake of promising approaches.

In the past year, the federal financial regulators issued a notable [interagency statement](#), as well as a number of other statements,¹⁰ in support of alternative data, particularly sources that focus on key financial information about consumers’ income, assets, expenses, and financial management behaviors. However, more needs to be done to increase the pace and scale of adoption among industry stakeholders. While successful implementation will require industry leadership and effort, further government action can enable and encourage uptake of promising approaches.

⁷ For background on initiatives by the National Consumer Telecom & Utilities Exchange (NCTUE), TransUnion/eCredable, and Equifax/Urjanet, see [FinRegLab’s Data Diversification Brief](#).

⁸ Tobias Berg, Valentin Burg, Ana Gombović, and Manju Puri, “[On the Rise of FinTechs – Credit Scoring using Digital Footprints](#),” National Bureau on Economic Research, April 2018.

⁹ “[The Use of Cash-Flow Data in Underwriting Credit: Empirical Research Findings](#),” FinRegLab, July 2019

¹⁰ For more information on these statements, see page 9 of [FinRegLab’s Data Diversification Brief](#).

Immediate Actions: There are a number of new scoring models and industry initiatives that leverage alternative financial data,¹¹ however the industry is far from large-scale adoption. Federal financial agencies and regulators should use their full toolkit to engage with and encourage firms to evaluate and incorporate alternative financial data. While it would be helpful for federal regulators to reaffirm recent policy statements noting the potential benefits of using alternative financial data to increase access to credit, field examiners also play an important role. Thus, education of field examiners and their willingness to engage with supervised entities to highlight best practices and answer questions is also critical.

The United States needs a system with a consistent approach to reporting consumer hardships and lender accommodations to mitigate issues.

Additionally, inconsistent and in some cases inaccurate credit reporting about which consumers have been affected in particular ways by COVID-19 and the economic downturn have made it even more difficult to evaluate affected borrowers' creditworthiness based on traditional credit reports. While industry stakeholders have worked to address these issues, there is still a concern about implications for lenders and borrowers. The United States needs a system with a consistent approach to reporting consumer hardships and lender accommodations to mitigate issues now and in future crises, so that lenders have reliable data for evaluating consumers' ability and propensity to repay credit.

Actions Within the First 100 Days: As discussed in more detail below in the [Financial Data Infrastructure](#) section, the CFPB has issued an Advanced Notice of Proposed Rulemaking ([ANPR](#)) concerning section 1033 of the Dodd-Frank Wall Street Reform and Consumer Protection Act. This rulemaking can help ensure that consumers can direct their data be transferred between financial services providers, and define what protections apply to particular data transfers and uses.

¹¹ For background on initiatives by FICO, Finicity, Experian, Harvest Pro, Equifax/Yodlee, and Nova Credit as well as the utility-related initiatives discussed in note 10, see [FinRegLab's Data Diversification Brief](#).

In the credit context specifically, for instance, the rules could clarify rights and procedures to access bank and prepaid account data for credit scoring and underwriting and clarify whether and how such information is subject to Fair Credit Reporting Act (FCRA) protections. The CFPB's analysis about what types of data are subject to the rule and whether existing consumer protection laws are sufficient to protect consumers' interests will also help Congress determine whether further legislative action is warranted with regard to particular data sources. For example, data from payroll service providers and other sources can also be helpful to verify income and employment for credit applicants, which can be a particular challenge for gig economy workers. Further investigation into questions about data utility, privacy, security, and transfer issues would be helpful to identify potential market or policy adjustments. Given the importance of this rulemaking for both credit access and financial innovation more generally, the CFPB should proceed as expeditiously as possible once the comment period closes.

Additionally, the CFPB should assess if further guidance is needed for lenders to feel more comfortable launching special purpose credit programs, which could better promote equity and inclusion.

Actions Within the First Year: Data about consumers' utility payment history could also be useful for credit scoring and underwriting, but there are both market and policy issues that would need to be addressed to facilitate wide scale access. For example, some state and local laws restrict reporting of such information to credit bureaus. Additionally, regulators, industry, and advocates would need to address policy concerns about adverse effects of incorporating utility data into the credit scores of some consumers.¹²

As the credit industry considers use of more sophisticated modeling techniques in addition to new data sources, regulators need to take meaningful steps to understand machine learning models' potential benefits for expanding access to credit and potential risks with regard to fairness, explainability, and reliability. Empirical research evaluations, examiner education, and updating guidance and regulations are all important steps to managing this next potential wave of innovation.

Beyond credit underwriting, credit reports and/or scores are used by insurance companies, employers, and landlords. Using these tools in these other contexts may

¹² An additional helpful step would be for the Federal Housing Finance Agency to work expeditiously with Fannie Mae and Freddie Mac to complete evaluations of existing credit scoring models for adoption in their mortgage securitization processes; the models that are currently used are so old that they do not account for positive rental or utility payment history even where it is reflected in consumers' credit reports.

also raise concerns about reporting gaps and inconsistencies, the probity of the data in particular contexts, and the risk of exacerbating racial disparities. Stakeholder and Congressional engagement would be helpful to assess whether adjustments in existing statutory protections are warranted to address fairness concerns.

Ultimately, credit scoring and underwriting needs to move to a system that uses both more diverse and real-time data sources to develop a more complete picture of applicants' creditworthiness. This requires both market evolution and an update to the financial data infrastructure, as discussed in more detail in the “Financial Data Infrastructure” section.

	Immediate	First 100 Days	First Year
Expand Access to Credit Through Cash-Flow and Other Data Sources	<p>Regulators: [Regulatory Action] use the full toolkit to engage with and encourage firms to evaluate and incorporate alternative financial data, in particular through examiner engagement to highlight best practices and answer questions.</p> <p>CFPB: [Regulatory Action] create a system with a consistent approach to reporting consumer hardships and lender accommodations to mitigate issues now and in future crises.</p>	<p>CFPB: [Regulatory Action] through 1033 rulemaking, clarify rights and procedures to access bank and prepaid account data for credit scoring and underwriting and clarify whether and how such information is subject to FCRA protections.</p> <p>CFPB: [Regulatory Action] assess if further guidance is needed for lenders to feel more comfortable launching special purpose credit programs.</p>	<p>Federal, state, and local authorities: address market and policy issues to enable consumers' utility payment history to be used for credit scoring and underwriting.</p> <p>Regulators: for machine learning models, develop understanding of how machine learning models can be used in conjunction with alternative data to increase safe, fair, and affordable credit access.</p> <p>Congress and stakeholders: assess whether adjustments in existing statutory protections are warranted to address fairness concerns in using credit reports and/or scores outside of credit underwriting.</p> <p>Financial industries and regulators: move to a system that uses more diverse and real-time data sources.</p>

Digital Identity

Improve service delivery and access through a people-centered digital identity system that prioritizes trust, transparency, and inclusion. Issue government standards, leverage existing government capabilities, and foster a system bound by common standards.

The United States does not have a universal identity system. Data to identify Americans exist in both public and private databases but it is fragmented and not connected. Without a way to share and link that data, Americans cannot effectively make use of information about them held by federal and state governments and private companies.

In an increasingly digital economy, accelerated by the COVID-19 pandemic, the ability for individuals to identify themselves—and for that identity to be verified—is fundamental across sectors to both avail services effectively and to overcome fraud. Identity theft reports tracked by the Federal Trade Commission have more than doubled in the last two years.¹³ Americans who are vulnerable because of income, age or race and are not financially healthy are more likely to be victims of fraud.¹⁴

A lack of digital ID and linked government data made the U.S. pandemic programs the least effective.

COVID-19 shed a light on the real cost of a fragmented identity environment. A study conducted by McKinsey found that compared to relief programs in other countries, including the United Kingdom and Singapore, a lack of digital ID and linked government data made the U.S. pandemic programs the least effective.¹⁵ The programs did not always reach the intended beneficiaries and experienced the most fraud. While local efforts have attempted to bridge the gap, like the City of Los

¹³ FTC [Consumer Sentinel Network](#)

¹⁴ Keith Anderson, “Mass-Market Consumer Fraud in the United States: A 2017 Update”, Bureau of Economics, Federal Trade Commission, October 2019

¹⁵ McKinsey: “Covid-19 and the value of Digital ID and Financial Data Sharing” (unpublished)

Angeles' [Angeleno Account](#) and elsewhere, especially to enable access to government services, the broader system needs to be rethought.

