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Reaching Real Time: Payments in the United States

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July 2024

M-RCBG Associate Working Paper Series | No. 239

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Reaching Real Time: Payments in the United States | April 2024

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Submitted in partial fulfillment of the requirements for the degree of Master in Public Policy. This Policy Analysis Exercise (PAE) reflects the views of the authors and should not be viewed as representing the views of the United States government, Federal Reserve System, United Kingdom government, nor those of Harvard University or any of its faculty. © [2024] [Logan Herman, Kabir Mehta]. All rights reserved, except as granted to the President and Fellows of Harvard College in the PAE Non-Exclusive License. Image/Dmitry©/Adobe Stock.

Acknowledgements

Thank you to Timothy G. Massad, Director of the Digital Assets Policy Project and Senior Fellow at the Harvard Kennedy School, for offering your exceptional knowledge, advice, and regulatory guidance.

We are grateful for the support of Jason Furman, Aetna Professor of the Practice of Economic Policy at Harvard Kennedy School, for his mentorship and expertise in economic policy analysis.

We would like to thank the policymakers, market experts, business leaders, and scholars that contributed to this work with their time and knowledge. Discussions with the U.S. government, non-profit, payment experts, and market participants contributed significantly to this paper. From the U.K., we would like to thank staff from the Bank of England, Bank for International Settlements Innovation Hub, and HM Treasury for providing their unique perspectives on U.K. faster payments.

Thank you to the Harvard Kennedy School professors, students, and community for your help and encouragement.

We are thankful to the Mossavar-Rahmani Center for Business and Government and the Belfer Center for Science and International Affairs for their generous support of this work.

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Overview and Recommendations

Problem Statement

Although real-time payment systems have proliferated in advanced economies worldwide, U.S. adoption of faster payments has lagged despite two real-time payment offerings from the Federal Reserve and private sector. What factors contribute to the U.S.'s delay in adopting a real-time system, and how can policy help address these gaps to promote payment efficiency, inclusion, and policy alignment?

Analytical Strategy

Analysis of Competing Theories of Change: TCH, U.S., and U.K.

- Private-Sector Development
- Government Development of Competitive Platform
- Government Ownership and Responsibility

Analytical Framework, Strategies, and Tool Choice

- Focus on Policy, Regulatory, and Executive Institutions
- Integrated Approach to Development and Deployment

Recommendations

1. Executive Order on Payment Systems Interoperability and Financial Inclusion
2. Collaboration with the BIS Innovation Hub for FedNow Development
3. Financial Stability Oversight Council (FSOC) Study of Alternate Payment Systems Risk
4. U.S. Government Provided Baseline Payment Interface and User Tools
5. Evaluation of Expanding FedWire and NSS Operational Hours

Executive Summary

Payments and settlement infrastructure are a fundamental feature of economic activity. The essential tasks performed by these systems underlie every transaction, from small consumer purchases and mortgages to business transactions and financial market movement. The features and effectiveness of a payment system can support or undermine economic efficiency, financial inclusion, or everyday life. Our near-term policy and business decisions associated with instant or real-time payments and payment infrastructure carries profound implications for the United States' domestic economic activity and global competitiveness.

The landscape of real-time payments in the U.S. presents a unique conundrum – the current U.S. payment system often measures transaction times in days rather than seconds, creating a disconnect in an economy where immediacy is increasingly the benchmark. Despite its pioneering role in technology and finance, why does the U.S. lag behind its counterparts in the widespread adoption of a real-time payments system? This gap can be attributed to a complex interplay of factors, chief among them being the lack of a government mandate driving adoption rates, coupled with a payments infrastructure controlled by private entities and absence of a concerted effort towards a public payment system. This situation has resulted in a trilemma where quest for universal access to payment systems, traditional control exerted by large financial institutions, and the need to align with national policy priorities are in constant tension.

The recent merger proposal between Capital One and Discover¹, although indirectly related to our exploration of real-time payments, signals that market consolidation could inadvertently overshadow the critical push for upgrading the U.S. payment infrastructure. As such, the urgency for policy interventions that prioritize systemic improvements, rather than reshape market dynamics, becomes even more pronounced.

Against this backdrop, our analytical approach employs a multidimensional lens, evaluating the interplay between market dynamics, regulatory frameworks, and the strategic roles of public and

¹ Joshua Franklin and James Fontanella-Khan, "Capital One Agrees to Buy Discover Financial for \$35bn," *Financial Times*, February 20, 2024, <https://www.ft.com/content/cf009c4d-e893-410f-b8c8-a893e73061ed>.

private sectors in payments innovation. We explore competing theories of change, including private-sector development, government-driven competitive environments, and direct governmental creation of payment systems. We also draw insights from the United Kingdom, which addressed the trilemma by assigning a central role to government oversight, thereby ensuring that the payment system operated as a public good, accessible to all and geared towards national economic objectives.

By dissecting the underlying structures that have stalled progress in the U.S. and comparing them with the more agile approaches of the U.K., we chart a course for a balanced, resilient, and inclusive payments infrastructure. A cornerstone of these proposals is an Executive Order on Payment Systems Interoperability and Financial Inclusion. This order would mandate the creation of a payments ecosystem that is accessible to all, reflecting the need for a unified approach to financial services that caters to every citizen, which has been a key factor in the success of the U.K.'s payment system.

Further, the proposals recommend leveraging international expertise through collaboration with the BIS Innovation Hub to refine the FedNow service, drawing from the global best practices in real-time payments while ensuring the safeguarding of national security and financial stability. This collaboration seeks to incorporate lessons from the U.K. experience, particularly the emphasis on a public good developed and maintained by the central bank.

We also propose a study by the Financial Stability Oversight Council to assess payment systems risk, advocating for a comprehensive understanding of systemic risks and the pursuit of universal standards and enhanced interoperability.

Additionally, the provision of a government-facilitated application for real-time payments is proposed to support small and community-based institutions, a policy informed by the U.K.'s prioritization of financial inclusion. This approach aligns with our analytical perspective, which maps the complex dynamics defining the U.S. payment systems against a backdrop of global financial innovation.

Our proposals address the U.S.'s delay in real-time payments adoption by suggesting a combination of executive action, regulatory reform, and strategic public sector intervention, all aimed at recalibrating the trajectory of U.S. financial infrastructure towards a system that champions innovation, competitive parity, and systemic resilience. The objective is to foster a payments landscape that serves the economy and its citizens effectively and equitably, while maintaining the U.S.'s position as a leader in global financial innovation.

Introduction

Payments are a critical infrastructure that underlies everything from consumer spending and purchases to complex financial activities. The effectiveness of a payment system represents the ability of individuals to facilitate their everyday lives, businesses to operate, and governments to implement fiscal and monetary policy.

In the fast-paced global economy where the velocity of money underpins economic vitality and inclusivity, the United States finds itself at a crossroads in the evolution of its payment systems. In Table 1 below, we provide a snapshot of the current state of real-time payments within the G7, contrasting key attributes and casting light on the different theories of change employed to establish real-time payments.

Table 1: G7 Nation Real-Time Payment Structure and Market Availability

<i>Country</i>	<i>Payment System Name</i>	<i>Year Adopted</i>	<i>System Type</i>	<i>Market Penetration</i>	<i>Theory of Change</i>
Canada	Interac e-Transfer	2022	Hybrid	High	Competitive Environment
France	TIPS	2018	RTGS	High	Government-Developed
Germany	TIPS	2018	RTGS	Moderate	Competitive Environment
Italy	TIPS	2017	RTGS	Moderate	Private Sector Development
Japan	Zengin System	2018	RTGS	High	Government-Developed
United Kingdom	Faster Payments	2008	RTGS	Very High	Government-Developed
United States	RTP® by The Clearing House	2017	RTGS	Low	Private Sector Development
	FedNow by Federal Reserve	2023	RTGS	Low	Government-Developed

System Type:

- **RTGS (Real-Time Gross Settlement):** Transactions are processed in real time, individually, without netting debits with credits across transactions.
- **Hybrid:** A combination of RTGS and other settlement methods, which may include deferred net settlement features or batch processing along with real-time capabilities.

Market Penetration:

- **High:** A significant majority of banks and financial institutions are connected to the system, and it is commonly used for a variety of payment types across the country.

- **Moderate:** A substantial number of financial institutions use the system, but it may not be the primary method of payment or may not cover all types of transactions.
- **Low:** Limited use among financial institutions and consumers; not widely adopted or recognized as a standard payment method nationally.

Compared to approximately 9,000 banks and credit unions in the U.S.:²

- **RTP:** 483³ participating financial institutions.
- **FedNow:** 606⁴ participating financial institutions.

The global trend towards real-time payments contrasts with the gradual and cautious approach of the U.S. where payments infrastructure is predominantly controlled by The Clearing House (“TCH”) and large financial institutions. The conversation around FedNow was sparked by the realization that existing real-time payment solutions, often limited to users within specific networks, rely on outdated systems, leading to delays and potential fragility in financial infrastructure. TCH’s Real-Time Payments (“RTP”) network, while a step forward, has not achieved universal reach, prompting the Federal Reserve (the “Fed”) to leverage its unique position connecting virtually all depository institutions in the nation to propose FedNow as a universally accessible real-time payment system.

Notably, the uptake of FedNow has been slow, with only 606 of the approximately 9,000 banks and credit unions in the U.S. currently signed up.⁵ Additionally, within this emerging framework, there is an important distinction to be made regarding levels of engagement: the exact number of these financial institutions that will actively participate in both sending *and* receiving payments, as opposed to simply receiving, remains unclear. In the U.S., financial institutions not utilizing TCH’s RTP system or the Fed’s FedNow service primarily depend on established payment mechanisms to manage both domestic and international transactions. Key among these are: the Automated Clearing House (“ACH”) network, which facilitates electronic transfers including direct deposits and bill payments; wire transfer services like Fedwire for urgent, high-value transactions, and traditional check processing for paper-based payments.⁶ Additionally,

²“Frequently Asked Questions,” Federal Reserve Board, n.d., https://www.federalreserve.gov/paymentsystems/fednow_faq.htm.

³ “RTP Participating Financial Institutions,” The Clearing House,” n.d., <https://www.theclearinghouse.org/payment-systems/rtp/RTP-Participating-Financial-Institutions>.

⁴ “FedNow Service Participants and Service Providers,” Federal Reserve, March 29, 2024, <https://www.frbservices.org/financial-services/fednow/organizations>.

⁵ “FedNow Service Participants and Service Providers,” Federal Reserve, March 29, 2024, <https://www.frbservices.org/financial-services/fednow/organizations>.

⁶ “Payment Systems,” Federal Reserve Board, February 21, 2024, <https://www.federalreserve.gov/paymentsystems.htm>.

card payment networks (Visa, MasterCard) play a crucial role in debit and credit card transactions, while SWIFT is utilized for international transfers.⁷ These systems, while reliable, often feature longer processing times compared to instantaneous payment solutions.⁸ Regarding transaction volumes, TCH announced that the RTP network's transaction volume reached \$29 billion in the second quarter of 2023, reflecting a 61% increase from the previous year.⁹ However, compared to the \$991.8 trillion and \$72.6 trillion processed by Fedwire and ACH in 2021, respectively,¹⁰ RTP's volume remains modest in the wider payment system landscape.

The Fed's initiative to effectively democratize real-time payments through FedNow has not been without controversy. Moreover, the competitive dynamics between public and private sector payment services, concerns over a level playing field, and the potential for FedNow to disrupt existing payment services have sparked significant policy tension.¹¹ Critics argue that the Fed's entry into real-time payments could unfairly disadvantage private payment operators due to the Fed's regulatory authority¹², exemption from antitrust laws¹³, and unique financial advantages.¹⁴ Moreover, the fear that FedNow might hinder the proposed operational hours expansion of essential liquidity management services like Fedwire and the National Settlement Service ("NSS") exacerbates these tensions, raising critical questions about the balance between fostering innovation and maintaining competitive fairness.

The question remains: ***why does the U.S., despite its pioneering spirit in technology and finance, lag in the widespread adoption of real-time payments systems?***

⁷ Ibid

⁸ Ibid

⁹ "RTP® Network Surpasses Half a Billion Instant Payments," The Clearing House, July 24, 2023, https://www.theclearinghouse.org/payment-systems/Articles/2023/07/07-24-2023_RTP_Network_Surpasses_Half_Billion_Instant_Payments#:~:text=The%20RTP%20network%2C%20which%20is,%2418%20billi on%20in%20Q2%202022.

¹⁰ "Real-time payment networks grow, but banks still search for uses," S&P Global Market Intelligence, October 25, 2022, <https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/real-time-payment-networks-grow-but-banks-still-search-for-uses-72411002>.

¹¹ "Facilitating Faster Payments In The United States," United States Senate Committee on Banking, Housing, and Urban Affairs, September 25, 2019, <https://www.govinfo.gov/content/pkg/CHRG-116shrg38550/html/CHRG-116shrg38550.htm>.

¹² Yany Aibangbee, "10 Questions for the FedNow Launch," Bank Policy Institute, July 19, 2023, <https://bpi.com/ten-questions-for-the-fednow-launch/>.

¹³ "Docket No. OP-1670; Federal Reserve Actions to Support Interbank Settlement of Faster Payments," The Clearing House, November 1, 2019, https://www.federalreserve.gov/SECRS/2019/November/20191104/OP-1670/OP-1670_110119_136102_459839640204_1.pdf.

¹⁴ "Federal Reserve Actions To Support Interbank Settlement of Faster Payments," Federal Register, August 9, 2019, <https://www.federalregister.gov/documents/2019/08/09/2019-17027/federal-reserve-actions-to-support-interbank-settlement-of-faster-payments>.

