



Payments System Research Briefing

The Role of Core Banking Services Providers in Facilitating Instant Payments

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Core banking services providers play key roles helping depository institutions (DIs) offer instant payments. Specifically, core providers process transactions in real time and connect DIs to instant payments system operators, upgrade customer-facing solutions, and facilitate open banking and embedded finance. As the United States implements instant payments systems, the market structure surrounding core providers may evolve, and competition between fintechs and DIs for end users may intensify.

Depository institutions (DIs) must make significant changes to how they manage payments to offer their customers instant payments. Some features of instant payments, including around-the-clock services and instant accessibility to funds, require real-time core and payment processing, automated connectivity to the instant payments system operators, and upgraded customer-facing solutions. To accommodate instant payments, many U.S. DIs—including banks and credit unions—may need to modernize their core banking systems and outsource some functions, requiring support from their core banking services providers (Alcazar and others 2024a). This *Payments System Research Briefing* explores the role core providers play in facilitating the implementation and broad use of instant payments and examines the implications for the U.S. payments and banking industries.

Challenges for DIs in accommodating instant payments

Implementing instant payments presents challenges for DIs, as their core systems and internal operations were not designed for instant processing and around-the-clock connectivity. Traditional payment systems such as wire or automated clearinghouse (ACH) systems are open during set hours, and the DI receiving the payments can delay posting funds to their customer accounts until later in the day. Many DIs manage wire and ACH payment processing in-house, establishing direct connectivity to the system operators, such as the Federal Reserve's Fedwire Funds and FedACH services and the Clearing House's CHIPS and EPN services. Although larger DIs have the means for straight-through automation and computer-to-computer messaging between the DI's core processing software and the operator's interface, smaller DIs with lower payment volume often rely on the operator's browser-based connectivity through a secure online tunnel that must be "attended" by DI personnel (Federal Reserve Financial Services n.d.). This attended solution requires personnel to manually exchange transaction details between the DI's core processing software and the operator's browser interface. This manual connectivity has been practical for DIs that process a low volume of ACH and wire payments, to the extent that DIs can delay posting funds to their customer accounts by a few hours if needed.

However, attended solutions may be impractical for instant payments systems, which are open around the clock and require the DI receiving the payment to actively accept it and post it to their customer's account within seconds (Federal Reserve Financial Services 2022). Instead, DIs' connectivity to the instant payments system operator may require fully automated integration with the DIs' core system. Especially for smaller DIs, establishing this automated connectivity and processing payments in real time on a 24/7, 365-days-a-year basis may be difficult and expensive without support from core providers. As an executive for Bankers' Bank, Todd Koehn, explained, "It's cheaper to go direct to the Fed [an instant payments system operator], but you'd have to build your own infrastructure and maintain it. And that's expensive. Most community banks will connect through a processor, whether it's an online banking processor or a core processor" (Gores 2022). A similar trend has been observed in European countries: according to a 2022 survey, more European banks would consider outsourcing for instant payment processing than for ACH, wires, or international payment processing (Hines 2022).

Core providers' role in real-time processing and connecting to instant payments system operators

Although DIs may need to rely on a core provider to accommodate instant payments, the approach can vary. One approach is to use a core provider to upgrade the DI's core banking system, either in full or by component, to support the real-time and any-time needs of instant payments (discussed in Alcazar and others 2024a). However, this approach can be expensive and could strain core providers' capacity during periods of high demand.

The DI could instead use a core provider or a fintech vendor to implement a modern layer of core and payment-processing services that wraps around the DI's legacy core system, sometimes provided in the form of a "payment hub" or payment platform. Figure 1 depicts an example of a comprehensive payment hub service. A key function of the hub is payment processing (shown in light blue), which includes payer authentication, fraud management, payment message formatting, exception management, reconciliation, and reporting. A payment hub may also conduct real-time credit and debit posting to a DI's customer accounts through an application programming interface (API), which connects the payment hub and the DI's core banking system (shown in green at the bottom of the figure). The right side of the figure shows another key function of the hub: establishing connectivity to the Federal Reserve's FedNow service, the Clearing House's Real-Time Payments (RTP), and various other payment system operators and networks that settle payments. These payment hub functions potentially reduce the number of changes DIs need to make to their core systems and related administrative or operational processes.