Digital ID systems can be built that both protect privacy and empower people. Any new digital identity system must prioritize [principles](#) for identification, including trust, transparency, and inclusion. To move forward with such a people-centered system, the United States can first leverage existing guidelines and capabilities while exploring how to overcome barriers on data sharing and scaling and create digital identity standards. It should also look to international models, including countries who have forged paths to achieve universality through a federated system without a nationalized government ID system

Immediate Actions: The National Institute of Standards and Technology (NIST) should push to revisit and finalize SP 800-63-3, the [Digital Identity Guidelines](#), started under the Obama Administration but never fully completed. These SP 800-63-3 guidelines provide technical requirements for federal agencies implementing digital identity services, including for proofing and authentication of users interacting with government IT systems over open networks. While some industry groups (such as the FIDO Alliance) gained traction on these issues, coherent government guidance on standards is critically needed. For example, the private sector is still waiting for the government response to standards on remote onboarding. While standards will take time and consideration to develop and enact, NIST can immediately demonstrate that this effort is a top priority.

Actions Within the First 100 Days: There are opportunities to leverage existing U.S. government capabilities in identification and verification, in particular [Login.gov](#) and the Federal Data Services Hub. Login.gov allows users to sign into multiple government agencies, increasing the accessibility and security of federal benefits, services, and applications. Login.gov is currently used by 17 agencies, and recent preliminary approval within the General Services Administration (GSA) now allows state and local governments to also use Login.gov. This would prevent the need for custom-built identity systems at each agency, which are costly and siloed. In order to increase adoption more broadly, federal agencies should provide funding or create incentives for increased adoption of Login.gov by federal, state, and local agencies. These incentives could include subsidizing their Login.gov costs and ensuring they are not held responsible for any inaccurate identity validations from Login.gov.

The Federal Data Services Hub, managed by the Center for Medicare & Medicaid Services (CMS), is used to verify the identity data of individuals applying for health insurance on any state or federal exchange. The hub checks information including

name, address, income, and employer, against numerous government databases, including the Internal Revenue Service (IRS), Social Security Administration (SSA), Department of Homeland Security (DHS), and Department of Veterans Affairs (VA), using a consistent validation process across the country. This hub has the potential to be used for other types of services, such as Supplemental Nutrition Assistance Program (SNAP) benefits or unemployment insurance (UI). The next administration should prioritize the expansion of this existing government identity validation services by updating any restrictive regulations or data sharing agreements and providing funding to enable federal and state agencies outside of CMS to leverage this existing technology and infrastructure.

Global models can provide lessons on standards, systems, privacy, and design.

Actions Within the First Year: The U.S. federal government must expand the ability of agencies to share identity attribute data of individuals with the private sector and other public agencies. Congress, regulators, and agencies, should review and update existing laws, regulations, and policies to enable this sharing. Specific attention should be paid to the SSA, IRS, Department of State, Department of Defense, and VA. That said, while collaboration with the private sector and increased sharing of data is important, there is a danger that building up privately owned databases of validated identities (via private sector vendors) may weaken the incentive for the government to build government-owned databases. Further, private sector identity vendors—whether or not they use government data—should operate inside the regulatory purview.

Global models, while bespoke to each country, can provide lessons on standards, systems, privacy, and design. While a number of countries, including India, Estonia, and Austria, achieved universal foundational identity systems using a range of privacy-by-design features, such as biometrics and physical cards, the U.S. path may differ. A foundational system in the United States is likely to be federated and leverage both public and private data bound by common standards and privacy-by-design features. Any new system must adhere to guiding principles, including transparency and inclusion in the decision-making process; an emphasis on individual empowerment, agency, and control; and earned trust.

	Immediate	First 100 Days	First Year
Move Toward a People-Centered Digital Identity System	NIST: revisit SP 800-63-3, the Digital Identity Guidelines, started under the Obama Administration but never fully completed.	Federal government: incentivize state and local adoption of login.gov through contingent or additional funding. Provide overarching funding or support to enable departments and agencies to leverage the CMS Federal Data Services Hub.	<p>Congress, regulators, and agencies: review and update laws, regulations, and policies that currently prohibit government agencies from sharing data regarding identity attributes of individuals with the private sector and other public agencies.</p> <p>Federal government: Develop a federated system that leverages public and private data bound by common standards and privacy-by-design features. Learn from systems around the world, especially those that have forged paths to achieve universality without a national government ID system.</p>

Regulatory System

Foster fair, inclusive, and affordable financial services by modernizing financial regulation. Encourage pro-consumer fintech innovation, digitize regulatory architecture to prevent consumer harm, increase interagency collaboration, and build agency tech talent.

The U.S. financial regulatory system is unique in the world in its complexity, which makes innovation difficult and slow and calls for new ways to foster interagency collaboration. The current system hinders banks' ability to adopt fair finance innovations developed by tech firms, impedes banks' ability to make loans to very small businesses, undermines financial inclusion in credit underwriting, blocks many innocent people from access to bank accounts through anti-money laundering (AML) "Know Your Customer" (KYC) rules, and makes discriminatory lending hard to detect. Aging regulatory tools also make it hard for agencies to prevent novel consumer risks that are arising as industry adopts new technology. Moreover, the [lack of racial diversity among regulatory leaders](#) limits responsiveness to needs of Black Americans. Government's analog-era technology and culture make regulatory work unattractive to most data scientists and other tech-focused experts, stalling progress.

The pandemic has underscored the need to modernize regulatory systems so that they are digitally native. Over the course of a weekend, U.S. regulators had to shift from in person to digital supervision, with mixed results. The economic downturn also highlighted the inadequacy of regulators relying on lagging periodic reports and sampled data in the midst of rapid change.

A digital regulatory approach can drive down costs, improve quality, and allow systems to keep up with future tech advances.

Instead, a digital regulatory approach can drive down costs, improve quality, and allow systems to keep up with future tech advances. There are promising and impressive public and private sector models across the world, but [U.S. laws impede regulators'](#) ability to engage with innovation. While progress has been made in the

last four years, especially in agencies that have launched innovation offices, this work needs to be accelerated, including through increased interagency collaboration. To achieve a more fair financial marketplace, regulators must adopt innovative technology themselves and foster adoption of safe, healthy financial technology by the financial industry, all while protecting consumers from harm.

Immediate Actions: To prioritize fair finance innovation, the White House should diversify agency leadership by nominating numerous women and people of color as agency heads. The White House should require that candidates for agency head roles make adoption and fostering of technology innovation a core objective for their agencies.

The Federal Deposit Insurance Corporation (FDIC), Federal Reserve Board (FRB), NCUA (National Credit Union Administration), Office of the Comptroller of the Currency (OCC), and CFPB should each appoint a dual role for Chief Innovation Officers (CINOs), so that one CINO has a regulatory background and the other, digital technology. Each agency should also create a unit that brings together work on regulation strategies for fintech innovation, “regtech” (regulatory technology) and “suptech” (supervisory technology), data science, cloud computing, and information technology.

To develop technology talent, Congress and the White House should encourage the agencies to build data science muscle, including by recruiting both senior and line software engineers and designers. If necessary, adjustments should be made in compensation structures. Congress should appropriate funding for the Federal Financial Institutions Examination Council (FFIEC) to create and offer a technology boot camp for regulatory personnel.

Treasury and the above agencies should form an Interagency Financial Innovation Task Force and jointly fund a regtech accelerator working through an independent nonprofit organization. This approach can remove cross-cutting work from silos to achieve better innovation. Also, agencies should routinely invite at least one other agency to join in their individual innovation initiatives where possible, to develop and strengthen interagency “connective tissue” that will accelerate progress.

Actions in the First 100 Days: The OCC, FRB, FDIC, CFPB, NCUA, and Conference of State Bank Supervisors (CSBS), and possibly the Financial Industry Regulatory Authority (FINRA) and Securities and Exchange Commission (SEC), should collaborate to move toward a digital regulatory reporting (DRR) system. This work should be framed as part of the pandemic response, since regulators cannot rely on

traditional periodic and low-data reports amidst such rapid change. The project should build on the robust models developing in the U.S. and globally, including the [FDIC's project on modernizing call reporting](#); the [New York Department of Financial Services project on non-bank DRR](#); the [2020 G20/BIS TechSprint](#); and the [UK Financial Conduct Authority's DRR project](#).