This paper seeks to uncover the underlying reasons for this hesitancy, with a pointed focus on the lack of a governmental mandate as the pivotal cause of the slow adoption rates in comparison to other nations. Regarding our analytic approach, we will map out the complex dynamics that define the RTP landscape in the U.S., contrasting them with the concerted efforts and regulatory clarity that have marked the U.K.'s path. Specifically, the trilemma faced in realizing a real-time payment system that is not only universal but also supports national policy priorities while balancing the entrenched control of large financial institutions. Additionally, we will explore the interplay of these factors against the backdrop of three dominant theories of change: private-sector development, competitive environment fostered by government interventions, and direct government development.

This paper will argue that without a clear governmental directive, the U.S. risks remaining in the shadows of global financial innovation, potentially ceding the advantages that real-time payments offer to both its economy and its citizens. Moreover, we conclude with policy recommendations to cut through the impasse and shepherd the U.S. towards a payment systems paradigm that champions innovation, competitive parity, and systemic resilience. In doing so, this thesis not only contributes to the academic discourse, but also proposes actionable insights that could recalibrate the trajectory of U.S. financial infrastructure development.

Methodology

To investigate the dynamics of real-time payment systems in the U.S. and the U.K., we adopted a methodology grounded in expertise and diverse perspectives. Our approach encompassed in-depth interviews with a wide array of stakeholders and a comprehensive analysis of the structural factors influencing payment systems.

Expert Interviews

We conducted interviews with key figures and institutions to gain varied insights into the design, operation, and implications of real-time payment systems:

1. United States Department of the Treasury

- a. Objective: to understand the U.S. government's perspective and role in payment systems.

2. Bank of England

- a. Objective: to capture insights on the U.K.'s approach to managing and innovating within its payment systems.

3. United Kingdom HM Treasury

- a. Objective: to discuss policy considerations and the government's objectives for payment systems.

4. Bank for International Settlements

- a. Objective: to delve into the latest developments in financial technology and their impact on payment systems, primarily with respect to interoperability and liquidity requirements.

5. Payments Industry Leaders

- a. Objective: to reflect on the current trends, challenges, and future outlook of the payment industry.

6. Market Experts and Scholars

- a. Objective: to incorporate academic and analytical perspectives on the economics and strategic implications of payment systems.

Trilemma

Our research introduces the concept of a payment systems trilemma, a framework we propose to capture the intricate balance between universal accessibility, institutional control, and policy objectives within national payment systems. Through this lens, we synthesized insights from diverse stakeholders to explain how these three dimensions interact and often compete, influencing the trajectory of payment system reforms in both the U.S. and the U.K.

Competing Theories of Change

We explored the competing theories of change driving the evolution of real-time payment systems. Specifically, we compared the varying models of real-time payment systems development, contrasting private-sector initiatives with government-led interventions and public-private competitive models, drawing on original interviews to assess the strengths and weaknesses of each approach. This exploration sheds light on the strategic choices and their broader implications for fostering a dynamic and equitable payment ecosystem.

Cash vs. Non-Cash: The Payment Paradigm

Cash Transactions: Tokenized Approach

In a cash transaction, physical currency serves as a token representing value.¹⁵ It directly embodies monetary value, making it universally accepted as a medium of exchange without requiring intermediary verification or settlement processes.¹⁶ This tokenization means that the exchange of value is immediate and tangible. Cash itself is the value, so when it changes hands, the transaction is complete without the need for additional steps to validate or settle the exchange.

Non-Cash Transactions: Account-Based Framework

In contrast to cash transactions, non-cash transactions operate on an account-based system. Here, the movement of funds is represented digitally, requiring transactions to be processed through a series of steps involving clearing and settlement. Unlike the tokenized nature of cash, where the token itself holds value, the value in non-cash transactions is represented as digital data within accounts held at financial institutions.¹⁷ This means transactions occur digitally between accounts held by individuals and entities within financial institutions.

¹⁵ Morten Linnemann Bech et al., "On the Future of Securities Settlement," Bank for International Settlements, March 1, 2020, https://www.bis.org/publ/qtrpdf/r_qt2003i.htm.

¹⁶ Charles M Kahn and William Roberds, "The Economics of Payment Finality," Federal Reserve, 2002, https://www.atlantafed.org/-/media/documents/research/publications/economic-review/2002/vol87no2_kahn-roberds.pdf.

¹⁷ "Money and Payments: The U.S. Dollar in the Age of Digital Transformation," Federal Reserve Board, January 2022, <https://www.federalreserve.gov/publications/files/money-and-payments-20220120.pdf>.

As such, for a transaction to be completed, it must be verified, cleared (errors checked and fraud screened), and settled (funds officially transferred and available) through the banking system. Settlement in the context of non-cash transactions often involves the transfer of central bank money.¹⁸ Central bank money refers to reserves or balances held by commercial banks at the central bank. The use of central bank money for settlement purposes is critical because it provides the highest level of security and finality to the transaction. Since central bank money is a liability of the central bank, it carries no credit risk, making it the most stable and reliable form of money for settling transactions between financial institutions.¹⁹

However, the traditional settlement process takes time, often days, to complete, reflecting the more complex nature of validating and finalizing transactions that are not based on physical tokens of value.²⁰ Additionally, settlement lags highlight efforts to innovate payment systems to reduce settlement times and enhance the efficiency of the financial system. Moreover, the move towards *real-time* settlement systems, which can instantaneously settle transactions using central bank money²¹, represents a significant evolution in the payments landscape.

The Case for Real-Time Payments

The promise of real-time payments systems is to enable greater efficiency and inclusivity in financial services by removing frictions in the transaction process. Proponents suggest that real-time payments can improve household financial management²², business activities²³, and financial intermediation throughout the economy.²⁴ Real-time payments may be particularly advantageous for firms or households that have low liquidity or are credit-constrained.²⁵ In these

¹⁸ Bank für Internationalen Zahlungsausgleich, ed., The Role of Central Bank Money in Payment System, Bank for International Settlements, 2003, <https://www.bis.org/cpmi/publ/d55.pdf>.

¹⁹ Ibid

²⁰ Bank für Internationalen Zahlungsausgleich, ed., Clearing and Settlement Arrangements for Retail Payments in Selected Countries, Bank for International Settlements, 2000, <https://www.bis.org/cpmi/publ/d40.pdf>.

²¹ "Innovations in payment technologies and the emergence of digital currencies," Bank of England, 2014, <https://www.bankofengland.co.uk/-/media/boe/files/quarterly-bulletin/2014/innovations-in-payment-technologies-and-the-emergence-of-digital-currencies.pdf>.

²² "How the Fed Can Help Families Living Paycheck to Paycheck," Brookings, November 22, 2017, <https://www.brookings.edu/articles/how-the-fed-can-help-families-living-paycheck-to-paycheck/>.

²³ "Fast Payments - Enhancing the Speed and Availability of Retail Payments," Bank for International Settlements, 2016, <https://www.bis.org/cpmi/publ/d154.pdf>.

²⁴ "FinTech: How Can Government Promote the Good and Protect against the Bad," Brookings, February 14, 2017, <https://www.brookings.edu/articles/fintech-how-can-government-promote-the-good-and-protect-against-the-bad/>.

²⁵ "Real-Time Payments Can Help Combat Inequality," Brookings, March 6, 2019, <https://www.brookings.edu/articles/real-time-payments-can-help-combat-inequality/>.

cases, instant payments may preclude the use of high-cost short-term credit or other financial tools.

The following visual identifies the key groups with vested interests in the evolution of payment systems, whose collaboration and support are critical for successful implementation:

Key Stakeholders for Real-Time Payments

Depositories	Service Providers	Rival Platforms	Government Institutions & Influencers	End-Users
<ul style="list-style-type: none"> • Banks • Credit Unions 	<ul style="list-style-type: none"> • Technology Firms • Payments Platforms 	<ul style="list-style-type: none"> • The Clearing House: Real-Time Payments • Venmo and CashApp (closed-loop systems) 	<ul style="list-style-type: none"> • Payment Regulators • Prudential Regulators • Competition Regulators • Lawmakers • Executive Institutions • Advocacy Organizations 	<ul style="list-style-type: none"> • Small Businesses • Financial Firms • Non-Financial Firms • Consumers

Recognizing these stakeholders, we turn our focus to the pivotal roles of businesses, consumers, and financial institutions in driving and shaping the demand for real-time payment solutions.

1. Consumers

For many Americans, the act of pushing “send” on a credit card bill, ACH transfer, or other payment does not mean the transaction is over. ACH payments that flow from one bank to another can take 1-3 days to finalize.²⁶ Consumers may be expecting to receive a paycheck 2-3 days before a payment deadline, only for the paycheck to miss the *settlement* date. This “payment float” may cause a consumer to miss a costly deadline. For financially vulnerable consumers, small delays in payment settlement can cause severe financial challenges.²⁷

²⁶ “What Is an ACH Transfer? All about ACH Bank Transfers,” Plaid, n.d., <https://plaid.com/resources/ach/how-does-an-ach-transfer-work/>.

²⁷ “The Fastest Way to Address Income Inequality? Implement a Real Time Payment System,” Brookings, January 2, 2019, <https://www.brookings.edu/articles/the-fastest-way-to-address-income-inequality-implement-a-real-time-payment-system/>.

There are significant financial penalties to missing payments.²⁸

- **Late fees:** consumers can incur late fees from credit card accounts, loans, and other services.
- **Account overdrafts:** the delay in payment can result in a bank account falling below an overdraft threshold, resulting in fees from the bank.
- **Credit scores:** late payments to consumer credit accounts can damage perceived creditworthiness by lenders. According to FICO, payment history – including late payments – accounts for approximately 35% of the FICO credit risk score.²⁹ Lower credit scores can cause consumers to pay more for credit or lose credit opportunities altogether.³⁰

Consider an example ACH payment flow for a gig-economy driver:

Current ACH Payment Flow



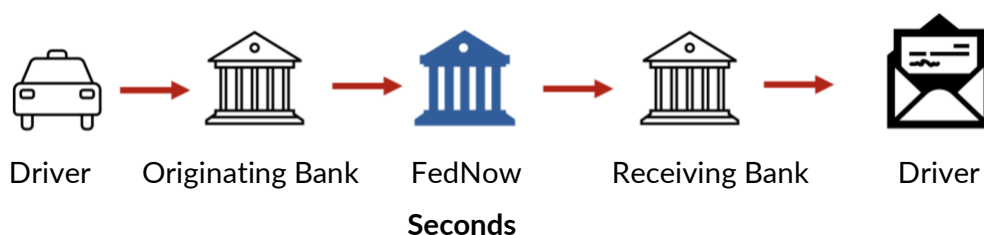
In the ACH payment flow, after the driver initiates a transaction, the originating bank sends the transaction to a clearing house, which then processes the transaction and passes it to the receiving bank. This process typically takes 2-3 business days due to batch processing, where transactions are accumulated and processed together at scheduled intervals.

²⁸ "How Can Faster Payments Benefit Me?," Federal Reserve, n.d., <https://www.frbservices.org/financial-services/fednow/instant-payments-education/benefits-of-faster-payments.html>.

²⁹ "How Are FICO Scores Calculated?" MyFICO," October 19, 2018, <https://www.myfico.com/credit-education/whats-in-your-credit-score>.

³⁰ "Fast Payments: Design and Adoption," Bank for International Settlements, March 4, 2024, https://www.bis.org/publ/qtrpdf/r_qt2403c.htm.

FedNow Payment Flow



In the FedNow payment flow, the FedNow service replaces the clearing house as the intermediary. The transaction still goes from the originating bank to an intermediary, but because FedNow operates on a real-time basis, the transaction is processed almost instantaneously, and funds are available within seconds. This means that for the gig-economy driver expecting a payment, the FedNow system significantly reduces the wait time for funds to be available, improving liquidity and access to earnings. For many workers that live paycheck-to-paycheck, instant payments remove the 2-3 day delay that could cause workers to incur overdraft fees or high-cost forms of credit such as payday loans.

2. Businesses

Real-time payments can offer businesses and merchants greater financial transparency and more effective financial management. Instant transactions allow businesses to understand their financial picture in real time and use new cash flow as soon as the payment is made.³¹ Businesses may not need to carry buffer funds to account for payment delays. Real-time payments offer greater certainty to businesses that a transaction can be paid, as common credit push features in faster payments “require the payer to have sufficient funds in their account before the payer can make the payment.”³² This counterparty risk can result in significant financial distress if a critical payment fails in the 1-3 day settlement period.

3. Financial Institutions

Faster payments may help financial institutions better track customer transactions and in-house auxiliary banking services. Instant payments mitigate counterparty settlement credit risk with other financial institutions, or the risk that the paying institution will be unable to complete the

³¹ “Real-Time Payments Explained | Stripe,” Stripe, October 10, 2023, <https://stripe.com/resources/more/real-time-payments-explained>.

³² “How Can Faster Payments Benefit Me?,” Federal Reserve, n.d., <https://www.frbservices.org/financial-services/fednow/instant-payments-education/benefits-of-faster-payments.html>.

funding because the payment is verified and received instantly as opposed to being “netted” at the end of a cycle.³³ Immediate payments further support efficiencies in liquidity and cash positioning, as financial institutions can be aware of financial status without forecasting payments.³⁴ Depositories may have the opportunity to compete with closed-loop payment transfer business, such as Venmo and CashApp, diverting customers back to internal banking ecosystems.

Arguments for a Government-led Payments System

Despite broad government, industry, and academic alignment on the proposed benefits of real-time payments, the agent responsible for the development and maintenance of real-time payment infrastructure remains contested between TCH and the Fed³⁵. Following the announcement of the development of FedNow, the Senate Committee on Banking, Housing, and Urban Affairs held a hearing in 2019 on “facilitating faster payments in the United States” to discuss the implications of public and private faster payments infrastructures.