Figure 1. Payment hub service

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In addition to facilitating back-end processes for DIs, payment hub architecture may also benefit DIs' customers by making their transactions more seamless and unified. A payment hub may connect with front-end, customer-facing mobile apps and banking software through an API (the channels noted on the left side of Figure 1). This API connection enables the customer to indicate and prioritize the characteristics needed for a particular payment—for example, the settlement speed, finality, security, reachability to a particular payee, and other factors—without specifying which payment rail to use for settlement. Based on those characteristics, the DI can then route the payment through the payment hub to the settlement mechanism that optimizes the outcome for the customer.^[1]

Many firms, including core services providers, offer payment hub or gateway services for DIs to connect to instant payments system operators. By November 2022, more than 20 firms had established connectivity between RTP and their participating DIs (TCH 2022). As of April 2024, 30 firms were FedNow-certified service providers (Federal Reserve Financial Services 2024). In addition to connecting DIs to FedNow, the FedNow-certified service providers also provide functions such as receiving instant payments and posting the funds to customer accounts, initiating and sending instant payments, receiving and responding to requests for payment, and enabling liquidity management transfers. About half of the FedNow-certified service providers are core providers, including the "Big Three" (FIS, Fiserv, and Jack Henry and Associates), other established incumbents (such as CSI, COCC, and Shazam), and newer next-generation core providers. The Big Three and other incumbent core providers may provide real-time core and payment processing as well as connectivity to the instant payments system operators either directly from the core banking system or via a payment hub. In contrast, next-generation core providers, such

as Finastra, Finzly, and Temenos, establish connectivity to FedNow and RTP mainly through their payment hub services.^[2] They may also provide real-time core and payment processing, especially if their DI clients use a legacy core system. The rest of the FedNow-certified service providers are various types of payment-processing service providers. Some of them, including ACI, Alacriti, Aptys Solutions, and ECS Fin, establish connectivity to FedNow and RTP through their payment hub services.^[3] Visa uses Visa DPS, a card issuer service platform, to connect with instant payments system operators (Visa 2023). BNY Mellon serves as a correspondent bank, acting as an intermediary for smaller financial institutions (BNY Mellon 2023).

Core providers' role in upgrading customer-facing solutions

DIs seeking to offer instant payments may also outsource front-end, customer-facing solutions, such as mobile banking apps, online banking software, and person-to-person (P2P) and business-to-business (B2B) payment platforms. These solutions need to be upgraded so that DIs' customers can send instant payments, initiate or respond to a request for payment, and take advantage of immediate funds availability. Some DIs may use a core provider that includes these solutions as ancillary services to its core system. Other DIs may use mobile and online banking vendors or other service providers that offer customer-facing solutions. Some core systems enable DIs to pursue a best-of-breed strategy, meaning these systems can easily incorporate other vendors' ancillary components, while other core systems do not (Alcazar and others 2024a). In the latter case, a payment hub provider may integrate its payment hub solution with a DI's customer-facing solutions as well as core processing.

Compared with implementing real-time processing and connectivity to instant payments system operators, upgrading customer-facing solutions has been slow. As of April 2024, over 1,000 DIs participated in RTP or FedNow; although all these DIs had the ability to *receive* instant payments, they did not all have the ability to *send* instant payments (ICBA 2023).^[4] DIs with receive-only capability may not have upgraded customer-facing solutions. Even some DIs with send-and-receive capabilities may not have upgraded all their customer-facing solutions, as indicated by some of these DIs limiting their instant payment services to only certain customers.

Core providers' role in open banking and embedded finance

Two ways to facilitate the use of instant payments are open banking and embedded finance. Open banking enables consumers to allow third-party financial apps to securely access their payment account data and initiate payments (Alcazar and Hayashi 2022). Embedded finance—financial solutions offered by consumer-facing businesses in conjunction with the purchase of goods and services—eliminates the need for consumers to leave a merchant's channel to make payments, borrow money, or procure insurance associated with the purchase (Lehman 2022). In the United States, both open banking payments and embedded payments have been made primarily using ACH, while in the United Kingdom, these payments have been made largely on the Faster Payments System implemented in 2008 (Joint Regulatory Oversight Committee 2023).

