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# The Future of Money Movement, Enabled Through API Banking

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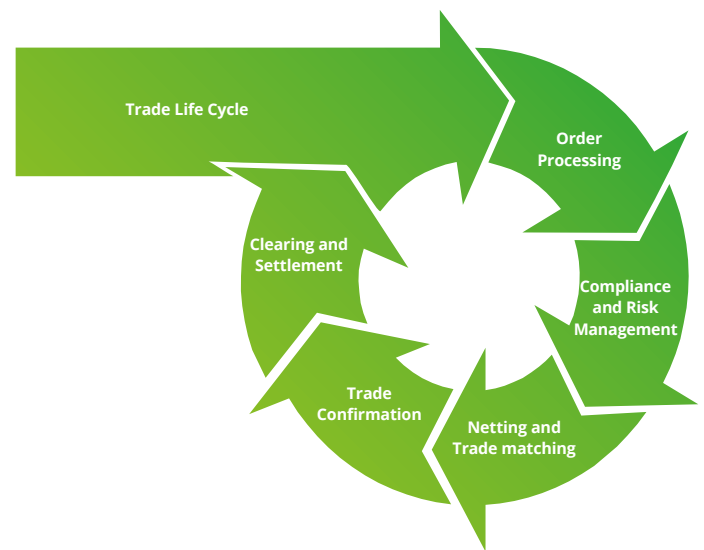
# Executive Summary

In the fast-evolving digital age, the landscape of payments, money movement, and financial transactions is undergoing a remarkable transformation. Customers increasingly expect instantaneity, accessibility, and unparalleled convenience from their digital applications. Financial services remain an exception, with high risk and switching costs, and a poor mobile experience does not necessarily drive consumers to the competition.

As the Trading life cycle transitions from T+2 to T+1, and soon to a T+0-based same-day settlement, transparent access to trade data is regarded as table stakes. Powered by the Application Program Interface (API) micro-services architecture, money movement is undergoing a major transformation with adoption of real-time payment solutions and faster payment rails. Banks will need to build/enhance their API infrastructure to provide real-time access to bank account information, initiate transactions, and make core credit/debit updates.

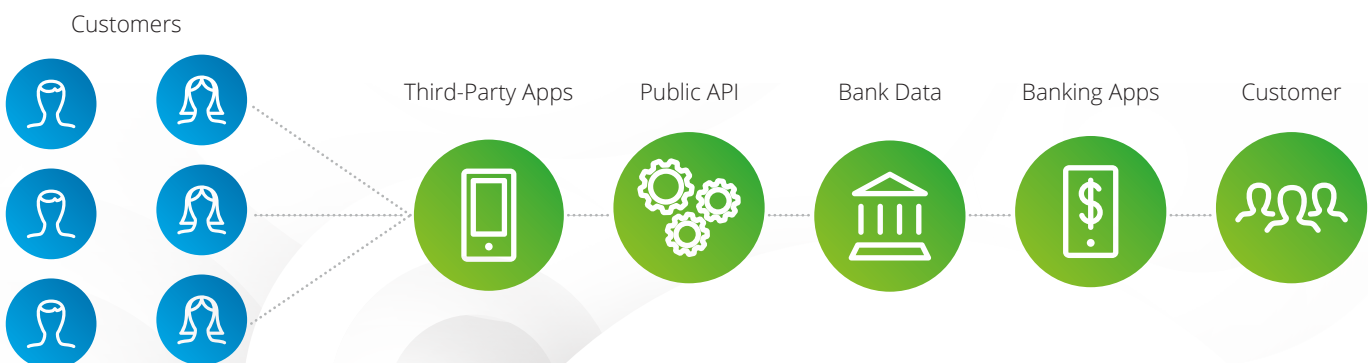
Leaders in Financial Services are warily coming to realize that **API Banking** represents a shift in how financial services are accessed, delivered, and experienced. Now that innovative practices such as **Banking as a Service (Baas)** are allowing a diverse range of players such as Fintechs, third-party developers, and other businesses to innovate and provide value-added services on top of established banking infrastructure, **the time is right for the world of wealth, retirement, and brokerage to take notice and begin to plan for the future of their business.**