The Former Chair of The Federal Deposit Insurance Corporation, Sheila Bair, outlined three key reasons for a “dual-track system” of payments, where financial institutions would have choice between a private and public real-time payment rail.³⁶

1. Competition Benefits Institution Choice and Technological Innovation

A single monopoly represented by the interests of the largest banks will likely naturally cater most closely to the needs of the largest institutions.³⁷ In turn, innovative fintech firms or community banks may lose agency and options to best delivery payments services to their

³³ “Unpacking Clearing and Settlement,” Federal Reserve, n.d., <https://www.frb.services.org/financial-services/fednow/instant-payments-education/unpacking-clearing-and-settlement.html>.

³⁴ “The Real Value of Real-Time Payments,” J.P. Morgan, September 15, 2020, <https://www.jpmorgan.com/insights/payments/real-time-payments/real-value-real-time-payments>.

³⁵ “Facilitating Faster Payments In The United States,” United States Senate Committee on Banking, Housing, and Urban Affairs, September 25, 2019, <https://www.govinfo.gov/content/pkg/CHRG-116shrg38550/html/CHRG-116shrg38550.htm>.

³⁶ Ibid

³⁷ Ibid

customers.³⁸ Choice increases the odds of real-time payments achieving universal access across institution types.

2. Private Ownership Increases Systemic Risk

Permitting TCH, which is owned by large banks, to monopolize real-time payments would concentrate future system control in the hands of those banks already holding the majority of deposits.³⁹ This act could further concentrate the risk and systemic importance of the largest banks. According to Bair, the banks have a record of failing under pressure and, therefore, requiring significant government assistance.⁴⁰ Incorporating the entire payments system into the already significant systemic role of the largest banks only deepens financial stability risk.⁴¹ In contrast, the Fed offers a payment system backed by an institution that is well-versed in managing volatility and crises, ensuring the continuity of critical financial services.⁴²

3. Financial Inclusion

According to Bair, “which payments infrastructure is most likely to achieve ubiquity in reach and access among all depository institutions, regardless of size or geographic location – one run by an organization whose owners are heavily located in east coast urban areas, or one which includes a second system, like the Fed, that has preexisting trust relationships with virtually every depository institution in the country?”⁴³ The consortium of large banks would likely be unable, by themselves, to represent the vast and diverse needs of payment users.⁴⁴ In a market-driven paradigm for payment systems, the needs of financially vulnerable consumers, in particular, may not be addressed by the incentives that drive competition in this space.

³⁸ Ibid

³⁹ Ibid

⁴⁰ Ibid

⁴¹ Ibid

⁴² Ibid

⁴³ Ibid

⁴⁴ Ibid

Industry Reactions to U.S. Government Real-Time Payments

Certain payments market participants have questioned the need for a government real-time payments system in a sophisticated market economy. In 2018, Mastercard initially urged the Fed to not undertake creating a faster payments platform as it “likely would distort competition, thwart innovation and slow progress toward faster payments in the United States.”⁴⁵ In response to the faster payments request for comment, the Bank Policy Institute (“BPI”) further argued that “the Federal Reserve should not directly enter the marketplace with its own faster payment product and system, unless and until the private sector has shown it has not and cannot do so.”⁴⁶ BPI stated that a Fed intervention would deter “development of a ubiquitous private sector alternative,” calling for the Fed to “not only to defer any further work on its own “24x7x365” RTGS system, but to explicitly and publicly affirm that it has no plans to do so.”⁴⁷

Supporters of a market-driven approach argue that the current credit card interchange frameworks maintain motivations for issuers and acquirers to invest in network security and to innovate new payment solutions.⁴⁸ Further, time delays are optimized to reduce fraud risk and profits from interchange could be reinvested into network security and other user enhancements.⁴⁹ In their view, more extensive short-term lending or lending integrated into the payment system could solve the time-delay frictions without requiring a new system.⁵⁰

⁴⁵ “Docket No. OP - 1625,” Mastercard, December 14, 2018, https://www.federalreserve.gov/SECRS/2019/March/20190319/OP-1625/OP-1625_121418_133308_646002955185_1.pdf.

⁴⁶ “Potential Federal Reserve Actions to Support Interbank Settlement of Faster Payments (Docket No. OP- 625),” Bank Policy Institute, December 14, 2014, https://www.federalreserve.gov/SECRS/2019/January/20190128/OP-1625/OP-1625_122118_133367_638832710467_1.pdf.

⁴⁷ Ibid

⁴⁸ Credit card and payment technology company, interview by authors, Cambridge, Massachusetts, March 20, 2024.

⁴⁹ Ibid

⁵⁰ Ibid

The Path to FedNow

Setting the Stage (2012–2019)

- Fed outlines strategic direction for same-day clearing and settlement
- Development of effectiveness criteria and task force
- Review of private sector proposals
- The Clearing House launches a private sector alternative
- Fed issues a proposal contemplating:
 1. entering the market with its own competing real-time gross settlement (RTGS) system
 2. offering a liquidity management tool to support, on a sector-agnostic basis, real-time interbank settlement of faster payments

FedNow Development (2019–2023)

- Announcement of service
- Pilot-Program
- Proposed rule for payment settlement in FedNow
- Stakeholder feedback
- Completion of pilot program
- Program launch

Implementation and Challenges (2023–Present)

- Service launch
- Slow adoption by financial institutions
- Program reliance on private sector development
- Unchanged consumer experience
- Interoperability challenges
- Competing interests for firms: existing revenue sources

Setting the Stage for Real-Time

October 22, 2012: Fed puts the private sector on notice by outlining its strategic direction for payments and ultimately moving all or part of ACH to same day clearing and settlement⁵¹

“...What gives me confidence that we can accomplish this goal is Great Britain’s Faster Payments Service... The Faster Payments Service and Britain’s ACH system operate independently.”

– Sandra Pianalto, former President and CEO, Federal Reserve Bank of Cleveland⁵²

September 10, 2013: Fed publishes “Payment System Improvement – Public Consultation Paper”⁵³

The Fed leveraged its “convening power to urge the private sector to act,” and it proposed five desired outcomes for an improved U.S. payment system: “speed, security, efficiency, international capability, and collaboration.”⁵⁴

October 22, 2014: to meet the needs identified by the Fed, TCH announces plans to undertake a multi-year effort to build a real-time payment system⁵⁵

January 26, 2015: Fed publishes “Strategies for Improving the U.S. Payment System”⁵⁶

⁵¹ “Collaborating to Improve the U.S. Payments System,” Federal Reserve, October 22, 2012, https://fraser.stlouisfed.org/files/docs/historical/frbclev/presidents/pianalto_20121022.pdf.

⁵² Ibid

⁵³ “Payment System Improvement - Public Consultation Paper,” Federal Reserve, September 10, 2013, https://fedpaymentsimprovement.org/wp-content/uploads/2013/09/Payment_System_Improvement-Public_Consultation_Paper.pdf.

⁵⁴ “Facilitating Faster Payments In The United States,” United States Senate Committee on Banking, Housing, and Urban Affairs, September 25, 2019, <https://www.govinfo.gov/content/pkg/CHRG-116shrg38550/html/CHRG-116shrg38550.htm>.

⁵⁵ “The Clearing House to Undertake a Multi-Year Effort to Design and Develop a Secure, Real-Time Payment System,” The Clearing House, October 22, 2014, <https://www.theclearinghouse.org/payment-systems/Articles/2014/10/20141022-tch-to-develop-real-time-payments-system>.

⁵⁶ “Federal Reserve Issues Strategies for Improving the U.S. Payment System,” Federal Reserve Board, January 26, 2015, <https://www.federalreserve.gov/newsevents/pressreleases/other20150126a.htm>.

The Fed identified five strategies to improve the U.S. payment system:⁵⁷

1. “Actively engage with stakeholders on initiatives designed to improve the U.S. payment system.
2. Identify effective approach(es) for implementing a safe, ubiquitous, faster payments capability in the United States.
3. Work to reduce fraud risk and advance the safety, security and resiliency of the payment system.
4. Achieve greater end-to-end efficiency for domestic and cross-border payments; and
5. Enhance Federal Reserve Bank payments, settlement and risk-management services.”

July 21, 2015: Fed establishes the *Faster Payments Task Force* (a 320-member group) (“Task Force”) to further the strategies outlined in the 2015 paper⁵⁸

January 26, 2016: Fed’s Task Force establishes *Faster Payments Effectiveness Criteria*⁵⁹ and solicits proposals for faster payments solutions as set forth in the effectiveness criteria

Ubiquity	Efficiency	Safety and Security	Speed	Legal	Governance
<ul style="list-style-type: none"> • Accessibility • Usability • Predictability • Contextual Data capability • Cross-border functionality • Applicability to multiple use cases 	<ul style="list-style-type: none"> • Enables competition • Capability to enable value-added services • Implementation timeline • Payment format standards • Scalability and adaptability • Exceptions and investigations process 	<ul style="list-style-type: none"> • Risk management • Payer Authorization • Payment Finality • Settlement approach • Handling disputed payments • Fraud information sharing • Security controls • Resiliency • End-User Data protection • End-User/Provider Authentication • Participation requirements 	<ul style="list-style-type: none"> • Fast Approval • Fast Clearing • Fast Availability of Good Funds to Payee • Fast Settlement among Depository Institutions and Regulated Non-bank Account Providers • Prompt visibility of payment status 	<ul style="list-style-type: none"> • Legal Framework • Payment System Rules • Consumer protections • Data privacy • Intellectual property 	<ul style="list-style-type: none"> • Effective governance • Inclusive governance

⁵⁷ “Strategies for Improving the U.S. Payment System,” Federal Reserve, January 26, 2015, <https://fedpaymentsimprovement.org/wp-content/uploads/strategies-improving-us-payment-system.pdf>.

⁵⁸ “Federal Reserve Announces Steering Committees of New Payments Task Forces,” Federal Reserve Board, July 21, 2015, <https://www.federalreserve.gov/newsevents/pressreleases/other20150721a.htm>.

⁵⁹ “Faster Payments Effectiveness Criteria,” Federal Reserve, January 26, 2016, <https://fedpaymentsimprovement.org/wp-content/uploads/fptf-payment-criteria.pdf>.

April 25, 2016: TCH and FIS submit joint proposal to Fed's Task Force⁶⁰

October 4, 2016: Fed's Task Force begins reviewing 16 different private-sector proposals⁶¹

Through a competitive bidding process, McKinsey & Company was chosen to assess each solution proposal against the Effectiveness Criteria.⁶² Ultimately, when evaluated against the Task Force's criteria, TCH's RTP network proposal scored the highest, notably excelling in critical areas like accessibility and achieving nationwide reach⁶³. TCH's proposal received the highest possible rating ("very effective") on 31 of the 36 criteria for effectiveness and an "effective" rating for the remaining 5. Of note, the proposal received a "very effective" rating with respect to its plan for ubiquity and its approach to settlement, resiliency, and accessibility.⁶⁴

January 26, 2017: Fed publishes part one of a two-part final report, providing a "high-level overview of its Task Force's background and processes, the payments landscape, and the benefits of faster payments"⁶⁵

July 21, 2017: Fed publishes part two of the final report, providing a roadmap for achieving competitive, safe, ubiquitous, and faster payments⁶⁶

The Task Force called upon the Fed to continue supporting the development of fast payment systems and recommended that the Fed create its own real-time settlement service to be made available year-round, 24/7.⁶⁷

⁶⁰ "The Clearing House and FIS Submit Joint Proposal to Fed's Faster Payments Task Force," The Clearing House, April 25, 2016, <https://www.theclearinghouse.org/advocacy/articles/2016/04/the-clearing-house-and-fis-submit-joint-proposal>.

⁶¹ "Task Forces Begin Review of Faster Payments Solution Proposals," Federal Reserve Board, October 4, 2016, <https://www.federalreserve.gov/newsevents/pressreleases/other20161004a.htm>.

⁶² "The U.S. Path to Faster Payments," Federal Reserve Board, January 2017, <https://www.federalreserve.gov/newsevents/pressreleases/files/US-path-to-faster-payments-pt1-201701.pdf>.

⁶³ "Facilitating Faster Payments In The United States," United States Senate Committee on Banking, Housing, and Urban Affairs, September 25, 2019, <https://www.govinfo.gov/content/pkg/CHRG-116shrg38550/html/CHRG-116shrg38550.htm>.

⁶⁴ Ibid

⁶⁵ "The U.S. Path to Faster Payments," Federal Reserve Board, January 2017, <https://www.federalreserve.gov/newsevents/pressreleases/files/US-path-to-faster-payments-pt1-201701.pdf>.

⁶⁶ "Faster Payments Task Force, Final Report Part Two: A Call to Action," Federal Reserve, July 2017, <https://fedpaymentsimprovement.org/wp-content/uploads/faster-payments-task-force-final-report-part-two.pdf>.

⁶⁷ Ibid

August 9, 2017: Fed updates its rules to allow the creation of joint master accounts, intended to facilitate settlement between depository institutions that participate in private-sector payment systems⁶⁸

November 14, 2017: TCH launches its real-time payments system, RTP[®], representing the first new core payments infrastructure in the U.S. in over 40 years⁶⁹

RTP operates via a shared Federal Reserve master account, which participating banks *prefund*, allowing for the immediate settlement of payments with other institutions within the RTP network.⁷⁰

July 3, 2018: Treasury encourages the Fed to “move quickly in facilitating a faster retail payments system”⁷¹

November 15, 2018: Fed issues a proposal contemplating: (1) entering the market with its own competing real-time gross settlement (“RTGS”) system and (2) offering a liquidity management tool to support, on a sector-agnostic basis, real-time interbank settlement of faster payments⁷²

Rationale for a Competing RTGS System

The Fed expressed concern that the private sector might struggle to develop an infrastructure that offers equitable access to a sufficient number of banks to achieve widespread adoption⁷³. Moreover, a private-sector RTGS service lacking pre-existing relationships with a broad network of banks might face significant challenges in forging such connections for a new service.