Core providers can promote instant payments for open banking and embedded payments through their services. In open banking, data aggregators and open banking platform providers use APIs to establish connections between third-party financial apps and DIs that hold the consumers' bank accounts. Core providers often establish API connections with data aggregators on behalf of their DI clients, especially for smaller DIs (Alcazar and Hayashi 2022). Some core providers are expanding services to facilitate open banking payments. For example, FIS recently announced a strategic partnership with open banking provider Banked to create new pay-by-bank solutions for businesses and consumers by leveraging instant payments (FIS 2024).

Core providers play multiple roles in Banking-as-a-Service (BaaS), a style of service that integrates DIs' digital banking services seamlessly into the products of nonbank businesses, enabling embedded finance. Core providers offering next-generation core systems allow DIs to offer BaaS solutions to nonbank businesses, either directly or through a BaaS platform provider. Some core providers, such as Fiserv, partner with BaaS platform providers to offer fintechs and other firms access to a BaaS platform and relationships with sponsor banks. Other core providers, such as FIS, offer a BaaS platform themselves (Alcazar and others 2024b).

Implications for the payments and banking industries

As the United States continues to transition to instant payments systems, the market structure surrounding core providers may evolve. Currently, the Big Three core providers not only dominate the core services market but also have a large presence in vertically related markets, such as card network services; payment processing services for DIs, merchants, or governments; and BaaS. Next-generation core providers have emerged as an alternative to the Big Three, but they have not yet attracted significant market share (Alcazar and others 2024b).

Exactly how this market structure will evolve is still uncertain. On the one hand, next-generation core providers may increase their footprints via payment hub solutions. Many DIs may choose these payment hub solutions because they are core-system

agnostic, and DIs' experience with next-generation core providers might, in turn, induce them to modernize other parts of their core systems offered by the same providers. On the other hand, the Big Three core providers may further increase their presence in vertically related services, such as open banking, BaaS, and embedded finance. A lack of dominant API standards used for these services may also favor the Big Three, especially if incumbent APIs become de facto standards, potentially placing smaller vendors at a disadvantage.

Core providers' services to facilitate open banking, BaaS, and embedded finance will not only promote broad use of instant payments but also intensify competition between fintechs and DIs for end users. End-user options for financial services have been growing in recent years as fintechs have entered the market, and this trend may continue or even accelerate in the future. Among the various consumer financial services fintechs offer, payment services have been the most widely used and fastest growing since 2020 (Plaid and The Harris Poll 2023).

As a result of these developments, DIs may collectively lose market share to fintechs; however, the effects on individual DIs may vary. Proactive DIs may sustain or even increase market share by modernizing their core systems, implementing instant payments capabilities, adopting open banking, and sponsoring fintechs and nonbank businesses through BaaS services.

Summary

Core providers play multiple roles in helping DIs implement instant payments. They offer real-time payment processing and connectivity to instant payments system operators, upgrade customer-facing solutions, and facilitate open banking, BaaS, and embedded finance. Because these services are offered by both incumbent and emerging core providers, the market structure of core providers will likely evolve—but how it will evolve is uncertain. Emerging core providers could expand competition, or large incumbent core providers could increase their concentration further. Core providers' services in open banking, BaaS, and embedded finance may intensify competition between fintechs and DIs for end users. However, DIs that modernize their core systems, implement instant payments, and offer services to fintechs may sustain or increase their market share as the United States transitions to instant payments.

Endnotes

- [1] A crucial challenge for this smart routing is differences in regulations, rules, and legal obligations of DIs and end-user customers across settlement rails.
- [2] Information obtained through the FedNow Explorer website ([Showcase Theater, Payments Hubs/Platforms/Gateways](#) category).
- [3] Information obtained through the FedNow Explorer website ([Showcase Theater, Payments Hubs/Platforms/Gateways](#) category).

[4] Some DIs participate in both RTP and FedNow. The total number of DIs participating in RTP or FedNow is based on the authors' calculations from [the list of RTP participants](#) (available online through The Clearing House) and [the list of FedNow participants](#) (available online through Federal Reserve Financial Services).

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