Figure 1. Trading Life Cycle



The rapid rise of API Banking is forcing an evolution of the payments landscape, transforming the way customers and companies interact with money and unlocking innovations that were previously confined by legacy systems and manual processes. With its capacity to enable real-time 24/7 transactions, seamless integrations, and unprecedented levels of customization, API Banking is setting a new standard for financial services. By shifting to a relatively standardized, online-based toolset, API Banking also facilitates collaboration between traditional financial institutions and third-party providers, blurring traditional distinctions and creating a dynamic ecosystem where the convenience, security, and innovation demanded by today's diverse range of users can be met. As the payments ecosystem continues evolving, more companies will begin adopting and developing API Banking solutions and exposing their products and services to third parties. The next steps are ensuring data security, navigating regulatory landscapes, addressing integration complexities, and innovating. These vital aspects each demand careful consideration and mandate companies proactively make investments to remain competitive, differentiated, and relevant.

Figure 2. API Banking Ecosystem



# API Banking and Banking as a Service (BaaS) are transforming the future of Money Movement

**API Banking** refers to APIs which banks have developed and made available to external parties (e.g., customers or software vendors) over the Internet. With the right access protocols, a system accessing the API can then receive information about the customer's bank account, initiate transactions, or make updates. Some of the key benefits of API Banking include greater accessibility, facilitation of instant payments<sup>1</sup>, real-time transaction data and alerts, and reduced costs.

**BaaS** provides third parties access to the bank's products and services, so that non-bank companies can offer their users banking capabilities, including payment services<sup>2</sup>. The non-bank company can offer users features only available from a bank, such as holding a cash balance, without having to go through the lengthy licensing process as the relationship with the licensed bank is handled behind the scenes. By integrating non-banking businesses with regulated financial infrastructure, BaaS offerings are enabling new, specialized propositions and bringing them to market faster<sup>3</sup>.

**Open Banking** is a technically enabled data sharing concept that promotes the sharing of information between different financial institutions and authorized third-party providers. It is enabled by APIs that allow secure access and exchange of consumer data by enabling individuals and businesses to share their data with other financial services providers, such as budgeting apps, investment platforms, and more. APIs allow software programs to interact with each other and, in this case, enable third-party financial service providers to access customer data securely and efficiently<sup>4</sup>.

## API Banking Limitations and Challenges

API Banking is not without challenges and limitations, which should also be considered:



**Scalability and Performance:** The volume of transactions and user interactions are constantly changing, so API systems should be designed to scale effectively, ensuring that the infrastructure can handle peak loads and maintain performance without disruptions.



**Integration Complexity:** The process of transitioning to API-based systems can be challenging and costly as financial institutions often have legacy systems and complex IT infrastructures that may not seamlessly integrate with modern API technologies.



**Interoperability Issues:** Financial institutions may adopt different API standards, making it challenging for third-party developers to build applications that work seamlessly across different platforms, which could hinder innovation and broader adoption.



**Regulatory and Compliance Requirements:** The financial industry is heavily regulated, and financial institutions must ensure that Banking APIs are compliant with different regulations and standards, as well as any regional laws. Ensuring adherence can be a challenging and time-consuming task.



**User Consent:** Banking APIs enable sharing user data across different services, which raises concerns about user consent and control over personal information. Banks and third parties need to be transparent about data usage and provide users with control over their data sharing preferences.








**Data Privacy and Security:** Sharing of sensitive customer data and financial information with third parties also increases the exposure and vulnerability of the data to potential breaches, fraud, or misuse<sup>5</sup>. Ensuring robust security measures, such as requiring encryption and authentication protocols, is crucial.