⁶⁸ “Federal Reserve Board Issues Guidelines to Evaluate Requests from Depository Institutions for Joint Accounts at Federal Reserve Banks,” Federal Reserve Board, August 9, 2017, <https://www.federalreserve.gov/newsevents/pressreleases/other20170809a.htm>.

⁶⁹ “First New Core Payments System in the U.S. in More than 40 Years Initiates First Live Payments,” The Clearing House, November 14, 2017, <https://www.theclearinghouse.org/payment-systems/articles/2017/11/20171114-rtp-first-new-core-payments-system>.

⁷⁰ “Bringing Payments into the Fast Lane,” Federal Reserve, 2023, https://www.richmondfed.org/publications/research/econ_focus/2023/q3_federal_reserve.

⁷¹ “A Financial System That Creates Economic Opportunities - Nonbank Financials, Fintech, and Innovation,” United States Department of the Treasury, July 2018, https://home.treasury.gov/sites/default/files/2018-08/A-Financial-System-that-Creates-Economic-Opportunities---Nonbank-Financials-Fintech-and-Innovation_0.pdf.

⁷² “Potential Federal Reserve Actions to Support Interbank Settlement of Faster Payments, Request for Comments,” Federal Register, November 15, 2018, <https://www.federalregister.gov/documents/2018/11/15/2018-24667/potential-federal-reserve-actions-to-support-interbank-settlement-of-faster-payments-request-for>.

⁷³ Ibid

Additionally, banks that do not already have a relationship with a private-sector RTGS provider may find it burdensome and slow to establish new connections with a provider of settlement services.⁷⁴

Considering these concerns, the Fed suggested that accessibility issues could be mitigated if the private-sector RTGS services could *interoperate* with a reserve bank service. This interoperability would ensure that “end-user customers of *any* bank could send faster payments” to those of any other bank, *irrespective* of the specific faster payment RTGS service used by the banks involved.⁷⁵

Rationale for a Liquidity Management Tool

It is important to note that RTGS systems for faster payments are designed to process payments individually in real time, ensuring that transactions are settled as soon as they are initiated.⁷⁶ This brings significant benefits in terms of payment speed and reducing counterparty risk⁷⁷, yet also presents several liquidity challenges for participating banks⁷⁸. Unlike systems that allow for netting out of payments over a certain period, RTGS systems require that each payment is settled individually and immediately⁷⁹. Furthermore, while TCH’s RTP system focuses on providing immediate payment services between end-users, Fedwire and the National Settlement Service (“NSS”) provide the critical backbone for ensuring that the underlying financial institutions themselves can move funds between accounts held at Fed banks and, therefore, settle their obligations arising from these transactions in a timely and secure manner^{80,81}.

Accordingly, to ensure transactions can be processed without delay, RTGS arrangements for faster payments require constant liquidity to accommodate the demands of real-time, 24/7/365

⁷⁴ Ibid

⁷⁵ Ibid

⁷⁶ “A Brief Introduction to the Real-Time Gross Settlement System and CHAPS,” Bank of England, n.d., <https://www.bankofengland.co.uk/payment-and-settlement/a-brief-introduction-to-the-real-time-gross-settlement-system-and-chaps>.

⁷⁷ Ibid

⁷⁸ “How RTGS Inadvertently Killed System Liquidity,” Financial Times, October 4, 2019, <https://www.ft.com/content/36e15d64-8052-3808-83bc-6a1d30089b3c>.

⁷⁹ “Real-Time Gross Settlement Systems,” Bank for International Settlements, March 1997, <https://www.bis.org/cpmi/publ/d22.pdf>

⁸⁰ “Fedwire Funds Services,” Federal Reserve Board, n.d., https://www.federalreserve.gov/paymentsystems/fedfunds_about.htm.

⁸¹ “National Settlement Service,” Federal Reserve Board, n.d., https://www.federalreserve.gov/paymentsystems/natl_about.htm.

settlement for rapid payment transactions^{82,83}. However, Fedwire and NSS do not operate on a 24/7 basis. This discrepancy in operating hours means that even though transactions can be initiated and *processed* between end-users at any time via RTP, the final *settlement* of funds between the banks on the backend may have to wait until Fedwire and NSS are operational. This can lead to a lag between when a transaction is made and when it is settled on the banks' books⁸⁴, affecting banks' liquidity management and the overall efficiency of the RTGS system during off-hours or weekends. As a solution for transferring liquidity outside of conventional business hours, the Fed stated it may consider improving an existing service by *expanding its hours of operation*, possibly to a 24/7/365 schedule^{85,86}.

August 9, 2019: Following the review of public comments on the aforementioned proposal, the Fed announces its intent to enter the market with FedNow, its own competing RTGS system, and provides basis for doing so under the Monetary Control Act⁸⁷

Although approximately 230 commenters expressed views of on the Fed's proposals and 225 were in *support* for the latter proposal that contemplated expanding Fedwire and NSS operating hours⁸⁸, the Fed disclosed that it would only "*explore*" the expansion of hours.

When considering whether to offer *new* financial services in support of the objectives of promoting the "accessibility, safety, and efficiency of the nation's payment system,"⁸⁹ the Fed is constrained by principles and criteria set forth under the Monetary Control Act.

⁸² "Liquidity and risk management in the RTGS system the Hong Kong experience," Hong Kong Monetary Authority, Quarterly Bulletin, March, 2008, https://www.hkma.gov.hk/media/eng/publication-and-research/quarterly-bulletin/qb200803/fa2_print.pdf

⁸³ "Self-Assessment of the Bank of England's Real-Time Gross Settlement and CHAPS Services against the Principles for Financial Market Infrastructures," Bank of England, n.d., <https://www.bankofengland.co.uk/payment-and-settlement/rtps-and-chaps-2022-pfmi-self-assessment>.

⁸⁴ "Extending and aligning payment system operating hours for cross-border payments," Bank for International Settlements, November, 2021, <https://www.bis.org/cpmi/publ/d199.pdf>

⁸⁵ "Additional Questions and Answers," Board of Governors, n.d., <https://www.federalreserve.gov/paymentsystems/fednow-additional-questions-and-answers.htm>.

⁸⁶ "Service Details on Federal Reserve Actions To Support Interbank Settlement of Instant Payments," Federal Register, August 11, 2020, <https://www.federalregister.gov/documents/2020/08/11/2020-17539/service-details-on-federal-reserve-actions-to-support-interbank-settlement-of-instant-payments>.

⁸⁷ "Federal Reserve Actions To Support Interbank Settlement of Faster Payments," Federal Register, August 9, 2019, <https://www.federalregister.gov/documents/2019/08/09/2019-17027/federal-reserve-actions-to-support-interbank-settlement-of-faster-payments>.

⁸⁸ "Assessment of Expanded Operating Hours for the Fedwire Funds Service and the National Settlement Service to Support Liquidity Management for Faster Payments and For Other Purposes," Federal Register, Vol. 84, No. 154, August 9, 2019, <https://www.govinfo.gov/content/pkg/FR-2019-08-09/pdf/2019-17027.pdf>

⁸⁹ *Ibid*

Specifically, these criteria entail: the expectation that the new service will provide “clear public benefit” (**public benefits criterion**); the belief that “other providers alone cannot be expected to provide...” the service with “reasonable effectiveness, scope and equity” (**other providers criterion**), and the need to fully recover costs over the long term (**cost recovery criterion**).⁹⁰ Additionally, when contemplating new services, Fed policy requires a “forward-looking evaluation of the *probable or likely future state* of the payment system over the long run, with or without Fed action”.⁹¹

1. Other Providers Criterion

Of note, approximately 175 of over 200 commenters indicated that other providers alone could “not provide broadly accessible RTGS services for faster payments on an equitable basis.”⁹²

Commenters argued that a private-sector operator, such as TCH, “without the experience or infrastructure necessary for working with the majority of banks in the United States would face substantial challenges in establishing new connections and relationships with such banks.”⁹³

Several small and midsize banks indicated that “an RTGS service for faster payments established by competitors with a business profile different than their own will not provide them with equitable service.”⁹⁴ Additionally, these commenters argued that TCH’s model has historically focused on serving large banks and, as a result, could not appropriately address the singular challenges facing smaller banks, thereby preventing scaling of services for the U.S.’s over 10,000 depository institutions.⁹⁵ Additionally, “commenters argued that an RTGS operator with a dominant market position would have substantial impact on the emergence of potentially innovative uses of faster payments through its policies and prices, such that it could limit uses of faster payments that were not in its business interest or the interest of its owners.”⁹⁶ Moreover, “small and midsize banks in particular argued that it is likely that smaller banks, which are not owners of the private-sector service, will be unable to gain access to the service on reasonable

⁹⁰ Ibid

⁹¹ Ibid

⁹² “Federal Reserve Actions to Support Interbank Settlement of Faster Payments,” Federal Register, August 9, 2019, <https://www.federalregister.gov/documents/2019/08/09/2019-17027/federal-reserve-actions-to-support-interbank-settlement-of-faster-payments>.

⁹³ Ibid

⁹⁴ Ibid

⁹⁵ Ibid

⁹⁶ Ibid

terms and in a transparent manner... In particular, commenters questioned whether the operator would maintain a uniform pricing structure... ”⁹⁷

2. Public Benefits Criterion

“Many commenters, in particular small and midsize banks, stated that a Federal RTGS service would provide banks of *all sizes* the ability to access an RTGS infrastructure for faster payments.”⁹⁸ “Furthermore, as described previously, the Fed does not have plenary regulatory or supervisory authority over the U.S. payment system and instead has traditionally influenced retail payment markets through its role as an operator. As a result, the Fed having an operational role in the settlement of faster payments would be the most effective approach to address the challenges faced by other providers alone and would yield a clear public benefit.”⁹⁹

3. Cost Recovery Criterion

The Fed anticipates that the FedNow Service will eventually cover all of its expenses; however, it is projected that this financial breakeven point will not be reached within the usual 10-year timeframe that is applied to “existing, mature services.”¹⁰⁰

Additionally, the Fed noted that since it “does not have plenary regulatory or supervisory authority over the U.S. payment system and, instead, has traditionally influenced retail payment markets through its role as an operator...,” “having an operational role in the settlement of faster payments would be the most effective approach to address the challenges faced by other providers alone and would yield a clear public benefit.”¹⁰¹

⁹⁷ Ibid

⁹⁸ Ibid

⁹⁹ Ibid

¹⁰⁰ Ibid

¹⁰¹ Ibid

Development of FedNow

2019: Federal Reserve Board announces the development of an around-the-clock real-time payment and development service

Governor Lael Brainard referenced inclusion benefits that “FedNow will permit banks of every size in every community across the country to provide real-time payments to their customers.”¹⁰² The Federal Reserve Board cited that over 90% of 350+ comments supported the development of FedNow.¹⁰³ The Fed then issued a second request for comment on how the new service could be most effective. The board also announced an intention to also examine expanding Fedwire Funds Service and NSS hours to 24x7x365.¹⁰⁴

2020 Update: The Future of Retail Payments in the United States

For Federal Reserve Board officials, COVID-19 emergency relief payments highlighted a critical need to access funds for cash-flow constrained households and businesses.¹⁰⁵ The Treasury Department processed CARES Act payments through direct deposit, prepaid debit, and checks, which could take “several days between the time the funds are sent, and the time recipients get access to their funds.”¹⁰⁶

In the first year of development, then Governor Lael Brainard outlined the key strategies to develop and implement FedNow.¹⁰⁷

Staffing

In addition to the aforementioned Faster Payments Task Force, the Fed announced a team of 100+ people working across the Federal Reserve System, drawing expertise from the 12 Federal Reserve Banks.

¹⁰² “Federal Reserve Announces Plan to Develop a New Round-the-Clock Real-Time Payment and Settlement Service to Support Faster Payments, Federal Reserve Board, August 5, 2019, <https://www.federalreserve.gov/newsevents/pressreleases/other20190805a.htm>

¹⁰³ Ibid

¹⁰⁴ Ibid

¹⁰⁵ Lael Brainard, “Speech by Governor Brainard on the Future of Retail Payments in the United States,” Federal Reserve Board, August 6, 2020, <https://www.federalreserve.gov/newsevents/speech/brainard20200806a.htm>.

¹⁰⁶ Ibid

¹⁰⁷ Ibid.

Announcement of a Phased Approach

In support of an expedited delivery, a phased approach was designed for FedNow services, that would later be responsive to industry feedback. For the initial service offering, a set of three core components were announced:¹⁰⁸

1. Banks can proactively set parameters to limit transaction activity to mitigate fraud risks.
2. Banks would have access to a liquidity management tool that would allow a FedNow participant to transfer excess funds in its Federal Reserve account to transfer to another participant in need of funds. This tool was responsive to a concern of banks accessing adequate funds in Fed accounts before 24x7x365 access.
3. FedNow service would not be interoperable with the private sector offering from “The Clearing House,” and suggested further opportunities for cooperatively developing compatible technologies.
4. The Fed also created the “FedNow Community” of more than 500 hundred institutions to build readiness for the technology.¹⁰⁹

According to Governor Brainard, “Ultimately, the FedNow Service can be a catalyst for innovation in the market by providing a neutral platform on which the private sector can build to offer safe, efficient instant payment services to users across the country.”¹¹⁰

2021: FedNow Pilot Program Announced and Proposed Rulemaking

In January 2021, the FedNow service announced participants for a pilot program to test and trial the features and resiliency of the FedNow service, with over 110 organizations joining the pilot program.¹¹¹ Organizations included banks, credit unions, software, and other financial service providers (See Appendix Table 1 – 2021 Pilot Program Participants).¹¹² Additionally, the Board of Governors of the Federal Reserve System issued a notice of proposed rulemaking to amend

¹⁰⁸ Lael Brainard, “Speech by Governor Brainard on the Future of Retail Payments in the United States.” Federal Reserve Board, August 6, 2020, <https://www.federalreserve.gov/newsevents/speech/brainard20200806a.htm>.