Treasury should launch a moonshot-style project to shift the financial regulatory system to digitally-native design.

Treasury's FinCEN should adopt a process for digitizing Suspicious Action Report (SAR) data to better address dangerous crimes. This starts with launching a pilot project to modernize the SAR database to enable easier access for law enforcement through APIs and to enhance searchability of SARs. The goal is to roll out a fully accessible database with appropriate controls, ultimately to create an aggregated dataset that could be analyzed by law enforcement users through artificial intelligence (AI). FinCEN should also propose revised KYC rules to prevent innocent people from losing access to bank accounts.

Treasury and the Interagency Financial Innovation Task Force should launch a moonshot-style project to shift the financial regulatory system to digitally-native design. This is urgent in order to enable the U.S. regulatory environment to keep pace with the exponential rate of change in technology, which can have historic benefits for financial consumers but also unprecedented risks. The project should create a roadmap for making regulations machine readable—that is, tagged electronically so that a machine can determine what kinds of companies and activities are covered by it and what they are required to do.

Congress should [amend laws to allow greater flexibility for agency technology innovation projects](#), with reports issued to Congress and the public regarding the process and results, including for small scale technology procurement. This effort should prioritize:

- adding a carveout to the Antideficiency Act to allow agencies to test regtech innovations on a small-scale;
- changing cost-benefit rules in the Paperwork Reduction Act that prevent agencies from easily surveying the industry on technology needs and trends;

- amending the Administrative Procedure Act to encourage agencies to use collaborative techsprints (regulatory hackathons) to gain input and insight for new rulemaking.

Actions in the First Year: Based on the Year-One experience, the Interagency Financial Innovation Task Force should develop a strategy for regulatory innovation with goals, strategies, metrics, timelines, and key participants. This should be shared with Congress and the public. It should include input from the private sector.

The same task force should research and evaluate whether the government should create or foster development of a public/private standard-setting body (SSO) for regulatory innovation. This entity might be modeled on the World Wide Web Consortium (W3C) and similar bodies that have developed methods for setting and updating standards as technology evolves. Standards might be set for entities that should be eligible to work with banks, with care given to prevent evolution of anti-competitive barriers to entry. There may also be a need for an SSO for data standards. Potentially these standards could be evaluated by an independent certifying organization of individuals who meet criteria. The FDIC's 2020 Request for Information (RFI) on SSOs will have developed a body of input on these concepts.

Finally, Congress should consider amending the missions of the FDIC, FRB, NCUA, OCC, and CFPB to add a mandate to foster financial industry competition.

	Immediate	First 100 Days	First Year
Develop a Digital Regulatory Approach	<p>White House: Diversify agency leadership. Require that candidates for agency head roles make technology innovation a core objective.</p> <p>FDIC, FRB, NCUA, OCC, and CFPB: each appoint two Chief Innovation Officers with regulatory and digital technology backgrounds. Each creates a unit that brings together work on tech-focused regulation strategies.</p> <p>Congress and White House: should encourage the agencies to recruit software engineers and designers. appropriate funding for the Federal Financial Institutions Examination Council (FFIEC) to create and offer a technology boot camp.</p> <p>Treasury and the above agencies: form an interagency task force and announce joint plans to fund a regtech accelerator working through an independent nonprofit organization.</p>	<p>OCC, FRB, FDIC, CFPB, NCUA and CSBS: collaborate to move toward a digital regulatory reporting system.</p> <p>Treasury's FinCEN: adopt a process for digitizing Suspicious Action Report data to move toward a fully accessible database with appropriate controls</p> <p>Treasury: With interagency task force, launch a moonshot-style project to shift the financial regulatory system to digitally-native design as fast as possible, including making regulations machine readable.</p> <p>Congress: amend laws to allow greater flexibility for agency technology innovation projects, including the Antideficiency Act, the Paperwork Reduction Act, and the Administrative Procedure Act.</p>	<p>Congress and White House: adopt US strategy for financial innovation.</p> <p>New interagency task force: explore creating public/private standard setting organization to set certifiable standards for tech firms that work with banks.</p> <p>Congress: consider amending the missions of the FDIC, FRB, NCUA, OCC, and CFPB to add a mandate to foster financial industry competition.</p>

Financial Data Infrastructure

Develop a cohesive, modern financial data infrastructure that prioritizes the welfare of individual participants. Address incomplete data rights and protections, and change laws to minimize unreasonable consumer burden.

Despite broader fintech product innovation in the United States, technological practices and public policies governing financial data continue to lag behind. As policymakers around the world enact holistic data governance regimes that account for a modern digital economy, the current U.S. laws and regulations governing financial data were largely developed as 'point solutions' to solve narrower sets of policy issues before digital finance reached its current scale and complexity. This patchwork of laws and regulations, which are often ambiguous and incomplete, falls far short of providing consumers with adequate protections and rights to ensure data privacy, accuracy, access, and security. As lawmakers consider broader data protection measures, it has become clear that these gaps in financial data governance can no longer be ignored.¹⁶

The need to address incomplete data rights and protections is underscored not only by new and greater volumes of data, but also by the emergence of new data intermediaries. Perhaps most notably, “data aggregators” have evolved to move financial account information between companies with consumer consent. Their transfers have fueled product improvements across a broad range of financial services, including personal financial management and wealth building, payments, and credit underwriting. Indeed, the new financial data infrastructure they have helped to create is one of the most dynamic in the world, but has far outpaced regulation. Paradoxically, while other countries are leading the way to develop formal regulatory structures to promote “open banking” and “open finance” more broadly, the U.S. market is uncertain as to whether and how existing laws apply to data transfers by new types of intermediaries for various different “use cases.”^{17, 18}

For example, while Congress passed a law giving consumers a right to access their own financial data, regulators have not even clarified whether that law (Section 1033 of the Dodd-Frank Act) is currently in effect, let alone issued implementing regulations to address a range of related questions. Relatedly, federal regulators have not opined on whether or how transfers of bank account information by an

¹⁶ Kaitlin Asrow, “[The Role of Individuals in the Data Ecosystem: Current Debates and Considerations for Individual Data Protection and Data Rights in the U.S.](#),” Federal Reserve Bank of San Francisco, June 2020.

¹⁷ Mitchell Sandler LLC, Financial Health Network, Flourish, FinRegLab, “[Consumer Financial Data: Legal and Regulatory Landscape](#),” October 2020.

¹⁸ [The Use of Cash-Flow Data in Underwriting Credit: Market Context and Policy Analysis](#), FinRegLab, Feb 2020.

aggregator for purposes of credit underwriting are subject to the 50-year-old FCRA. Less discussed but perhaps just as important, the Gramm-Leach-Bliley Act's (GLBA's) restrictions on the sharing of consumers' data by financial institutions has not been substantially updated in two decades, despite major changes in the volume of sharing, the entry of large numbers of "fintechs" and other new market actors, and evolution in technologies.¹⁹

In this context, a fundamental reexamination of financial data governance is critical for two reasons. First, as discussed above, ensuring that consumers have modern, consistent [data rights and protections](#) must be a priority as policymakers seek to protect individual privacy while promoting competition and innovation. Second, the COVID-19 pandemic has further accelerated the move to digital financial services—by some estimates, causing 35 percent of customers to increase their online banking usage.²⁰ This further underscores the importance of modernizing privacy, information security, and other data protections throughout the U.S. financial system. Moreover, such a system would enable more Americans to gain access to safer and more affordable credit by leveraging other financial data, as explored in the "Credit System" section.

Immediate Actions: The FTC should complete its rulemaking to update information security standards for non-banks under the GLBA. This is particularly important to ensure consumers' data security as new, non-bank data intermediaries become an increasingly important part of the financial data infrastructure and various non-bank "fintechs" have begun providing direct services to consumers in payments, personal financial management, lending, and other markets. The FTC has already obtained two rounds of comment on its proposed rules and related issues, and thus is positioned to move expeditiously in finalizing the rule.