# Payment Services APIs Leveraged in the Banking Industry

The Banking Industry is already leveraging API and BaaS Infrastructure to modernize the payment landscape. For example, one application for API Banking and Banking as a Service is to enable payment transactions or enquiry of payment transaction status on behalf of the consumers through API calls.

The below table consolidates common APIs solutions currently offered in the Banking Industry, describing functionality provided, capabilities (e.g., Payment Types offered), and key players of these services<sup>6</sup>.

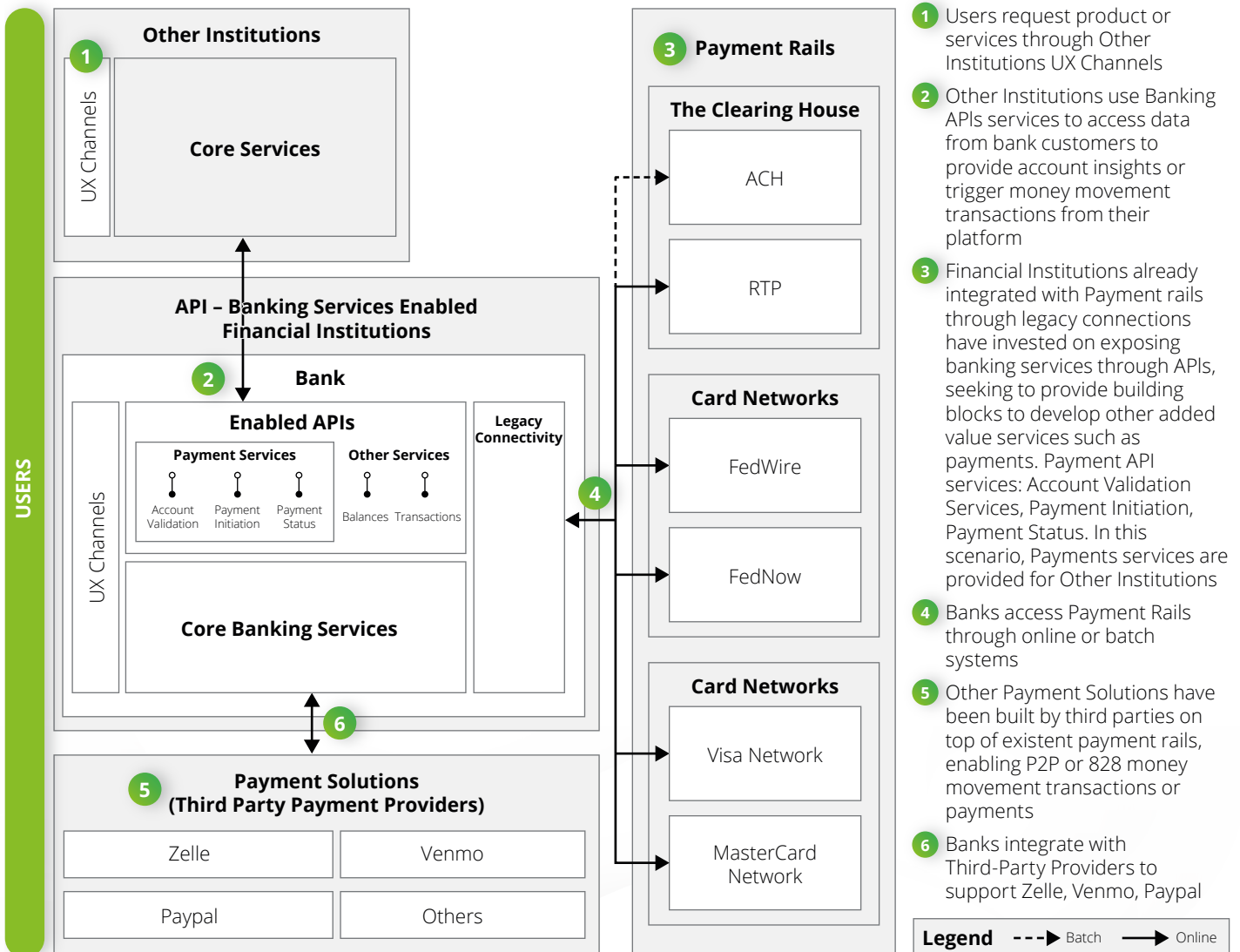
API	Functionality	Contains	Capabilities
<b>Payment Initiation</b> 	Provides a way to trigger a bank to transfer money from one account to another account, usually in another bank, as a payment for goods or services.	Details on the sender and receiver, their bank accounts, the amount and currency, and descriptions of the payment context (e.g., remittance, invoice number).	ACH, RTP, Wires (Domestic and International), Zelle
<b>Payment Status</b> 	Provides ability to enquire to a bank about the status of a specific payment.	Status is based on an identifier, which reflects the real-time condition of the payment instructions including status within various clearing systems and intermediary banks.	Payment Status Track and Trace, Payment Status Inquiry
<b>Account Validation</b> 	Allows pre-authentication of the owner or status of a bank account, prior to initiating electronic credits or debits.	Account, account agent, account owner, status, and owner.	Account, status, and owner validation
<b>Balances</b> 	Provides up-to-the-minute information on the ledger and available balance amount in each account.	Date and time of balance info, ledger and available amount, account number, and account currency.	Balance Inquiry, Funds Check, Account Balances
<b>Transactions</b> 	Provides up-to-the-minute info on the transactions in each account.	Date and time of transaction info, account number, account currency, transaction amount, transaction currency, transaction reference ID, and transaction description.	Current and Previous Day Transaction Inquiry, Transaction Details, Event Notifications