¹⁰⁹ “FedNow Community,” Federal Reserve, n.d., <https://www.frbservices.org/financial-services/fednow/community>.

¹¹⁰ Lael Brainard, “Speech by Governor Brainard on the Future of Retail Payments in the United States.” Federal Reserve Board, August 6, 2020, <https://www.federalreserve.gov/newsevents/speech/brainard20200806a.htm>

¹¹¹ “Federal Reserve announces FedNow Pilot Program Participants,” January 25, 2021, <https://www.frbservices.org/news/press-releases/012521-federal-reserve-announces-fednow-pilot-program-participants>.

¹¹² Ibid

Regulation J. The rule governs the fund transfers through Federal Reserve banks FedNow service.¹¹³

2023 FedNow Service Launch

In July 2023, the Fed announced the live status of FedNow Service instant payments. The service launched with 35 early adopters, with the stated goal of reaching a target of more than 9,000 banks and credit unions (See Appendix Table 2 – Early Adopter Financial Institutions).¹¹⁴

Post-Launch Engagement

After the launch of FedNow, the Fed solicited participants' feedback through a series of engagements, including a community townhall, development of recommended market practices¹¹⁵, and risk management features.^{116,117} The Fed also created a new onboarding service for potential FedNow institutions.¹¹⁸ The service created a centralized hub for adopters to file forms online, build an institutional profile, and maintain records.

Adoption and Implementation Challenges

Slow Adoption

After the launch of FedNow in July 2023, banks and credit unions were slow to participate in the service. From a target of over 9,000 institutions, by October, FedNow had reached 108 financial

¹¹³ "Collection of Checks and Other Items by Federal Reserve Banks and Funds Transfers Through Fedwire," Federal Register, June 6, 2022, <https://www.federalregister.gov/documents/2022/06/06/2022-11090/collection-of-checks-and-other-items-by-federal-reserve-banks-and-funds-transfers-through-fedwire>.

¹¹⁴ "Federal Reserve Announces That Its New System for Instant Payments, the FedNow® Service, Is Now Live," Federal Reserve Board, July 20, 2023, <https://www.federalreserve.gov/newsevents/pressreleases/other20230720a.htm>.

¹¹⁵ "Find Learning and Resources With FedNow Explorer," Federal Reserve, n.d. <https://explore.fednow.org/explore-the-city?id=3&building=news-center&postId=43&postTitle=fednow-service-industry-work-group-issues-market-practices-for-request-for-payment>.

¹¹⁶ "FedNow® Service early adopters share excitement, energy at town hall," Federal Reserve, September 18, 2023, <https://explore.fednow.org/explore-the-city?id=3&building=news-center&postId=42&postTitle=fednow-service-early-adopters-share-excitement-energy-at-town-hall>

¹¹⁷ "Upcoming features will help FedNow® Service participants manage fraud risk," Federal Reserve, February 7, 2024, <https://explore.fednow.org/explore-the-city?id=3&building=news-center&postId=51&postTitle=upcoming-features-will-help-fednow-service-participants-manage-fraud-risk>

¹¹⁸ "Financial institutions accelerate onboarding with the help of new technology-driven process, Federal Reserve, February 7, 2024, <https://explore.fednow.org/explore-the-city?id=3&building=news-center&postId=52&postTitle=financial-institutions-accelerate-onboarding-with-the-help-of-new-technology-driven-process>

institution participants. As of March 2024, over 600 institutions have joined FedNow, although participation remains fewer than 7% of the intended depository ecosystem.¹¹⁹ By comparison, TCH’s RTP network reached a similar 480+ member institutions.¹²⁰

Table 2: FedNow Participating Institutions, July 2023–March 2024

Date	Number of FedNow Participants	Adoption Rate
(Start of FedNow) Jul-23	35	0.4%
Sep-23	72	0.8%
Dec-23	331	3.7%
Mar-24	606	6.7%

Reliance on Private Sector Development

A key component of the development of FedNow was an emphasis on the private sector to build the features and use cases for clients. While the Federal Reserve provided the underlying payments technology, the integration into mobile apps, customer experiences, fraud protection, and other support, required bank-led development and capital investment.

Unchanged Consumer Experience

Many customers of early adopters did not experience the benefits of inclusion in the FedNow system. Consumers and businesses can only send FedNow instant payments if *both* their financial institution and the receiving financial institution have both adopted FedNow.¹²² The lack of tangible user benefits without broad adoption is a barrier to incentivize capital investment in FedNow development and adoption.

¹¹⁹“FedNow Service Participants and Service Providers,” Federal Reserve, n.d., <https://www.frbservices.org/financial-services/fednow/organizations>.
¹²⁰ “RTP Participating Financial Institutions,” The Clearing House, n.d., <https://www.theclearinghouse.org/payment-systems/rtp/RTP-Participating-Financial-Institutions>.
¹²¹ “FedNow Service Participants and Service Providers,” Federal Reserve, n.d., <https://www.frbservices.org/financial-services/fednow/organizations>.
¹²² “Frequently Asked Questions,” Federal Reserve Board, n.d., https://www.federalreserve.gov/paymentsystems/fednow_faq.htm.

Interoperability Challenges

FedNow is not interoperable with the incumbent private sector offering, RTP from TCH. Despite both systems utilizing the ISO 20022 messaging standard, they are not fully compatible (see Technical Primer in Appendix for details), leading many financial institutions, particularly smaller ones like credit unions, to adopt a “hold mode¹²³,” awaiting the emergence of a dominant payment system before committing to investment, as integrating with multiple non-interoperable systems could prove costly and inefficient. For many smaller financial institutions, such as credit unions, that could be key beneficiaries to instant payments, investing in multiple payment rails may be unfeasible.

Competing Interests

Banks and other financial institutions that issue credit cards and debit cards benefit from interchange revenues in the payment chain. By developing FedNow functionality for users to send payments *outside* of debit or credit card payment systems, the issuers may erode existing profitable revenue sources in favor of an uncertain technology. In 2021, interchange fees across all debit and general-use prepaid card transactions reached over \$31 billion, representing more than 91 billion transactions.¹²⁴

¹²³ Campbell, Kyle, “For Broader Adoption of FedNow, Experts Say It’s All about Use Cases, American Banker,” October 23, 2023, www.americanbanker.com/news/for-broader-adoption-of-fednow-experts-say-its-all-about-use-cases.

¹²⁴ “2021 Interchange Fee Revenue, Covered Issuer Costs, and Covered Issuer and Merchant Fraud Losses Related to Debit Card Transactions,” Federal Reserve Board, n.d., <https://www.federalreserve.gov/paymentsystems/2021-Interchange-Fee.htm>.

Expert Perspectives

Bob Steen

CEO, Bridge Community Bank

Former Member: Faster Payments Task Force¹²⁵

1. **“This doesn’t work if we don’t collaborate with our competition.”** Many banks don’t want to lose existing revenue sources. Some market participants view FedNow and RTP as a technology without a business case or a demanding customer.
2. “Everyone wants to receive instant credit, few seem to understand the importance or have the capability to send.” How can banks be incentivized to reduce one-way traffic when they benefit from interchange fees?
3. **Consumers can achieve real benefits, but only if everyone buys in.** Instead of waiting hours for a real estate sale wire or check to be processed, customers can achieve peace of mind instantly in major financial decisions.
4. **Reaching consumers is a challenge.** Steen has used five-dollar incentives to test and train consumers to use real-time payments, but it is not a sustainable solution. Banks need to reach consumers with an explanation of why offering instant matters.

¹²⁵ Bob Steen, interview by authors, Cambridge, Massachusetts, February 6, 2024.

Vijay D’Silva

Senior Partner Emeritus of McKinsey’s Global Banking & Securities and Digital Practices; Senior Lecturer and Executive in Residence, MIT Sloan School; Board Member¹²⁶

1. **Financial service providers are critical.** FedNow could help achieve a critical mass of users by recruiting financial infrastructure firms such as FIS, FISERV, and Jack Henry. These providers, which provide technology solutions to regional and community banks, could help ease the transition to instant payments.
2. **Learn from other jurisdictions.** Other large economies that have implemented real-time payments systems have required bank participation. The opt-in model could slow roll-out until the user base expands. In Brazil or India, the value of faster payments is viewed intrinsically for payments system innovation and supporting the transmission of monetary policy.
3. **First B2B, then B2C.** Consumer and inclusion benefits will only be unlocked once there is a business case to devote resources to developing FedNow infrastructure. Consumers then need a clear and valuable use case to engage with FedNow.

¹²⁶ Vijay D’Silva, interview by authors, Cambridge, Massachusetts, November 28, 2023.

Implications of a Market-Based Approach to Payments Innovation

The Fed's launch of FedNow was a response to a market gap identified over years of consultation with industry stakeholders and public commentary, which revealed a strong favor for a 24/7 real-time settlement system.¹²⁷ Furthermore, the rationale for FedNow was anchored in the belief that the private sector alone was unlikely to provide an infrastructure for instant payments with the desired scope, effectiveness, and equity.¹²⁸

The Fed, recognizing the transformative potential of RTGS systems, proposed the entry of FedNow to drive the ubiquity and reach that private systems, such as the RTP network, had not achieved. However, the uptake of FedNow has been slow, a phenomenon not unique to the system. It mirrors the trajectory of other payment innovations which often require time to achieve significant traction and network effects. As such, we believe the slow adoption rates should not come as a surprise given the market-driven nature of the U.S. innovation ecosystem. Private sector competition and the voluntary nature of participation in new payment systems result in a gradual onboarding process by financial institutions. The value of such a system amplifies as more participants join, but reaching this critical mass is a formidable challenge, underscoring the importance of incentives and the perceived benefits for early adopters.

The subdued initial reception of FedNow reflects the inherent challenges in disrupting established payment behaviors and the time it takes for such ground-breaking systems to become entrenched in the daily operations of financial institutions and the lives of consumers. This gradual adoption is characteristic of a market that rewards innovation and consumer choice, where new systems must prove their merit and utility organically, rather than being mandated by regulatory fiat. In this context, the development of FedNow exemplifies a broader trend in U.S. financial innovation, where market-driven solutions evolve in response to identified needs and user demand, rather than through top-down directives. This process, while often slower and less predictable than mandated approaches, is believed to lead to more sustainable and user-oriented

¹²⁷ "Federal Reserve Actions To Support Interbank Settlement of Faster Payments," Federal Register, August 9, 2019, <https://www.federalregister.gov/documents/2019/08/09/2019-17027/federal-reserve-actions-to-support-interbank-settlement-of-faster-payments>.

¹²⁸ Ibid

solutions in the long run. The journey of FedNow thus far can be seen as *characteristic* of the broader narrative of innovation within the American financial landscape.

This approach underscores the market-based nature of the U.S. faster payments ecosystem, where the private sector provides ubiquity, and the public sector fills in the gap with nationwide reach. Financial institutions have the autonomy to decide their level of investment and participation in the Fed's system, reflecting a belief that market dynamics, rather than regulatory mandates, are better suited to drive innovation and efficiency in payment systems. By emphasizing collaboration and industry-wide commitment towards interoperability and the adoption of standards like ISO 20022, the Fed acknowledges the necessity of a collective effort to achieve nationwide reach and efficient payment systems. However, it also implies that the success of such systems, including the FedNow Service, depends on the willingness of private institutions to engage with and connect to these systems, bearing any associated costs. This strategy reflects a belief in the market's ability to drive innovation and efficiency in payment systems through competitive and cooperative dynamics, rather than through top-down regulatory mandates. It highlights a nuanced balance between fostering an open, inclusive payment infrastructure and relying on market forces to shape the adoption and evolution of faster payment services in the U.S.

Lessons from London

Unified National Vision

At the heart of the U.K.'s approach was the realization that payment systems do not operate in a vacuum; they are a clear national policy issue, with far-reaching implications for the economy's health and citizens' financial well-being.

Simplified Regulatory Structure

In response to governance and market access issues identified in 2013, the U.K. established the Payment Systems Regulator in 2014, focusing on competition, innovation, and user interests.

Stakeholder Engagement

In the U.K., a private sector-led review of the payment systems played a critical role in shaping the future of payments, highlighting the importance of broad stakeholder engagement and collaborative efforts between the public and private sectors to drive advancements in the payment infrastructure.

Experimental Policy

The Bank of England's collaboration with the BIS Innovation Hub highlights the path for central banks to explore innovative concepts without the immediate pressure of policy commitments or the constraints of national regulatory frameworks.

Applicability to the United States

The U.K.'s journey in payment system reform, marked by stakeholder engagement, regulatory restructuring, and innovative policy experimentation, offers valuable insights for the U.S. as it seeks to overcome similar challenges with the adoption and implementation of FedNow.

Lessons from the U.K.

The U.K.'s recent experiences offer a narrative that can guide the U.S. as it grapples with its own payment system advancements, particularly FedNow's slow uptake.

In the U.K., the journey began around 2015 with a recognition of the system's looming obsolescence. This sparked a process characterized by extensive stakeholder engagement, addressing large infrastructure challenges, and balancing the competing incentives within the payments ecosystem. The Bank of England's ("BoE") strategy involved a middle path of enhancing the RTGS system with expanded capabilities, opting for incremental improvements instead of a complete overhaul or a simple like-for-like replacement. This approach, grounded in extensive consultations, ensured that the evolving needs of the payments landscape were met.