Actions in the First 100 Days: Recently, the CFPB issued an [ANPR](#) on Section 1033 of the Dodd-Frank Act. This represents an initial step toward issuing long-awaited implementing rules that would govern how consumers are able to share their financial data. In developing this rulemaking, the CFPB should not only address the great deal of ambiguity surrounding Section 1033, but should also do so in a way that provides clarity on whether and how new intermediaries are subject to the FCRA, privacy issues under GLBA, and liability under the Electronic Fund Transfer Act

¹⁹ Mitchell Sandler LLC, Financial Health Network, Flourish, FinRegLab, "[Consumer Financial Data: Legal and Regulatory Landscape](#)."

²⁰ Penny Crosman, "[Digital banking is surging during the pandemic. Will it last?](#)" American Banker, April 2020.

(EFTA). Not doing so would only add to the patchwork of “point solutions” that plague financial data governance in the United States.

Further defining which data aggregators are subject to the CFPB’s authority to examine “larger participants” in various consumer financial services markets would be helpful for evaluating their compliance with both existing laws and any new rulemakings, though defining the supervisory threshold could potentially wait until after the 1033-related rules are issued if resources are limited. With lawmakers in the next Congress likely to consider broader data governance measures that may include financial services, the CFPB must move quickly on these items to ensure that lawmakers are aware of any outstanding consumer protection issues the CFPB will not be able to address.

Interagency guidance is needed to provide consistency and ensure appropriate supervision of aggregators.

Beyond CFPB rulemaking on Section 1033, interagency guidance should be issued to provide clarity on how different financial regulators view relationships between banks and data aggregators in the context of third party risk management. While recent guidance from the OCC gives insight into one regulator’s view of how aggregators should be treated by financial institutions with respect to third party risk management, interagency guidance is needed to provide consistency and ensure appropriate supervision of aggregators in their role as service providers to financial institutions.

Actions in the First Year: In addition to regulatory action, existing laws will need to be amended and changed to address gaps in protections and confusing overlaps. In particular, legislative fixes that ensure the financial data infrastructure appropriately ensures privacy, accuracy, access, and information security may require a more unified approach. For example, in light of the explosion of notice and consent requirements across a broad range of digital activity (both financial and non-financial), there is increasing concern that consumers are suffering from “information overload” and cannot reasonably be expected to police the use of their data across all use cases. To progress toward a system that minimizes such unreasonable burdens on consumers, lawmakers might consider moving away from

an “opt-out” regime to one that requires consumers to “opt in” to specific uses of their data. More ambitious still, some recent proposals consider implementing requirements that data only be used for purposes that are designated as permissible by law, such as Senator Sherrod Brown’s proposed [Data Accountability and Transparency Act](#).

In any case, any such changes to financial data governance should be attuned to the ongoing and dynamic conversations about data governance more broadly, spurred by a growing recognition that the status quo is not tenable. Multiple bills have already been introduced in Congress to address these issues, including considerations of where more empowered and comprehensive data regulatory authority should be housed. It will be critical to consider how data used for financial services fits into this broader dialogue. As policymakers consider different proposals, they should also learn from the data governance efforts underway around the world.

	Immediate	First 100 Days	First Year
Develop a Cohesive, Modern Financial Data Infrastructure	FTC: [Rulemaking] complete rulemaking to update information security standards for non-banks, particularly important as new, non-bank data intermediaries become an increasingly significant part of the financial data infrastructure.	CFPB: [Regulatory Action] address the ambiguity surrounding Section 1033, including interlocking questions about the FCRA, GLBA, and EFTA. Define supervisory threshold for data aggregators if feasible. Regulators: [Regulatory Action] interagency guidance should be issued to provide clarity on how different financial regulators view relationships between banks and data aggregators in the context of third party risk management.	Congress: [Congressional Action] amend and change laws to address gaps in protections and confusing overlaps. Lawmakers may consider moving away from an “opt-out” regime or implementing a permissible purpose standard. Any changes should consider how data used for financial services fits into the broader dialogue around data governance.

Central Bank Digital Currency

Pursue leapfrog opportunities by actively exploring and testing central bank digital currency. Launch a real-world pilot that prioritizes transparency, access, and inclusion; involve a variety of stakeholders; and collaborate with international peers on interoperability, values, standards, and consumer protections.

The COVID-19 pandemic revealed dated infrastructure gaps in payments, identity, and regulatory systems, as described in the sections above. Even as the United States explores different mechanisms to upgrade that infrastructure, as discussed in this report, there could be leapfrog opportunities to both accelerate progress on those digital infrastructure components and lay the groundwork for new innovations. [Central Bank Digital Currency \(CBDC\) presents one such opportunity.](#)

Calls to accelerate progress towards a U.S. CBDC emerged first in response to Facebook's cryptocurrency Libra and subsequently, in response to China's digital yuan. More recently, retail digital currency was identified as one way the U.S. pandemic response could have been more effective.²¹

A U.S. CBDC could become the foundation of a new digital financial infrastructure. It would ideally maintain the two-tiered banking system and would be distributed through the existing architecture of commercial banks and regulated intermediaries. A digital dollar would operate alongside existing fiat currency and commercial bank money. It would mirror many properties of physical money, including its ability to work alongside existing account-based systems. It could act as a new policy tool for the Federal Reserve but should not impact the Federal Reserve's existing ability to affect monetary policy and control inflation. Policy and economic requirements of a digital dollar will inform both the underlying technology (e.g., tokenized or not) and ultimate design choices.

There is a real opportunity for a U.S. CBDC that is designed to protect consumer privacy, broader consumer protection and to enable product innovations that accelerate progress towards a fair financial system. It is critical that the United States be a leading voice in international dialogue and efforts on CBDC, in order to ensure interoperability, competitiveness, and proper embedded norms and protections. In doing so, the United States can shape the trajectory of CBDC both at home and across the globe.

²¹ U.S. House Committee on Financial Services, "[Committee Democrats Roll Out Legislation to Provide Comprehensive Stimulus and Public Policy Response to Coronavirus Pandemic](#)," March 2020.

Immediate Actions: The Federal Reserve (Fed) and the Department of Treasury (Treasury) should announce a real-world multi-stakeholder pilot to test the viability and merits of a U.S. CBDC, along with a public commitment to decide on a path forward for CBDC within 12 months of pilot launch. This effort should be grounded in CBDC as a tool to drive access and inclusion, as well as to prioritize transparency and the public good.

Actions in the First 100 Days: The Fed and Treasury should work to launch a real-world pilot in partnership with the private sector as quickly as feasible. There are a number of [potential design options](#) that could be explored. Any successful pilot will require significant federal government leadership, but must also include a diverse range of stakeholders, including consumers, businesses, financial institutions, fintechs, and ideally state governments. Additionally, it will be important to work with international peers to ensure interoperability, as well as promote standards of privacy and individual protections. Congress can enhance these efforts through legislation that supports real-world testing capable of measuring the benefits and existing challenges around CBDC implementation.

Actions in the First Year: Throughout the course of the pilot, the Fed and Treasury should issue reports that capture progress and findings.

	Immediate	First 100 Days	First Year
Explore and Test Central Bank Digital Currency	Fed and Treasury: announce a pilot to test the viability and merits of a U.S. CBDC, and make a public commitment to decide on a path forward within 12 months of pilot launch	Fed and Treasury: launch pilot in partnership with a variety of stakeholders, including the private sector. Collaborate with international peers on interoperability and standards.	Fed and Treasury: issue reports that capture progress and findings.