# API Banking Ecosystem powering the Payment and Money Movement Services

**API Banking** allows financial institutions to securely share data and offer services and functionalities to other consumers. The diagram below depicts the main components of payment services interaction through APIs. Most Tier-1 financial institutions have already integrated with Payment Rails (e.g., ACH, RTP, Fedwire, FedNow, Card Networks) and have exposed payment APIs (e.g., Account Validation, Payment Initiation, Payment Status verification), which are consumed by other institutions, both financial and nonfinancial.

**Figure 3.** API Banking Ecosystem Supporting Payment Services

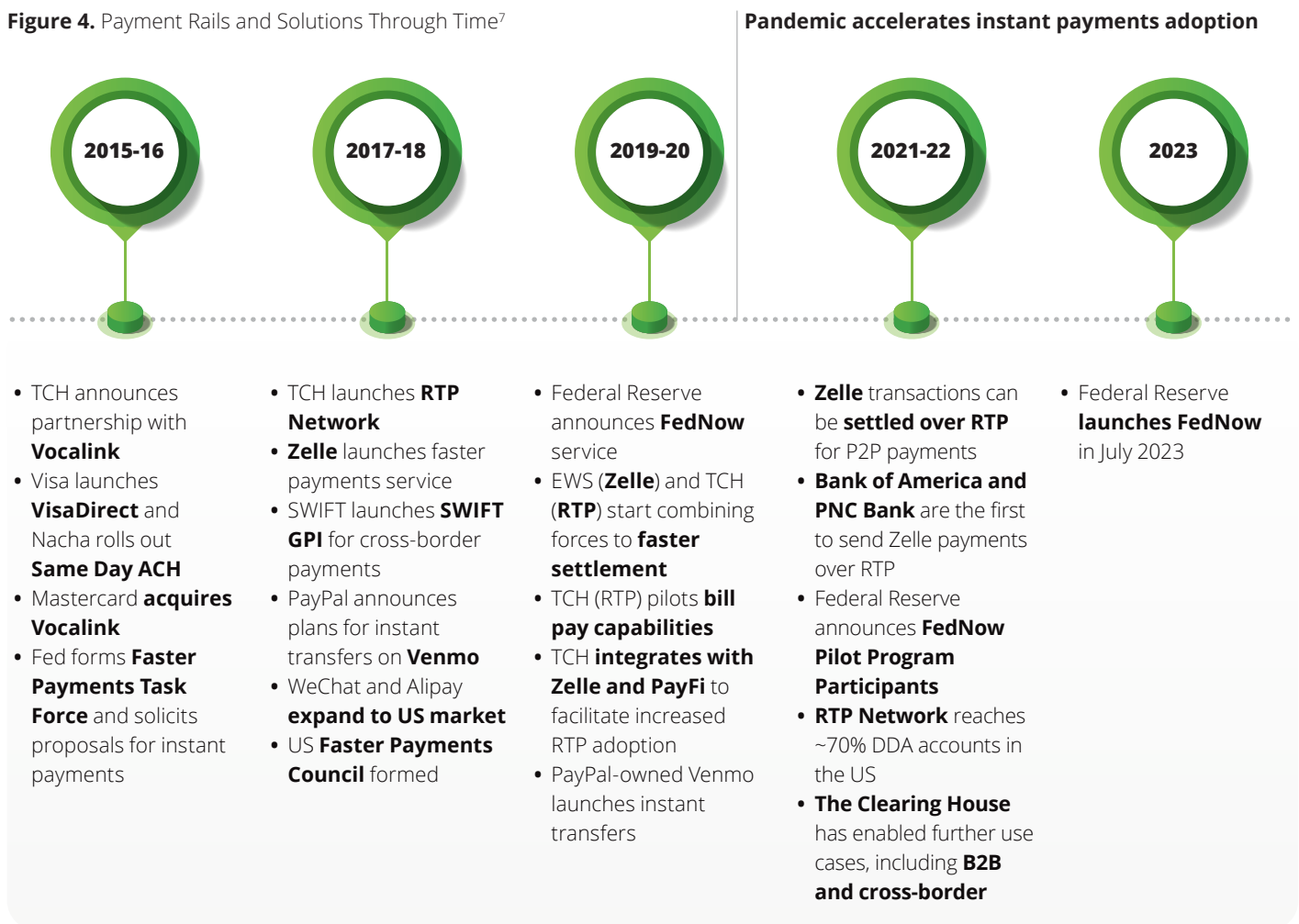
## API Banking Ecosystem Supporting Payment Services



# Evolution of the Payment Rails

Payment Rails have been evolving to provide instant or near instant payment capabilities such as *Same Day ACH*, *FedNow*, and the *RTP Network*, which enable the core services required to process real-time payments through API Banking. On the other hand, instant networks like RTP have allowed faster settlement processes for various payment solutions built on top of API-based payment rails. Below is a summary of how real-time capabilities on Payment Rails have evolved over time.