Payment Systems Regulator

In March 2013, HM Treasury ("HMT") published a consultation paper – Opening Up U.K. Payments – that proposed a new competition-focused, utility-style regulator for retail payment systems in the U.K. In 2012, the U.K. Government "made clear that it wishes to create an environment where payment systems' end-users, including consumers, and the wider economy benefit to the fullest extent from payments systems."¹²⁹ Of note, the U.K. Government identified that the prevailing governance structure for its payment systems was failing to fulfill key goals, which included fostering the growth and development of current and future payment systems as well as ensuring competitive markets through the provision of open and equitable access for all participants and prospective entrants.¹³⁰ As an example, the report pointed out challenges in assessing competition and transparency in the payment systems sector, due to the complex and opaque nature of its operations. It specifically mentioned the difficulty in determining if the market faces genuine issues, partly because of the "agency" arrangements.¹³¹ These arrangements allow smaller institutions to access payment systems through larger ones, but the complexity and lack of clear information give larger institutions a significant advantage and

¹²⁹ "Opening up UK payments," HM Treasury, March 2013, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/221903/consult_opening_up_uk_payments.pdf

¹³⁰ Ibid

¹³¹ Ibid

obscure market competitiveness. Furthermore, for entities seeking direct access to payment systems, the costs and procedures are not transparent, allowing intermediary institutions to strongly influence the terms of access.

From 2007 to 2015, the Payments Council, which was an industry body, was responsible for strategy-setting in U.K. payments. In parallel, the regulatory regime involved a several entities, such as HMT, BoE, and the Financial Services Authority, having some responsibility for payment systems regulation and governance. In its report, the U.K. Government described the Payments Council as “industry-dominated and lacking effective public accountability.”¹³² Additionally, the report highlights that the dominance of a few large banks in all aspects of the payment systems, from decision-making within the Payments Council to owning and operating payment schemes, presents significant issues. Their comprehensive involvement affords these banks ample opportunity to potentially “manipulate” the system to their advantage, impacting services to consumers and relationships with smaller financial institutions seeking access to these schemes.¹³³

The U.K. Government found that the Payments Council struggled to fulfill its advisory and strategic roles effectively due to the overpowering influence of the U.K.’s largest banks. These banks, which not only owned major payment schemes but also dominated the decision-making process within the Council, skewed its actions towards their interests. As a result, initiatives beneficial to the broader society but not directly advantageous to these banks were hindered, leading to progress at a minimal pace. This imbalance in representation and influence hindered the Council’s ability to address the needs and concerns of all stakeholders, particularly end-users, adequately. Additionally, the report stated that a significant potential barrier to competition was “the ownership of a number of the payment systems by an overlapping group of the big incumbent banks, which are also the largest users of those systems.”¹³⁴

Following the issues highlighted in the U.K. Government’s report, the government declared the necessity of establishing a regulatory body. This body would be tasked with creating a regulatory

¹³² Ibid

¹³³ Ibid

¹³⁴ Ibid

framework aimed at mitigating the adverse consequences of vertical integration and collective ownership in the payments market, and to ascertain if structural reforms are required for the market to operate efficiently.¹³⁵

Ultimately, the Payment Systems Regulator (PSR) was incorporated as a subsidiary of the FCA in April 2014. It was created under the Financial Services (Banking Reform) Act 2013 (FSBRA), almost a year after HMT's March 2013 report on Opening up U.K. Payments. The PSR became fully operational on 1 April 2015. The FSBRA requires the PSR to advance one or more of three statutory objectives: "(1) promote the development of, and innovation in, payment systems; (2) promote the interests of service-users (those that use or are likely to use the services that payment systems provide), and (3) promote effective competition in payment systems and in the services they provide."¹³⁶

Stakeholder Engagement

While stakeholder engagement was indeed a part of the Fed's process in establishing the Task Force with 320 participants, the challenge was not the lack of engagement but rather the dynamics of these stakeholders. The task force included representation from diverse segments of the payment industry, such as small financial institutions, consumer interest organizations, and non-bank providers, as well as large financial institutions. However, the influence and decision-making power within such a diverse group can be skewed, particularly when up against significant entities like TCH, which is controlled by large financial institutions.

These large institutions possess different business models, funding abilities, and consumer bases. They often have entrenched interests in maintaining the status quo or advancing changes that align with their business strategies. TCH's control by large banks raises concerns about monopolistic behaviour, which can harm consumers by escalating costs, eroding service quality, and limiting choice, as detailed in the 2019 Senate testimony. Additionally, TCH's approach to

¹³⁵ Ibid

¹³⁶ "A new regulatory framework for payment systems in the UK," Financial Conduct Authority, November, 2014, <https://www.fca.org.uk/publication/other/psr-cp14-1-cp-a-new-regulatory-framework-for-payment-systems-in-the-uk.pdf>

volume discounts¹³⁷ and its positioning as a competitor to the FedNow service reflect these competitive dynamics.

Considering these challenges, the Fed’s task force sought to create a market-driven initiative that could address the need for safe, ubiquitous faster payments in the U.S. The task force worked collaboratively to identify criteria for effective faster payments solutions, solicit innovative proposals, and support industry collaboration.¹³⁸ Nonetheless, the engagement of stakeholders was against the backdrop of competing interests among payment system operators, service providers, and end-users.¹³⁹ This competitive landscape can make it difficult to achieve broad collaboration, particularly when large financial institutions have the capacity to shape market dynamics significantly.

The task force recognized the complexity of achieving collaboration within the U.S. payment industry and urged all stakeholders to embrace the challenges of creating a payment system that is “faster, ubiquitous, broadly inclusive, highly secure, and efficient.”¹⁴⁰ However, the realization of this vision required overcoming the obstacles posed by different stakeholder interests and ensuring that collaborative decisions led to practical and widely adoptable solutions.

The Fed’s experience with stakeholder engagement in the development of FedNow demonstrates the challenges of managing a diverse group of participants, each with their own interests and capacities. It highlights the need for careful balancing of these interests and the importance of creating a regulatory and operational environment that encourages competition, inclusivity, and innovation in payment systems.

BIS Innovation Hub Engagement

In 2022, the BoE engaged with industry stakeholders to discuss a series of forward-thinking and innovative features for incorporation into the upgraded RTGS system, timed with the launch of the new core settlement engine in 2024.¹⁴¹ One such feature was synchronization, which

¹³⁷ “The Clearing House Payment Company LLC’s Request for Business Review Letter,” Morgan Lewis, October 11, 2016, <https://www.justice.gov/atr/page/file/998216/dl>

¹³⁸ “Final Report Part Two: A Call To Action,” Faster Payments Taskforce, July, 2017, <https://fedpaymentsimprovement.org/wp-content/uploads/faster-payments-task-force-final-report-part-two.pdf>

¹³⁹ Ibid

¹⁴⁰ Ibid

¹⁴¹ “ISO 20022 Handbook,” Bank of England, n.d., <https://www.bankofengland.co.uk/payment-and-settlement/rtgs-renewal-programme/iso-20022-handbook>.

enables 'atomic settlement', "which means linking the transfer of two assets in a way that one asset moves if and only if the other asset moves."¹⁴² 62% of respondents agreed or strongly agreed for the introduction of an RTGS interface for synchronized settlement. To build a prototype for synchronization, the BoE engaged the Bank for International Settlement's ("BIS) Innovation Hub for Project Meridian, which concluded in April 2023. Insights from Project Meridian supported analysis of the benefits of introducing synchronization services and shaped how that service was designed.¹⁴³ The project identified several operational, regulatory and legal questions that the BoE would need to consider before offering synchronization functionality.¹⁴⁴

The BoE's partnership with the BIS Innovation Hub on Project Meridian serves as a compelling case study in leveraging international collaborative platforms to explore, validate, or refute central bank concepts with potential global applications. This initiative underscores the value of a safe, exploratory space provided by the BIS, where central banks can rigorously test new technologies and financial mechanisms without prematurely committing to a specific policy pathway. Such an approach allows for a nuanced exploration of innovative concepts, mitigating potential risks associated with public and market perceptions of central bank endorsements of emerging technologies. Said differently, the BIS Innovation Hub serves as a *neutral ground* for central banks to explore innovative concepts without the immediate pressure of policy commitments or the constraints of national regulatory frameworks.

¹⁴² "Roadmap for the Real-Time Gross Settlement Service beyond 2024," February 8, 2024,

<https://www.bankofengland.co.uk/paper/2023/roadmap-for-the-real-time-gross-settlement-service-beyond-2024>.

¹⁴³ "Project Meridian: Simplifying Transactions Through Innovation," Bank for International Settlements, Apr 19, 2023, <https://www.bis.org/publ/othp63.pdf>.

¹⁴⁴ Ibid

Analytical Approach

Analytical Approach

- Policy
- Regulation
- Executive Institutions

Competing Theories of Change: TCH, U.S., and U.K.

- Private-Sector Development
- Government Development of Competitive Platform
- Government Ownership and Responsibility

Payments Trilemma

- Ubiquity of payment Systems
- Control by financial institutions
- National policy priorities

Implications for Policymakers

- Illuminates the trade-offs and policy decisions involved in developing and managing national payment systems
- Demonstrates the need for careful consideration of how to best achieve a balance that serves the interests of all stakeholders while ensuring the system's efficiency, accessibility, and security

Analytical Approach: Policy, Regulation, and Executive Institutions

Policy, regulation, and executive institutions collectively form the backbone of a financial infrastructure's governance, setting the stage for systemic changes that can foster innovation in payment systems, enhance efficiency, and ensure equity. Policy initiatives provide the strategic vision and objectives necessary to guide the evolution of payment systems. They set the agenda for what needs to be accomplished, focusing on critical areas such as financial inclusion, consumer protection, and the promotion of competition and innovation within the financial sector. Policies serve as a blueprint for regulatory actions and executive directives, outlining the priorities and goals that these efforts should support.

Regulatory adaptation and oversight are essential for creating an environment where new and existing payment systems can operate effectively and fairly. Regulation ensures that innovations in payment systems are introduced in a manner that safeguards consumer interests, maintains financial stability, and promotes fair competition.

Executive institutions play a critical role in implementing the strategic vision set by policy initiatives. Executive actions can mobilize resources, coordinate efforts across government agencies and the private sector, and provide the necessary impetus to drive significant changes in the payment systems landscape. These actions can demonstrate the government's commitment to modernizing payment infrastructure, encouraging private sector participation, and ensuring that the U.S. remains at the forefront of financial innovation.

Competing Theories of Change: TCH, U.S., and U.K.

In the U.S., the debate over the agent developing and implementing a real-time payment infrastructure has largely taken two forms: a private RTP infrastructure led by the largest financial institutions and a competitive structure between the payments system developed by

the U.S. government and a private system. In the U.K., the government has taken responsibility for creating and maintaining the real-time payments system. These competing theories share similar goals of widespread RTP adoption, but with different weights on efficiency, ubiquity, market competition, and stability to achieve the widespread benefits of real-time payments.

1. Private Sector Development

The creation of the RTP system by TCH is the dominant private-sector offering in the U.S. Proponents of private-sector development believe that a unified payments rail developed and maintained by private institutions carries several advantages.¹⁴⁵

First, the implementation of real-time payments that develop the infrastructure in-house could decrease onboarding costs and capital investment compared to adopting a wholly foreign system. Second, a single private sector led real-time payments system is responsive to the needs of the industry and can be more readily modified than a government or competitive system. Requiring depository institutions to choose between systems or link to multiple real-time services is costly and inefficient. Third, a private sector system would increase innovation by allowing banks to integrate RTP more readily into existing financial and user infrastructure, allowing faster development of new use cases. Supporters believe that this private sector provision will enable the benefits of real-time payments to reach consumers faster, with lower costs, and greater market unification.

2. A U.S. Public Option and Competitive Environment.

The development of a Fed-provisioned real-time payments infrastructure underlies a separate approach to the implementation of real-time payments. In this strategy, competition between the public and private sector is meant to provide financial institutions with additional options and spur innovations between the payment rails.

Safety and Soundness. Multiple payment infrastructures may also provide additional safety features to the real-time payments ecosystem. An even passing failure of a payments network

¹⁴⁵ "TCH Says Yes to Liquidity Service but Believes Fed RTGS Service is Not Needed and is Likely to Harm Faster Payments Marketplace, The Clearing House." December 14, 2018, <https://www.theclearinghouse.org/advocacy/articles/2018/12/interbank-settlement-faster-payments-12-14-18>.

could result in significant friction for financial activities. Providing multiple routes for instant payments may mitigate this concern. Concentrating payment risk in addition to systemic risk in the largest banks is another key concern.

Equitable access among institutions is another argument for competitive payment rails. If a single set of large financial institutions dominate the development and maintenance of a critical payments network, the large institutions may be incentivized to price access to disadvantage smaller community banks and credit unions.

According to this strategy, the benefits of instant payments are achieved through the competitive environment of government and private sector. Consumers receive the benefits of real-time payments more slowly, but eventually access a durable system meant to avoid monopolistic stagnation.

3. The U.K.: a Government Developed and Maintained Network

In the U.K., the provision of the payments system such as real-time payments is valued more as a public good, developed and maintained by the central bank. The assumption of the role was in part caused by a perceived lack of competitive potential from the private sector. In the absence of effective private options, real-time payments were absorbed into a government product. This strategy achieves the benefits of real-time payments by bringing the experimentation of the private sector in-house through collaborations with the BIS Innovation Hub. The result is a system that *sidesteps* the attractive arguments for commercial development. The BoE may also be viewed as a more stable provider of essential public services. However, the result is also a single point of failure, requiring significant government attention to operational effectiveness. The U.K. model places emphasis on the government role providing public access to real-time payments, facilitated by singular regulatory control, and in-house innovation capabilities.