Appendix I: Summary of Key Recommendations for Agency, Regulatory and Congressional Actions

	Immediate	First 100 Days	First Year
Increase Access to Real-Time Payments	<p>Fed: expand Fedwire and NSS operating hours to 24 hours a day, 7 days a week, and 365 days a year to enhance the existing settlement system.</p> <p>[Regulatory Action] Use existing regulatory authority to mandate real-time funds availability for consumers under EFAA Section 402.</p>	<p>Fed: [Regulatory Action] Prioritize role as payment system regulator over that as operator. Conduct complete examination of existing regulatory authority to leverage that authority to promote real-time funds availability.</p> <p>Congress: [Congressional Action] If the Fed does not act, the next stimulus package should clearly define and grant the Fed authority as it relates to real-time payments.</p> <p>Treasury: Consider using alternative means to distribute funds, instead of the existing Fed ACH system. Collect and maintain routing information linking taxpayers to their bank accounts for future COVID and other direct payments.</p>	<p>Congress: [Congressional Action] Modernize and expand EFAA to ensure real-time funds for all payments.</p> <p>CFPB: Examine the role delayed payments take in driving demand for non-bank credit and services and bank overdraft fees. Better understand consumer benefits from faster receipt of funds, including salary.</p> <p>Congress, regulators, and agencies: [Congressional and Regulatory Action] As non-bank payment systems gain traction, the government needs an overarching legal and supervisory framework which emphasizes interconnection, consumer protection, data privacy, and inclusion.</p>
Expand Access to Credit Through Cash-Flow and Other Data Sources	<p>Regulators: [Regulatory Action] use the full toolkit to engage with and encourage firms to evaluate and incorporate alternative financial data, in particular through examiner engagement to highlight best</p>	<p>CFPB: [Regulatory Action] through 1033 rulemaking, clarify rights and procedures to access bank and prepaid account data for credit scoring and underwriting and clarify whether and how such information is subject to FCRA protections.</p>	<p>Federal, state, and local authorities: address market and policy issues to enable consumers' utility payment history to be used for credit scoring and underwriting.</p> <p>Regulators: for machine learning models, develop understanding of how machine</p>

	<p>practices and answer questions.</p> <p>CFPB: [Regulatory Action] create a system with a consistent approach to reporting consumer hardships and lender accommodations to mitigate issues now and in future crises.</p>	<p>CFPB: [Regulatory Action] assess if further guidance is needed for lenders to feel more comfortable launching special purpose credit programs.</p>	<p>learning models can be used in conjunction with alternative data to increase safe, fair, and affordable credit access.</p> <p>Congress and stakeholders: assess whether adjustments in existing statutory protections are warranted to address fairness concerns in using credit reports and/or scores outside of credit underwriting.</p> <p>Financial industries and regulators: move to a system that uses more diverse and real-time data sources.</p>
	Immediate	First 100 Days	First Year
Move Toward a People-Centered Digital Identity System	<p>NIST: revisit SP 800-63-3, the Digital Identity Guidelines, started under the Obama Administration but never fully completed.</p>	<p>Federal government: incentivize state and local adoption of login.gov through contingent or additional funding. Provide overarching funding or support to enable departments and agencies to leverage the CMS Federal Data Services Hub.</p>	<p>Congress, regulators, and agencies: review and update laws, regulations, and policies that currently prohibit government agencies from sharing data regarding identity attributes of individuals with the private sector and other public agencies.</p> <p>Federal government: Develop a federated system that leverages public and private data bound by common standards and privacy-by-design features. Learn from systems around the world, especially those that have forged paths to achieve universality without a national government ID system.</p>
Develop a Digital Regulatory Approach	<p>White House: Diversify agency leadership. Require that candidates for agency head roles make technology</p>	<p>OCC, FRB, FDIC, CFPB, NCUA and CSBS: collaborate to move toward a digital regulatory reporting system.</p>	<p>Congress and White House: adopt US strategy for financial innovation.</p> <p>New interagency task force: explore creating public/private</p>

	<p>innovation a core objective.</p> <p>FDIC, FRB, NCUA, OCC, and CFPB: each appoint two Chief Innovation Officers with regulatory and digital technology backgrounds. Each create a unit that brings together work on tech-focused regulation strategies.</p> <p>Congress and White House: should encourage the agencies to recruit software engineers and designers. appropriate funding for the Federal Financial Institutions Examination Council (FFIEC) to create and offer a technology boot camp.</p> <p>Treasury and the above agencies: form an interagency task force and announce joint plans to fund a regtech accelerator working through an independent nonprofit organization.</p>	<p>Treasury's FinCEN: adopt a process for digitizing Suspicious Action Report data to move toward a fully accessible database with appropriate controls</p> <p>Treasury: With interagency task force, launch a moonshot-style project to shift the financial regulatory system to digitally-native design as fast as possible, including making regulations machine readable.</p> <p>Congress: amend laws to allow greater flexibility for agency technology innovation projects, including the Antideficiency Act, the Paperwork Reduction Act, and the Administrative Procedure Act.</p>	<p>standard setting organization to set certifiable standards for tech firms that work with banks.</p> <p>Congress: consider amending the missions of the FDIC, FRB, NCUA, OCC, and CFPB to add a mandate to foster financial industry competition.</p>
	Immediate	First 100 Days	First Year
Develop a Cohesive, Modern Financial Data Infrastructure	<p>FTC: [Rulemaking] complete rulemaking to update information security standards for non-banks, particularly</p>	<p>CFPB: [Regulatory Action] address the ambiguity surrounding Section 1033, including interlocking questions about the</p>	<p>Congress: [Congressional Action] amend and change laws to address gaps in protections and confusing overlaps. Lawmakers may</p>

	important as new, non-bank data intermediaries become an increasingly significant part of the financial data infrastructure.	FCRA, GLBA, and EFTA. Define supervisory threshold for data aggregators if feasible. Regulators: [Regulatory Action] interagency guidance should be issued to provide clarity on how different financial regulators view relationships between banks and data aggregators in the context of third party risk management.	consider moving away from an “opt-out” regime or implementing a permissible purpose standard. Any changes should consider how data used for financial services fits into the broader dialogue around data governance.
Explore and Test Central Bank Digital Currency	Fed and Treasury: announce a pilot to test the viability and merits of a U.S. CBDC, and make a public commitment to decide on a path forward within 12 months of pilot launch	Fed and Treasury: launch pilot in partnership with a variety of stakeholders, including the private sector. Collaborate with international peers on interoperability and standards.	Fed and Treasury: issue reports that capture progress and findings.

Appendix II: Definitions

❖ Real Time Payments

FedNow: A new instant payment service that the Federal Reserve Banks are developing to enable U.S. financial institutions to provide real time payment services

Automated clearing house (ACH) Network: An electronic funds-transfer system run by NACHA (National Automated Clearing House Association), a non-profit association that is funded by the financial institutions who use it. ACH connects all U.S. financial institutions. Most payments on the ACH, including direct deposits and bill payments, rely on Fedwire or the National Settlement Service (NSS)

FedWire: A real-time gross settlement system of central bank money used by Federal Reserve Banks to transfer funds electronically between member institutions.

National Settlement Service (NSS): A multilateral settlement service owned and operated by the Federal Reserve Banks, offered to depository institutions with Federal Reserve Bank master accounts

Expedited Funds Availability Act (EFAA) Section 402 Enacted by the Congress in 1987, EFAA regulates the hold periods on deposits made to commercial banks and standardized financial institutions' use of the deposit holds.

Payment Modernization Act of 2019: Introduced in 2019 to amend EFAA as follows: it clarifies that the Federal Reserve has the existing authority to build a real-time payments system and requires it do so; and recommends updating the Expedited Funds Availability Act (EFAA) to require financial institutions to recognize funds in real time

❖ Credit System

Dodd-Frank Wall Street Reform and Consumer Protection Act, Section 1033:

This act was passed in 2012 to “promote the financial stability of the United States. Section 1033 provides that a consumer financial services provider must make available to a consumer information in the control or possession of the provider concerning the consumer financial product or service that the consumer obtained from the provider

Fair Credit Reporting Act (FCRA): The FCRA (1970) protects information collected by consumer reporting agencies (such as credit bureaus, medical information companies and tenant screening services). The Fair and Accurate Credit Transactions Act (2003) amended the FCRA on topics of record access and accuracy, identity theft and more. The FCRA is enforced by the Federal Trade Commission (FTC) and the Consumers Financial Protection Board (CSFB).

Machine Learning Techniques: Machine learning is an application of artificial intelligence (AI) that provides systems the ability to automatically learn and improve from experience without being explicitly programmed. Machine learning focuses on the development of computer programs that can access data and use it to learn for themselves.

❖ Digital Identity

National Institute of Standards and Technology (NIST): The National Institute of Standards and Technology (NIST) was founded in 1901 and is part of the U.S. Department of Commerce. NIST's mission is to promote U.S. innovation and competitiveness by advancing measurement science, standards, and technology in ways that enhance economic security and improve our quality of life

FIDO Alliance: The FIDO Alliance is an open industry association that promotes the development, use of, and compliance with standards for authentication and device attestation. The FIDO Alliance is driven by the hundreds of global tech leaders across enterprise, payments, telecom, government and healthcare

Login.Gov: Login.gov is a service that offers secure and private online access to government programs, such as federal benefits, services and applications. A login.gov account allows users to sign into multiple government websites with the same email address and password. login.gov uses two-factor authentication, and stronger passwords, that meet new NIST requirements for secure validation and verification

Federal Data Services Hub: The Federal Data Services Hub was built by the Centers for Medicare & Medicaid Services (CMS) to verify data against information contained in existing, secure and trusted Federal and state databases. CMS has security and privacy agreements with all Federal agencies and states connecting to the Hub, including the Social Security Administration, the Internal Revenue Service, the Department of Homeland Security, the Department of Veterans Affairs, Medicare, TRICARE, the Peace Corps and the Office of Personnel Management

❖ Regulatory Systems

"Know Your Customer" (KYC): Know Your Customer (KYC) guidelines are designed to prevent the financial system from being used by criminal elements and terrorist organizations for money laundering. They require banks and financial companies to verify the identity, suitability, and risks involved with customers and their financial dealings, and fit within the broader scope of an Anti-Money Laundering (AML) policy.

Digital Regulatory Reporting (DRR) system: A DRR system would utilize digitized data to report information to regulators. The FCA and Bank of England are currently running a project to test these types of systems and other experiments are underway, including one under the auspices of the Bank for International Settlements.

Treasury's FinCEN: The Financial Crimes Enforcement Network (FinCEN) is a bureau of the U.S. Department of the Treasury whose mission is to safeguard the financial system from illicit use and combat money laundering and promote national security through the collection, analysis, and dissemination of financial intelligence and strategic use of financial authorities (more [here](#))

Administrative Procedure Act: The Administrative Procedure Act (APA) governs the process by which federal agencies develop and issue regulations. It includes requirements for publishing notices of proposed and final rulemaking in the Federal Register and provides opportunities for the public to comment on notices of proposed rulemaking

Antideficiency Act: The Antideficiency Act prohibits federal employees from: making or authorizing an expenditure from, or creating or authorizing an obligation under, any appropriation or fund in excess of the amount available in the appropriation or fund unless authorized by law.

Paperwork Reduction Act: The Paperwork Reduction Act requires that agencies obtain Office of Management and Budget (OMB) approval before requesting most types of information from the public. “Information collections” include forms, interviews, and record keeping, to name a few categories

Federal Financial Institutions Examination Council: The Council is a formal interagency body responsible for developing uniform examination standards and procedures for federally supervised financial institutions, their holding companies, and the nonfinancial institution subsidiaries of those institutions and holding companies. It also makes recommendations to promote uniformity in the supervision of financial institutions.

CFPB: The Consumer Financial Protection Bureau

CSBS: The Conference of State Bank Supervisors

FDIC: The Federal Deposit Insurance Corporation

FINRA: The Financial Industry Regulatory Authority, Inc

FRB: The Federal Reserve Board (governing body of the Federal Reserve System)

NCUA: The National Credit Union Administration

OCC: The Office of the Comptroller of the Currency

SEC: The Securities and Exchange Commission

❖ Financial Data Infrastructure

FinTech: Financial technology (Fintech) refers to software and technologies that seek to improve and automate the delivery and use of financial services. Fintech companies include both startups and established financial institutions and technology companies trying to replace or enhance services. FinTech has been used to automate investments, insurance, trading, banking services and risk management

The Gramm-Leach-Bliley Act (GLBA) The Gramm-Leach-Bliley Act (1999) requires financial institutions that offer financial products or services like loans, financial or investment advice, or insurance – to explain their information-sharing practices to their customers and to safeguard sensitive data. It provides limited privacy protections against the sale of private financial information, and codifies protections against the practice of obtaining personal information through false pretenses.

Electronic Fund Transfer Act (EFTA): The Electronic Fund Transfer Act (EFTA) is a federal law that protects consumers when they transfer funds electronically including the use of debit cards, automated teller machines (ATMs), and automatic withdrawals from bank accounts. The Federal Reserve Board (FRB) implements EFTA through Regulation E, which includes an official staff commentary

Data Accountability and Transparency Act: In June 2020, Senator Sherrod Brown proposed the Data Accountability and Transparency Act, which creates a new framework to give Americans the power to hold corporations, big tech, and the government responsible for how they collect and protect personal data

The Data Care Act: In December 2019, Senator Brian Schatz led a group of 16 senators in reintroducing legislation to protect people's personal data online. The Data Care Act would require websites, apps, and other online providers to take responsible steps to safeguard personal information and stop the misuse of users' data

❖ **Central Bank Digital Currency**

Central Bank Digital Currency (CBDC): CBDC is a potentially new form of central bank issued currency, with cryptographic features that could operate within or alongside real-time gross settlement systems. There are various design choices for a CBDC, including: access; degree of anonymity; operational availability; and interest bearing characteristics

Libra Payment System: Facebook launched this crypto currency initiative for a global payments system in 2019. It is controlled by the Libra Association, which includes members and investors who all get to vote (Facebook's current investment represents about 10%). In April 2020, the Libra association announced a scaled back, "2.0" version that makes significant changes to the original vision

Appendix III. Resources

Real Time Payments

- ❖ [How to Fix the Covid Stimulus Payment Problem](#), Aaron Klein, *Brookings Institution*, August 2020
- ❖ [The Digitization of Money and Payments](#), Testimony of Nakita Q. Cuttino, Visiting Assistant Professor of Law, Duke University School of Law Before the United States Senate's Committee on Banking, Housing and Urban Affairs, June 30, 2020
- ❖ [Private Markets, Public Options, and the Payment System](#), Peter Conti-Brown, University of Pennsylvania - The Wharton School; Brookings Institution; David A. Wishnick, University of Pennsylvania - Center for Technology, Innovation & Competition, May 2020
- ❖ [How payments can adjust to the coronavirus pandemic—and help the world adapt](#), Philip Bruno, Reet Chaudhuri, Olivier Denecker, Tobias Lundberg, and Marc Niederkorn, McKinsey, March 2020
- ❖ [We shouldn't have to wait for FedNow to have faster payments](#), Aaron Klein, *Brookings Institution*, George Selgin, *Cato Institute*, February 2020
- ❖ [Is China's new payment system the future?](#), Aaron Klein, *Brookings Institution*, June 2019
- ❖ [Real-time payments can help combat inequality](#), Aaron Klein, *Brookings Institution*, March 2019
- ❖ [Potential Federal Reserve Actions to Support the Interbank Settlement of Faster Payments](#), Letter from Aaron Klein, *Brookings Institution*, to Secretary Ann Misback of the Board of Governors of the Fed, December 2018

Credit System

- ❖ [Coronavirus Tanked the Economy. Then Credit Scores Went Up](#), AnnaMaria Andriotis, *Wall Street Journal*, Oct. 18, 2020
- ❖ [Data Diversification in Credit Underwriting](#), FinRegLab, October 2020
- ❖ [Scores and Reports with Black Communities](#), Chi Chi Wu, *National Consumer Law Center* (on Medium), August 2020
- ❖ [Market Context and Policy Analysis](#), FinRegLab, February 2020
- ❖ [Policy Overview](#), FinRegLab, February 2020
- ❖ [The Use of Cash-Flow Data in Underwriting Credit: Empirical Research Findings](#), FinRegLab, July 2019

Digital Identity

- ❖ [Principles on Identification For Sustainable Development: Toward The Digital Age](#), Identity for Development (ID4D), World Bank, 2019
- ❖ [#GoodID](#) Principles, Omidyar Network, 2019
- ❖ [Digital Identity Guidelines](#), National Institutes of Standards and Technologies (NIST), June 2017