Payment Systems Trilemma

Drawing an analogy from the economic integration trilemma¹⁴⁶, a similar conceptual framework may apply to payment systems policy, particularly when considering the goals of achieving ubiquity, maintaining control by financial institutions, and ensuring that national policy priorities are met. In the context of the U.S. and the U.K., the differences in their payment systems highlight how these goals are balanced differently.

- 1. Ubiquity of Payment Systems:** This refers to the ability of a payment system to be universally accessible and used across the country. It is a goal that policymakers aim to achieve to ensure that all individuals and businesses can participate fully in the economy.
- 2. Control by Financial Institutions:** In many countries, including the U.S., large financial institutions have significant control over the payment systems, either through ownership (as with TCH and, prior to creation of the PSR in the U.K., the Payments Council) or influence. This control can drive innovation and efficiency yet may also lead to a system that prioritizes the interests of these institutions.
- 3. National Policy Priorities:** Viewing payment systems as a national policy priority involves recognizing them as critical infrastructure that should serve the broader public interest, including considerations of accessibility, affordability, and security.

In the U.S., the existence of both TCH's RTP system and the Fed's FedNow service illustrates a bifurcated approach to real-time payments. This duality suggests a struggle to balance the desire for ubiquity and the influence of large financial institutions, with national policy priorities perhaps not being the primary driving force.

Conversely, at the heart of the U.K.'s approach was the realization that payment systems do not operate in a vacuum; they are a clear national policy issue, with far-reaching implications for the economy's health and citizens' financial well-being. This acknowledgment paved the way for a policy framework that positioned payment systems as a national priority, a strategic asset

¹⁴⁶ Rodrik, Dani. "How Far Will International Economic Integration Go?" *Journal of Economic Perspectives*, 14 (1): 177-186. DOI: 10.1257/jep.14.1.177, 2000, <https://www.aeaweb.org/articles?id=10.1257/jep.14.1.177>.

warranting continuous innovation and governance. The U.K.'s PSR emphasizes the need for a system that is ubiquitous and serves the public interest. This has been facilitated through regulatory frameworks and initiatives like open banking, which aim to increase competition and innovation within the financial services sector.

The “payment systems trilemma” in this context could be framed as the challenge of simultaneously achieving a universally accessible system (ubiquity), maintaining the traditional control exerted by large financial institutions, and ensuring that the system aligns with and supports national policy priorities. The U.K.'s approach suggests a more concerted effort to balance these three elements in favor of national policy priorities and ubiquity, whereas the U.S. model reflects a greater emphasis on maintaining existing financial institution control, with efforts like FedNow representing steps toward addressing the other two goals. The PSR's role as an independent body provided it with the unique capability to marshal resources, direct industry efforts, and maintain a steadfast focus on the collective goal. For the U.S., a similar entity, or an enhancement of existing regulatory functions, could serve as a linchpin for consensus-building, particularly in initiatives that demand cross-industry collaboration like FedNow.

Implications for Policymakers

This conceptual framework can help in understanding the trade-offs and policy decisions involved in developing and managing national payment systems. It highlights the need for careful consideration of how to best achieve a *balance* that serves the interests of all stakeholders while ensuring the system's efficiency, accessibility, and security.

Policy Recommendations

Key Idea

1. Build a Whole of Government Vision for Payments Development
2. Encourage Experimental Design and Policy Innovation
3. Recognize Systemic Importance of Payment Infrastructure Risks
4. Develop Tools for Inclusive Access to Real-Time Payments
5. Continuously Assess Options for Iterative Innovation

Proposed Policy Measure

1. Executive Order on Payment Systems Interoperability and Financial Inclusion
2. Collaboration with the BIS Innovation Hub for FedNow Development
3. Financial Stability Oversight Council (FSOC) Study of Alternate Payment Systems Risk
4. U.S. Government Provided Baseline Payment Interface and User Tools
5. Evaluation of Expanding FedWire and NSS Operational Hours

Policy Proposals for the Future of U.S. Payment Systems

A comprehensive policy framework is needed to ensure these systems are accessible, interoperable, and inclusive. This chapter outlines a series of policy proposals aimed at enhancing the efficiency, reach, and consumer protection within the U.S. payment ecosystem. Importantly, our proposals are designed not only to align with the U.S.'s market-based approach to innovation, but also to address the implications of relying on private sector participation and public sector support to shape the evolution of faster payment services in the U.S. We believe that our proposals address the competing theories of change and payment systems trilemma, and building a balanced, forward-thinking path to financial infrastructure development.

1. Executive Order on Payment Systems Interoperability and Financial Inclusion

The White House has an opportunity to significantly influence the future trajectory of payment systems through an Executive Order emphasizing interoperability, reach, and financial inclusion. This Order should underline the importance of creating a unified payment ecosystem where all citizens, regardless of their financial status or the platforms they use, can participate in the economy efficiently and securely.

The Executive Order should build on the Consumer Financial Protection Bureau's ("CFPB") efforts to mitigate banking fees, such as overdraft charges¹⁴⁷, by promoting payment systems that offer real-time processing and enhanced consumer protections. By reducing reliance on overdraft fees as a revenue source, banks can be encouraged to innovate and compete on the quality and inclusiveness of their services. The executive order would serve as a directive for federal agencies and private stakeholders to *prioritize* the development of payment systems that are accessible to all, fostering a fair financial landscape.

¹⁴⁷ "CFPB Proposes Rule to Close Bank Overdraft Loophole that Costs Americans Billions Each Year in Junk Fees," Consumer Financial Protection Bureau, January 17, 2024, <https://www.consumerfinance.gov/about-us/newsroom/cfpb-proposes-rule-to-close-bank-overdraft-loophole-that-costs-americans-billions-each-year-in-junk-fees/>

An Executive Order provides a common framework for agencies to align goals and collaborative efforts towards building a more effective real-time payment system. This guiding leadership may be particularly important given the fractured financial regulatory system in the U.S. Driving effective collaboration amongst more than a dozen federal financial regulatory agencies, each with varying equities in payment infrastructure is too large of a task for a single agency to manage. Centralized key performance goals also keep agencies and market participants accountable to White House leadership.

An Executive Order does carry reputational and execution risks for the White House and financial regulators. Politicization of the Fed and independent agencies have become increasingly polarized, and the appearance of close collaboration on projects that may support a political narrative could be risky for both institutions. The long-term goals of real-time payments systems and slow history of development could conflict with political goals for fast and clear policy victories. Catalyzing policy action on payments action through an Executive Order offers the opportunity to align management, but there will exist a level of inherent tension between the expediency of political will and technical focus of independent agencies.

2. Collaboration with the BIS Innovation Hub for FedNow Development

Should the Fed decide to continue with the development and implementation of FedNow, it is crucial to leverage international expertise and collaboration. The BIS Innovation Hub specializes in exploring critical trends in financial technology and could provide invaluable technical assistance and guidance on achieving ubiquity, reach, and interoperability for FedNow.

The Fed's collaboration with the BIS Innovation Hub could significantly enhance its capacity to explore, understand, and potentially adopt financial innovations in a manner that is both cautious and forward-looking. Collaboration would allow the Fed to draw on global best practices and innovations in real-time payments. This partnership could explore solutions to technical challenges, develop frameworks for cross-border payments, and ensure that FedNow is designed to be fully inclusive and accessible, facilitating its adoption and integration into the broader payment ecosystem. A drawback to enhanced collaboration with the BIS Innovation Hub involves relinquishing an amount of product design to a non-U.S. government organization lacking a statutory responsibility identical to the Fed. Stringent oversight of technology

development would be required to maintain U.S. national security and critical financial infrastructure.

3. Financial Stability Oversight Council Study of Payment Systems Risk

The Financial Stability Oversight Council (“FSOC”) should study payment systems risk as a critical area in its forthcoming annual report. FSOC provides a dedicated venue for U.S. prudential regulators to examine emerging risks to U.S. financial stability. Different approaches to payment platforms may result in varying levels of systemic risk. FSOC can support the evaluation of the relative systemic risks associated with fragmented payment landscapes or unified infrastructure.

This analysis could include an assessment of contagion transmission in the event of operational failures, comparing the systemic implications of public versus private ownership structures in real-time payment systems. The study could evaluate how different ownership models might affect system resilience, risk management practices, and the speed of recovery from disruptions. Moreover, FSOC could evaluate the implications of fragmented real-time payment systems on overall financial stability and how the lack of interoperability between domestic real-time payment systems might create hidden vulnerabilities or inefficiencies that could amplify systemic risk during periods of financial stress.

Past FSOC actions such as the designation of nonbank financial companies for enhanced supervision have been controversial and highly politicized. Previous attempts to subject firms to supervision by the Fed and prudential standards have largely been denied by courts¹⁴⁸ or rescinded by the council itself.¹⁴⁹ While FSOC can be a leader of cross-agency collaboration and payments research, there are significant political challenges to enacting FSOC interventions in non-core banking supervision.

4. A Government Provided Application for Real-Time Payments

A key concern of access to real-time payments is the capital investment for small and community-based institutions to build the software and interface for their customers. A baseline

¹⁴⁸ “MetLife Defeats U.S. Government’s Too-Big-to-Fail Labeling.” Bloomberg.com, March 30, 2016, <https://www.bloomberg.com/news/articles/2016-03-30/metlife-wins-court-ruling-removing-fsoc-s-too-big-to-fail-tag-imeyio6z>.

¹⁴⁹ “Designations,” U.S. Department of the Treasury, n.d., <https://home.treasury.gov/policy-issues/financial-markets-financial-institutions-and-fiscal-service/fsoc/designations>.

application for accessing real-time payments networks and user interface could help ensure that real-time payments are accessible to all segments of the population, including those traditionally underserved by the banking system. As part of delivering the application, the Fed could utilize the U.S. Digital Service (“USDS”). The U.S. Digital Service¹⁵⁰ specializes in leveraging technology to make federal services more accessible and efficient for American citizens. Their expertise in human centered design can be particularly beneficial in understanding and improving how consumers interact with payment systems, especially those who are most vulnerable.

A government-provided plug-in for real-time payments access could help address key equity concerns between large banks and small community depository institutions. Alleviating financial barriers to innovative payments could also help maintain a competitive banking environment. Recent federal government software successes such as the Veterans Affairs website overhaul¹⁵¹ and mobile experience demonstrate the capability of government to effectively provide digital access and equity to critical services. Integrating a government payments platform within banking institution technology would represent a new frontier for intervention in everyday banking services. The technology would also represent large up-front and ongoing software costs that would likely require integration into the real-time payment service fees. This recommendation provides a concrete method of delivering the benefits of real-time payments across institutions, but at significant cost and intervention.

5. Evaluation of Expanding FedWire and NSS Operational Hours

While FedNow offers the potential for real-time payments, its introduction also raises questions about the redundancy and complexity within the federal payment infrastructure. As such, a dual strategy should be considered and the BoE’s middle-path approach, which avoided a full-scale system overhaul, offers a model for the US, which could consider similar incremental enhancements. FedNow features could be complemented with an extension of operational hours for FedWire and NSS. By doing so, FedWire and NSS would move closer to providing 24/7 availability, reducing the gap between the current system’s limitations and the continuous processing capabilities that define real-time payment systems.

¹⁵⁰ “Our Mission,” United States Digital Service, n.d., <https://usds.gov/mission>.

¹⁵¹ “Simplifying Veteran-facing Services through VA.Gov,” United States Digital Service, n.d., <https://usds.gov/projects/va-dot-gov>.

This would enhance the capabilities of already established platforms, providing immediate benefits in terms of reach and efficiency without the need for significant new investments or the risks associated with launching a new system, thereby accommodating a broader range of user preferences and requirements. This method would consolidate offerings from the Fed but could create inefficiencies between building for both resale and wholesale financial services products, as well as continuing to centralize payments systems. A key concern for single payment services platforms is system “down-time” or when the system is online. While this option carries the benefits of product simplicity, mitigating single system failure points would be critical for successful implementation.

Conclusion

The proposed policy interventions are designed to resonate with the inherent market-based nature of the U.S. payment innovation landscape and to foster a more inclusive, efficient, and stable payment system within the U.S. They are predicated on the understanding that while the private sector can be an engine of ubiquity and innovation, the public sector’s role in providing nationwide equitable reach is *indispensable*. The proposed strategies involve harnessing the competitive and cooperative forces that drive efficiency and innovation in payment systems. We believe that a balance between market innovation and strategic public sector intervention is the cornerstone of a robust, resilient, and forward-looking U.S. payment system. By leveraging executive action for systemic reform, engaging in design equities, building on the role of FedNow, and seeking international collaboration, the U.S. can ensure its payment systems serve the needs of all citizens while supporting economic growth and financial stability.

Our proposed initiatives can bridge the gap between the market’s potential for innovation and the public sector’s role in ensuring that such innovations reach all Americans. An effective, responsive regulatory framework, accompanied by market-driven forces, is the key to fostering a thriving payments landscape.

APPENDIX

A Technical Primer

Clearing and Settlement

The process of executing payments between banks involves two critical stages: “clearing” and “settlement.” The clearing phase consists of the transmission and verification of payment details, which may include steps like verifying the authenticity of a transaction to prevent fraud.

Settlement, on the other hand, involves the actual movement of funds, where the initiating bank’s account is debited, and the receiving bank’s account is credited, thereby concluding the transaction.

FedNow

FedNow, launched in 2023, utilizes a real-time gross settlement (“RTGS”) system, contrasting with traditional payment systems that often rely on deferred net settlement. In deferred net settlement systems, transactions accumulate over time, and net amounts are transferred at specified intervals. Conversely, FedNow processes each transaction individually and in real-time, ensuring immediate settlement without waiting for a batching period. This approach significantly enhances the speed at which transactions are completed and reduces the risk associated with delayed settlements.