Regulatory Systems

- ❖ [What do the Data Reveal about \(the Absence of Black\) Financial Regulators?](#), Chris Brummer, Georgetown University Law Center; The Institute of International Economic Law (IIEL); Atlantic Council, July 20, 2020
- ❖ Request for Comment: [A Regtech Manifesto: Redesigning Financial Regulation for the Digital Age](#), Alliance for Innovation in Regulation, July 2020
- ❖ [Financial Regulators' Dilemma: Administrative and Regulatory Hurdles to Innovation](#), Alliance for Innovation in Regulation, Buckley firm and Flourish Ventures, January 2020

Competitions and Experiments

- ❖ [FDIC's Competition to Modernize Bank Financial Reporting](#), FDIC, June 2020
- ❖ [Alliance for Innovative Regulation \(AiR\) TechSprints](#); TechSprints are intense problem-solving sessions designed to facilitate innovation, collaboration and creative solutions to difficult problems.
- ❖ [How to Produce a Regulatory TechSprint](#), Alliance for Innovation in Regulation, 2020
- ❖ [New York's Department of Financial Services \(DFS\) Digital Regulatory Reporting Techsprint](#): NY's DFS will sponsor a [techsprint](#) to design a Digital Regulatory Reporting mechanism for virtual currency companies
- ❖ [BIS Innovation Hub \(BISIH\) and G20 Techsprint](#): A joint initiative designed to showcase the potential for new innovative technologies to resolve operational problems in the areas of regulatory compliance (RegTech) and supervision (SupTech)
- ❖ [UK's Financial Conduct Authority's \(FCA\) Digital Regulatory Reporting](#): A joint initiative to make regulatory reporting more efficient and effective.
- ❖ [Series of papers \(2019-2020\)](#), Jo Ann Barefoot, Senior Fellow, Harvard Kennedy School Center for Business and Government: argues that technology-based innovation can massively advance the goal of improving financial inclusion and fairness for consumers.

Financial Data Infrastructure

- ❖ [Consumer Financial Data: Legal and Regulatory Landscape](#), Alex Acree, Pierce Babirak, Shelby Schwartz, Julia Baker, and Chris Napier, *Mitchell Sandler*; Dan Murphy and David Silberman, *Financial Health Network*; Kelly Thompson Cochran, *FinRegLab*; Chuck Muckenfuss, *Flourish*, October 2020
- ❖ [The Role of Individuals in the Data Ecosystem: Current Debates and Considerations for Individual Data Protection and Data Rights in the U.S.](#), Kaitlin Asrow, *San Francisco Federal Reserve*, June 2020
- ❖ [Comment Letter: CFPB Taskforce on Consumer Financial Law](#), Dan Murphy, *Financial Health Network*, June 2020
- ❖ [Digital banking is surging during the pandemic. Will it last?](#), Penny Crosman, *American Banker*, April 2020
- ❖ [Testimonial: CFPB Consumer Access to Financial Records Symposium](#), Dan Murphy, *Financial Health Network*, February 2020
- ❖ [The Use of Cash-Flow Data in Underwriting Credit: Market Context and Policy Analysis](#), *FinRegLab*, February 2020
- ❖ [CFPB Outlines Principles For Consumer-Authorized Financial Data Sharing and Aggregation](#), Consumer Financial Protection Board, October 2017
- ❖ [Consumer Data Sharing Principles: A Framework for Industry-Wide Collaboration](#), Beth Brockland, *Financial Health Network*, October 2016

Digital Currency

- ❖ [The Digital Dollar Project: Exploring a US CBDC](#), Digital Dollar Foundation, Accenture, May 2020
- ❖ [DTCC Unveils Proposals to Explore Further Digitalization in the Public & Private Markets](#), Depository Trust & Clearing Corporation (DTCC) announcement of pilots, May 2020
- ❖ [Exploring a United States Central Bank Digital Currency: Proposed Pilot Programs](#), Digital Dollar Project
- ❖ [Central Bank Digital Currency Policy-Maker Toolkit](#), The World Economic Forum, January 2020
- ❖ [Designing Central Bank Digital Currencies](#), International Monetary Fund, November 2019

Appendix IV: Series Event Descriptions and Experts

[How to Make Real-time Payments Real Now](#)

Hosted by the Brookings Institution

Tuesday, September 22nd

[Watch the Event](#)

The failure of the U.S. government to be able to quickly provide citizens with emergency funds in response to the COVID-19 recession starkly reminds us that delays in America's payment system have significant consequences. The most financially vulnerable bear the largest cost from this outdated system. How is it that Americans can instantly stream any film ever made to their living room but still have to wait days, weeks, or months to receive a simple payment?

The Center on Regulations and Markets at Brookings convened a panel of experts to discuss how to fix this problem quickly. We analyzed potential solutions that could deliver real-time payments immediately, what the consequences would be from waiting 3+ years for the Federal Reserve's promised new payment system, and why much of the rest of the world solved these problems years ago but America hasn't.

Speakers

- Moderator: Aaron Klein, Fellow, [Economic Studies](#); Policy Director, [Center on Regulation and Markets](#)
- [George Selgin](#), Director, Cato Institute Center for Monetary and Financial Alternatives
- [Nakita Cuttino](#), Visiting Assistant Professor of Law - Duke University School of Law
- [Peter Conti-Brown](#), Nonresident Fellow, [Economic Studies](#)

Developing the Credit System for Greater Fairness and Inclusion

Hosted by FinRegLab

Wednesday, September 30th

[Watch the Event](#)

Today, three profound societal challenges increase the urgency of efforts to address the limitations of the traditional credit information system: a viral pandemic, a severe economic downturn, and a mass movement for racial justice. Each of these disproportionately affect minorities, and occurring at once, they underscore the extraordinary stakes for African American and Hispanic families, communities, and businesses of addressing long standing barriers to financial and economic inclusion.

The increasingly sophisticated use of both traditional and new data accompanied by more advanced modeling analytics could produce significant benefits for consumers, for instance by increasing the speed and convenience of credit delivery, expanding access for historically underserved populations, supporting more personally tailored financial products and services, and giving consumers and small businesses more control over their financial lives. But achieving these benefits while managing risks and implementation hurdles requires careful thought and coordinated action.

This event included a diverse range of experts who shared their perspectives on defining priorities for developing the U.S. credit system in ways that will support an inclusive recovery from the pandemic and address longer term inequalities

Speakers

- Moderator: [Melissa Koide](#), CEO of FinRegLab
- [Grovetta Gardineer](#), Senior Deputy Controller, Office of the Comptroller of the Currency
- [Jason Gross](#), Co-Founder + CEO, Petal
- [Michael Rapaport](#), Senior Vice President, Opportunity Fund
- [Larry Rosenberger](#), former CEO + Research Fellow, FICO
- [Chi Chi Wu](#), Staff Attorney, National Consumer Law Center

Reimagining Our Financial Data Ecosystem

Hosted by the Financial Health Network

Monday, October 5th

[Watch the Event](#)

Around the world, policymakers have put data governance measures into place that aim to protect individual privacy, enable consumer control, encourage innovation, and promote competition. While these measures differ greatly from one country to the next, all seek to create a modern legal and regulatory framework that accounts for the emergence of new data and new intermediaries in almost every industry.

As one of the most heavily regulated and systemically important industries, financial services is a critical place to get this right. Thus far, policymakers in the U.S. have been slow to address changes in the financial data ecosystem, but there are indications that this may soon change. With that in mind, this panel discussed:

- The state of the financial data ecosystem in the United States
- Proposals for reform and lessons that can be learned from abroad
- How the financial data ecosystem connects to some of today's most pressing challenges

Speakers

- Moderator: [Dan Murphy](#), Financial Health Network
- [Alex Acree](#), Partner, Mitchell Sandler LLC
- [Kaitlin Asrow](#), Federal Reserve Bank of San Francisco
- [Kelly Cochran](#), Deputy Director, FinRegLab
- [Linda Jeng](#), Visiting Scholar on Financial Technology, Georgetown Institute of International Economic Law; Adjunct Professor of Law, Georgetown University
- [Chuck Muckenfuss](#), Director, FinRegLab, past Chairman of the Board and Co-Founder of City First Bank of DC (Closing Remarks)

Charting a 21st Century Digital Identity Framework for Financing

Hosted by the Beeck Center for Social Impact and Innovation

Tuesday, Oct 13th

[Watch the Event](#)

The global pandemic has shown the importance of upgrading our digital infrastructure. We've all heard the challenging stories of pandemic checks mailed to individuals and how hard it has been for banks to expand access to financial services to individuals in need. A critical piece here is the need for a digital identity. There is a need for a 21st Century digital identity framework.

This conversation explored the role of digital identity in helping to unlock a well-functioning digital payment infrastructure in the US. Our expert speakers aligned on a set of core problems that digital ID can solve and emergent solutions that we should be looking to as we upgrade our larger digital infrastructure.

Speakers:

- Moderator: [Sonal Shah](#), Executive Director, Beeck Center for Social Impact and Innovation, Georgetown University
- [Vyjayanti Desai](#), Program Manager, Identification for Development (ID4D) initiative, World Bank
- [Miguel Sangalang](#), Deputy Mayor for Budget and Innovation, City of Los Angeles, CA
- [Travis Jarae](#), Founder + CEO, One World Identity, formerly head of Identity Verification and KYC at Google
- [Robin Carnahan](#), Fellow, Beeck Center and former Secretary of State of Missouri, founder of State and Local Government Practice at 18F

Regulating for Fair Finance: There is a will and there is a way

Hosted by the Alliance for Innovative Regulation

Tuesday, October 27th

[Watch the Event](#)

The crises of 2020 -- in health, the economy, and race -- have fallen most harshly on people of color. Job and income losses, meanwhile, have disproportionately hit women. In every realm, this year's struggles have laid bare deep structural disparities that impede efforts to build a fully fair, just and resilient society.

These wrenching experiences have galvanized a new "will" to do better, a readiness to pour energy and resources into real solutions. That leads to the next question: if this "will" exists, is there also a "way" to do better?

In financial services, there is. It lies in digital technology.

In July AIR published a Request for Comments on a Regtech Manifesto proposing how to convert the financial regulatory system to "digitally-native" design to make it work better, cheaper and faster, all at once.

In this webinar, AiR facilitated a lively conversation among globally-leading thinkers from across the financial regulatory ecosystem -- a banker, a tech expert, a regulator, and a leader of the global regulatory innovation community. Each proposed the most practical steps to take, now, to rapidly advance regtech progress. Each also suggested the game-changing strategies to launch, now, to make the next decade produce an interoperable, data-centered, AI-enabled regulatory system. From digital regulatory reporting to machine-readable regulation, what should we do and where should we start, to realize the goal of genuinely fair finance? The event also unveiled AIR's plans for a new Regulatory Design Series.

Speakers

Fireside Chat: Financial Regulation is Changing

- [Jo Ann Barefoot](#), CEO & Co-founder of AIR
- [Andrew McCormack](#), Centre Head of the Singapore Innovation Hub of BIS

Virtual Roundtable Discussion

- [Yvette Hollingsworth Clark](#), Adjunct Professor at Golden Gate University

- [Francesca Hopwood Road](#), Head of RegTech and Advanced Analytics at Financial Conduct Authority
- [Matthew Van Buskirk](#), Co-founder and Co-CEO of Hummingbird Regtech

Digital Dollar II

Hosted by the Digital Dollar Project + Accenture

Friday, October 30th

[Watch the Event](#)

Central banks representing a fifth of the world's population say they are likely to issue the first CBDCs in the next few years*. Accenture, in collaboration with the Digital Dollar Foundation, explored what this means for the future of money and its impact on banks, businesses and individuals around the world. Leaders representing different perspectives from institutions, wholesale and retail discussed:

- The progression of CBDC's from "if" to "how"
- Exploring use cases coming to the forefront
- Recent moves by the world's largest central banks and what's next

Speakers

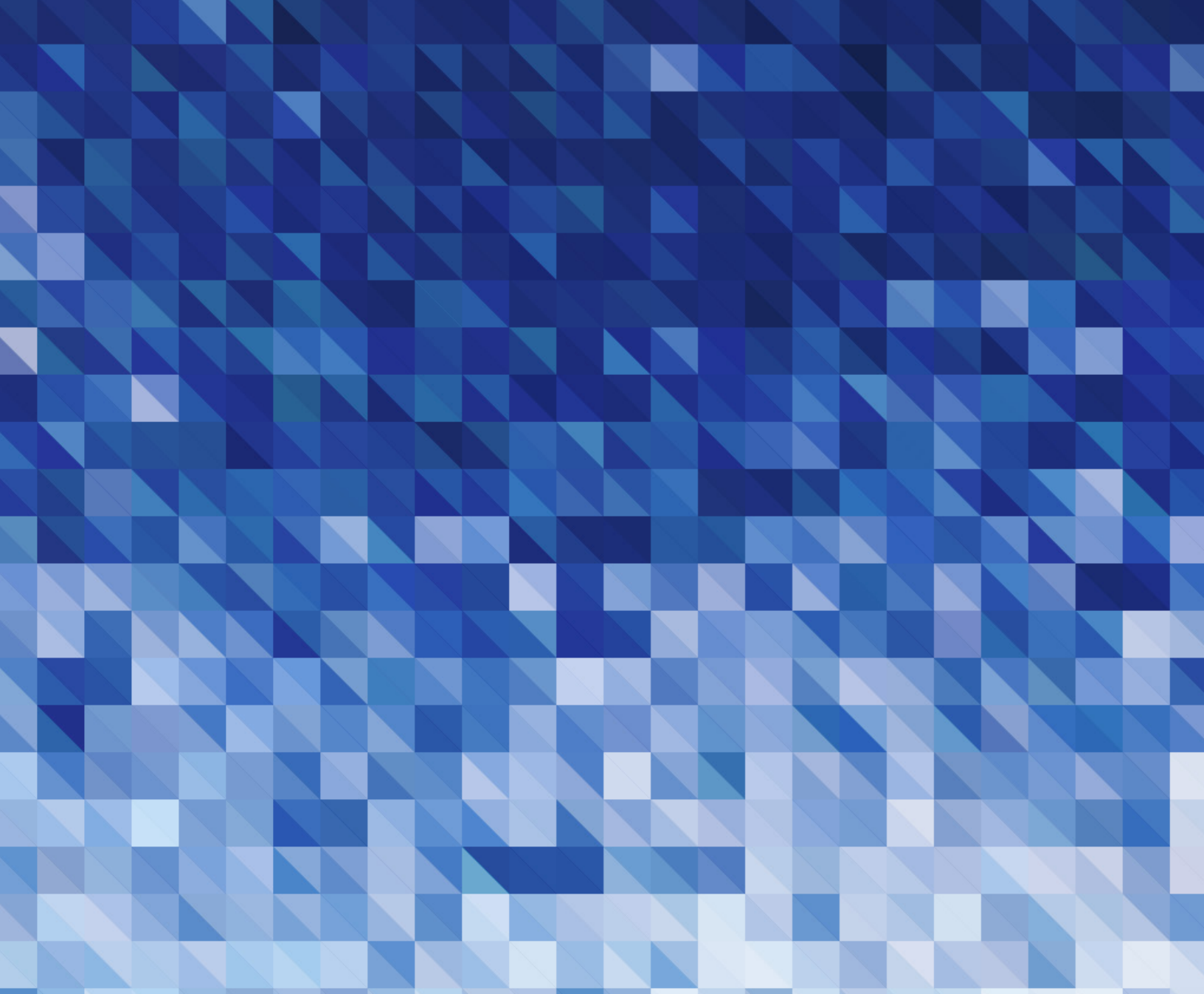
[Daniel Gorfine](#), Project Director, Digital Dollar Project, Founder and CEO of Gattaca Horizons LLC and Adjunct Professor of Law at the Georgetown University Law Center teaching FinTech Law & Policy.

Institutional/Wholesale lens

- [Sopnendu Mohanty](#), CFO, Monetary Authority of Singapore
- [Josh Lipsky](#), Director of Programs and Policy, Atlantic Council
- [Rob Palatnick](#), Managing Director and Global Head of Technology Research and Innovation, DTCC
- [Erin McCourt](#), Managing Director, Operations, Morgan Stanley

Retail lens

- [Usman Ahmed](#), Head of Global Public Policy, PayPal; Adjunct Professor of Law, Georgetown University
- [Kabir Kumar](#), Director, Flourish Ventures
- [Shelly Swanback](#), President, Product and Platform, Western Union



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