The operational flow of a FedNow transaction begins with the initiation step, where a sender, through their financial institution, starts a payment process via an end-user interface that interacts with FedNow.¹⁵² The sender is responsible for validating the payment details according to its internal policies and requirements before submitting the payment message to the FedNow Service.¹⁵³ This message includes necessary information for processing the payment.

Upon receiving the payment message, FedNow conducts a validation process, ensuring that the message adheres to the proper format and complies with established controls.¹⁵⁴ Successful validation leads to the next critical step, where FedNow forwards the payment message to the

¹⁵² “The FedNow Service Readiness Guide,” Federal Reserve, January 17, 2024, <https://explore.fednow.org/resources/customer-readiness-guide.pdf>.

¹⁵³ Ibid

¹⁵⁴ Ibid

recipient's financial institution for acceptance.¹⁵⁵ The receiver, upon receiving the message, decides whether to accept, reject, or accept without posting the payment, based on its evaluation of the account details and the recipient's status.¹⁵⁶

Once the receiver accepts the payment message, FedNow proceeds to the settlement phase, debiting and crediting the appropriate accounts held by the sender and receiver at the Fed.¹⁵⁷ This settlement process is expected to complete within seconds, significantly reducing the transaction time compared to traditional systems.

Following successful settlement, the FedNow Service notifies both the sender and receiver of the completed transaction, ensuring transparency and traceability.¹⁵⁸ As a term of participation, the Fed mandates that the receiver make the funds immediately available to the recipient, enhancing the efficiency and utility of FedNow for end-users.¹⁵⁹

TCH's RTP System

The RTP network was launched in 2017 to provide an advanced payments infrastructure that enables immediate payment capabilities across the U.S., aiming to serve every consumer and business through their respective depository institutions.¹⁶⁰ This system was constructed with the goal of "ubiquity," ensuring that regardless of whether customers do business with large national banks or small community banks, they would have access to the advantages of real-time payments. As an RTGS system, RTP facilitates the instantaneous settlement and clearing of transactions on an order-by-order basis.¹⁶¹

To achieve ubiquity, TCH disclosed that it built out the technical capabilities to reach the country's 11,000 financial institutions and standardized participation fees to ensure that institutions of varying scales incur identical per-transaction fees for bringing these services to their customers. Settlement and clearing within the RTP network are instantaneous,

¹⁵⁵ Ibid

¹⁵⁶ Ibid

¹⁵⁷ Ibid

¹⁵⁸ Ibid

¹⁵⁹ Ibid

¹⁶⁰ "Real-Time Payments for All Financial Institutions," The Clearing House, n.d., <https://www.theclearinghouse.org/payment-systems/rtp>.

¹⁶¹ Ibid

necessitating each participating bank to have a robust connection optimized for the demands of real-time payments. The requisite infrastructure must support real-time accounting and the immediate availability of funds, thereby requiring substantial back-office capabilities and technology. Additionally, to provide consistent and uninterrupted payment support, banks must allocate dedicated employee resources for around-the-clock operations. The adoption of such a system is not trivial and represents a significant undertaking for banks, particularly those without pre-existing infrastructure, making the engagement of third-party service providers a necessity for many. TCH disclosed that it has been proactive in collaborating with a variety of service providers to facilitate comprehensive access to the RTP network.

Divergent Settlement Approaches between RTP and FedNow

RTP and FedNow payment systems adopt differing approaches to liquidity management for real-time transactions. The RTP system, operated by the private sector, requires participant banks to *pre-fund* joint accounts at the Fed, designating TCH as the exclusive agent for these accounts, thus necessitating advanced liquidity provisioning. Conversely, FedNow utilizes each participating financial institution's Federal Reserve Master Account and links it with a dedicated FedNow account. This setup allows banks to transfer funds between their accounts on an as-needed basis, thereby offering a more dynamic and flexible liquidity management approach. When choosing between these two systems, financial institutions must balance the need for pre-funding against the benefits of real-time liquidity management.

Interoperability

The Fed broadly defines interoperability as the seamless routing or exchange and settlement of payments, enabling senders to reach receivers without concern for the payment path's complexity.¹⁶² Interoperability ensures that regardless of the payment solution chosen by end-users, payments traverse and settle across different solutions without friction, and the underlying infrastructure can handle transactions securely and efficiently. This not only supports the collective attainment of critical mass but also ensures that users have a satisfying experience without needing to navigate the complexities of multiple systems.

¹⁶² "Frequently Asked Questions," Federal Reserve Board, n.d., https://www.federalreserve.gov/paymentsystems/files/fednow_faq.pdf.

The Fed disclosed that the concept of interoperability can be realized, within a multi-operator payment system, through several mechanisms.¹⁶³ Among these is *payment routing*, “which relies on the sending depository institution routing payments through a specific service based on the path(s) available to reach the receiver.”¹⁶⁴ An alternative model is *message exchange* across services, which facilitates bilateral message exchange between two service operators.¹⁶⁵

Bifurcated systems, despite payment communications via ISO 20022

The Fed’s task force on payments concluded that while many payment solutions are moving towards adopting ISO 20022 standards – the universal financial industry messaging standard – this alone does not suffice for interoperability due to the standard’s flexible implementation.

ISO 20022 operates as a collection of XML-based messaging standards crafted by the International Organization for Standards.¹⁶⁶ These standards are utilized by the financial industry to establish consistent, international message formats. This consistency is achieved through a shared data dictionary and an underlying business process model, ensuring that financial institutions across the globe can communicate with a common language for financial transactions.

Moreover, despite both the RTP and FedNow systems adopting ISO 20022 for their payment communications, they lack what is termed *message exchange interoperability*. This form of interoperability would enable one system to *initiate* payments directly to the other, facilitating seamless transactions between them. Said differently, “with message exchange interoperability you can initiate a payment without the receiving financial institution being on the same service.”¹⁶⁷ Although TCH and the Fed worked closely in developing FedNow, they did not implement this level of interoperability.¹⁶⁸ As highlighted by TCH CEO, David Watson, achieving interoperability between RTP and FedNow would necessitate the creation of a “translation

¹⁶³ Ibid

¹⁶⁴ Ibid

¹⁶⁵ Ibid

¹⁶⁶ “ISO® 20022 – Standardizing Payment Technology Leads to Greater End-to-End Efficiency,” Federal Reserve, n.d., <https://fedpaymentsimprovement.org/strategic-initiatives/payments-efficiency/adoption-of-iso-20022/>.

¹⁶⁷ Spleights, Sarah, “Interoperability Between RTP and FedNow,” Modern Treasury Journal, November 16, 2022, <https://www.moderntreasury.com/journal/interoperability-between-rtp-and-fednow>.

¹⁶⁸ “Frequently Asked Questions,” Federal Reserve Board, n.d., https://www.federalreserve.gov/paymentsystems/files/fednow_faq.pdf.

machine” to bridge the two systems.¹⁶⁹ While ISO 20022 ensures that both systems can employ *message routing interoperability*, meaning payment messages from one system are *compatible* with the format of the other, thereby aiding in smoother processing, the primary hurdle for financial institutions remains the transfer of these payment messages across systems.¹⁷⁰ It is for this reason that FedNow is regarded as a “messaging protocol.”¹⁷¹ This situation highlights a significant challenge in the current payments landscape, where the inability to directly interchange payment instructions between RTP and FedNow limits the efficiency and flexibility of cross-system transactions. A financial institution seeking to bridge between RTP and FedNow would need to engage a technology provider that provides direct access to both networks,¹⁷² such as Finastra or ACI Worldwide.^{173,174}

Fed Commentary Regarding Interoperability

In its FAQ regarding FedNow, the Fed disclosed that nationwide reach is a key objective. The Fed disclosed that it cannot achieve complete interoperability (routing and messaging) for instant payments on its own. Such an outcome requires a collective effort from all stakeholders in the industry – banks, their service providers, and payment service operators. The success and timeline for reaching interoperability hinge on the “level of commitment and engagement across the industry.”¹⁷⁵ The Fed intends to leverage the internationally recognized ISO 20022 standard along with other best practices within the industry to eliminate “unnecessary” technical mismatches that hinder payment routing, thereby facilitating a form of interoperability.¹⁷⁶ The Fed noted that although it is “open to the model of interoperability based on message exchange across services in the future,” adopting such a model entails complex issues like technical message exchange protocols and unified settlement processes and, therefore, demands unwavering commitment and proactive participation from current private-sector operators.¹⁷⁷

¹⁶⁹ “More efforts needed to make FedNow, RTP interoperable, Clearing House CEO says,” S&P Global Market Intelligence, July 20, 2023, <https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/more-efforts-needed-to-make-fednow-rtp-interoperable-clearing-house-ceo-says-76478357>.

¹⁷⁰ *Ibid*

¹⁷¹ “Real-time payment networks grow, but banks still search for uses,” S&P Global Market Intelligence, October 25, 2022, <https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/real-time-payment-networks-grow-but-banks-still-search-for-uses-72411002>.

¹⁷² “Interoperability Challenges Multiply Following FedNow, ISO 20022 Launch,” Vixio, October 23, 2023, <https://www.vixio.com/insights/pc-interoperability-challenges-multiply-following-fednow-iso-20022-launch>

¹⁷³ “Finastra advances its instant payments strategy with FedNow Service certification,” Finastra, June 26, 2023, <https://www.finastra.com/press-media/finastra-advances-its-instant-payments-strategy-fednow-service-certification>

¹⁷⁴ “The FedNow® Service, Explained: Here’s What You Need To Know,” ACI Worldwide, n.d., <https://www.aciworldwide.com/fednow>.

¹⁷⁵ “Frequently Asked Questions,” Federal Reserve Board, n.d., https://www.federalreserve.gov/paymentsystems/files/fednow_faq.pdf.

¹⁷⁶ *Ibid*

¹⁷⁷ *Ibid*

APPENDIX TABLE 1: 2021 Pilot Program Participants

1st Source Bank	Excite Credit Union	Oakworth Capital Bank
ACI Worldwide Corp.	F&M Bank	Open Payment Network
Alacriti Payments LLC	Fairwinds Credit Union	Pacific Coast Bankers' Bank
Alloya Corporate Federal Credit Union	Farmers Insurance Federal Credit Union	Peoples National Bank, N.A.
American Bank	FIS	Premier Bank
American Express National Bank	Finastra	Q2 Software, Inc.
American Savings Bank	Finxact	Quad City Bank & Trust
American State Bank	Finzly	Regions Bank
Aptys Solutions	First Bank	Salem Five Bank
Arvest Bank	First Citizens State Bank	Service One Credit Union
Atlantic Community Bankers Bank	First Foundation Bank	SHAZAM, Inc.
Bank of Hawaii	First Hawaiian Bank	Silicon Valley Bank
Bankers' Bank	First Internet Bank of Indiana	Square Financial Services, Inc.
Bankers' Bank of Kansas	First National Bankers Bank	Star One Credit Union
Bankers' Bank of the West	First Republic Bank	TD AMCB
BMO Harris Bank	FirstBank	Temenos Headquarters S.A.
BNY Mellon	Fiserv Solutions, LLC	Texas Brand Bank
BOC Bank	Form3	Texas First Bank
Bridge Community Bank	Freedom Bank	The Bankers Bank

Bryant Bank	Goldman Sachs	The Callaway Bank
C&N	Green Dot Bank	The Citizens Bank of Edmond
Capital One Financial	HawaiiUSA Federal Credit Union	TIB The Independent BankersBank, NA
Catalyst Corporate Federal Credit Union	Heritage Bank	Tri Counties Bank
CGI Technologies and Solutions, Inc.	High Plains Bank	U.S. Bank
Citi	Horicon Bank	U.S. Department of the Treasury's Bureau of the Fiscal Service
Citizens Bank of Las Cruces	INB, N.A.	UMB Bank, n.a.
Citizens National Bank	Independent Community Bankers' Bank	United Bankers' Bank
Clear Mountain Bank	Jack Henry & Associates	University Bank
Commerce Bank	JP Morgan Chase	University of Michigan Credit Union
Community Bankers' Bank	Juniper Payments	Vantage Bank Texas
Computer Services Inc.	Lakeview Bank	Veridian Credit Union
ConnectOne bank	Mediapolis Savings Bank	Vizo Financial Corporate Credit Union
Corporate America Credit Union	Mercantile Bank of Michigan	Volante Technologies, Inc.
Corporate Central Credit Union	Michigan State University Federal Credit Union	Volunteer Corporate CU
Corporate One Federal Credit Union	Midwest Independent Bankers Bank	VSoft Corporation
Cross River Bank	Millennium Corporate Credit Union	Waldo State Bank

DHI Computing Service Inc. DBA FPS GOLD	ModusBox, Inc.	Wells Fargo Bank, N.A.
Eastern Corporate Federal Credit Union	North American Banking Company	Westside State Bank
ECS Fin Inc.	North Salem State Bank	
Exchange Bank	NorthCountry Federal Credit Union	

APPENDIX TABLE 2: Early Adopter Financial Institutions

1st Source Bank	INB
Adyen	JPMorgan Chase
Avidia Bank	Mediapolis Savings Bank
BNY Mellon	North American Banking Company
Bridge Community Bank	Peoples Bank
Bryant Bank	Pima Federal Credit Union
Community Bank of the Bay	Salem Five Bank
Consumers Cooperative Credit Union	Star One Credit Union
Corporate America Credit Union	United Bankers' Bank
Eastern Corporate Federal Credit Union	U.S. Bank
First Internet Bank of Indiana	U.S. Department of the Treasury's Bureau of the Fiscal Service
Global Innovations Bank	Veridian Credit Union
Hawaii USA Federal Credit Union	Wells Fargo Bank, N.A.