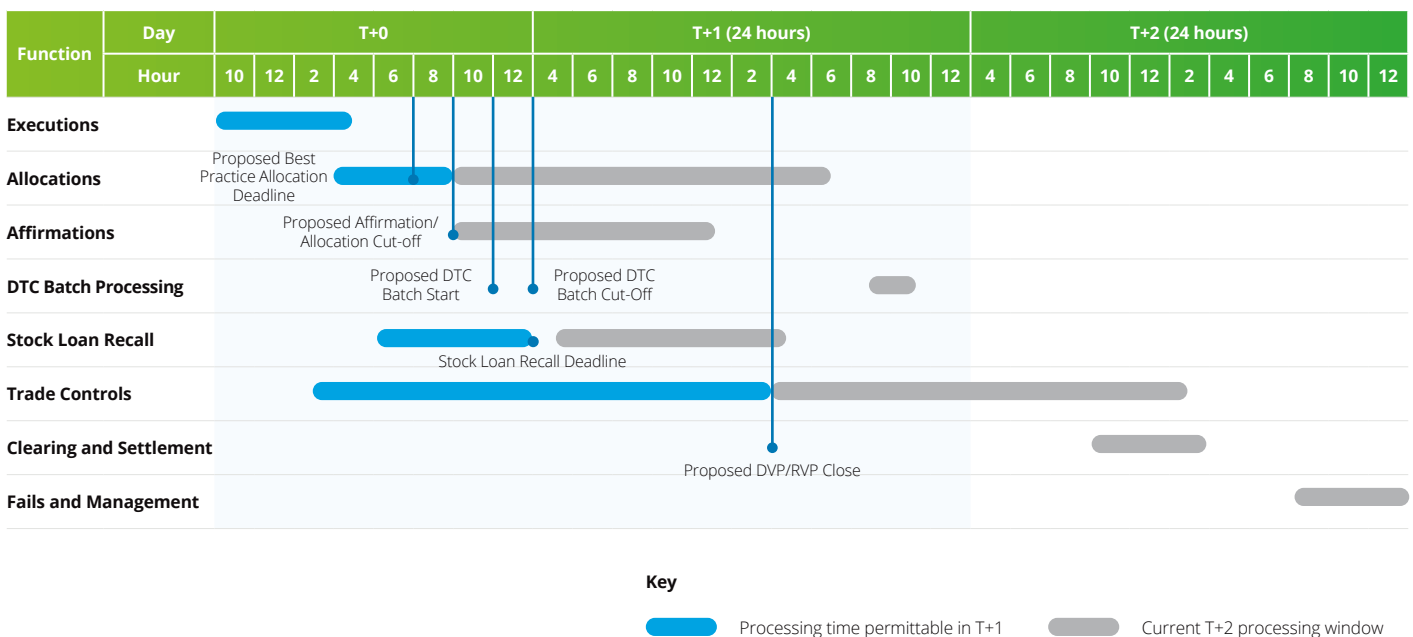
**Figure 4.** Payment Rails and Solutions Through Time<sup>7</sup>



# Acceleration of Clearance and Settlement Cycle via API Banking

The advent of API Banking services is also a key enabler in shortening the settlement cycle of payment/trade execution. However, this also requires fundamental levels of analysis and changes across client communication, operational processes, and technology flows, including clearing and settlement-related batch sequencing and data availability. As the industry moves to a T+1 settlement cycle, and eventually to T+0-based settlement, it will require a fundamental change to batch cycle-based nightly processing. The entire process will need to be significantly automated, allowing trade processing to be as close to real time as possible.

**Figure 5.** Trade Life Cycle and T+1 Impact



Traditionally, money movement batch processing operates as a monolith with millions of transactions processed through large data files in Nacha/Swift format, which are transferred through file transfer protocol between brokerage/wealth management firms, banks, DTCC/ NSCC, and other market participants. The introduction of API-based money movement has opened the doors to the adoption of real-time money movement solutions and faster payment rails. Thanks to Banking APIs and BaaS, the trading life cycle can now be significantly accelerated from the current T+2 processing window to T+1 and eventually to a same-day settlement of T+0.

# A Case Study: API Banking in Action: India's Unified Payments Interface

In 2014, the Indian government launched a financial inclusion initiative called the 'Pradhan Mantri Jan Dhan Yojana' (PMJDY). PMJDY was aimed at providing banking services for households across India, including a Rs. 5,000 overdraft facility and a debit card with Rs. 100,000 accident insurance coverage. Under PMJDY, banks provide an interest-earning basic savings bank deposit account with a debit card for any unbanked person. These accounts require no minimum deposit, making banking services available to all citizens<sup>8</sup>. As of December 2023, the initiative has led to the creation of 510 million new bank accounts, with nearly 60% of them based in rural communities<sup>9</sup>.

In 2016, the National Payments Corporation of India launched the Unified Payments Interface (UPI), a system regulated by the Reserve Bank of India (RBI) that allows customers of participating banks to access banking services via smartphone. UPI offers free 24/7 money transfers, merchant and bill payments, and more, to all customers banking with participating Indian banks<sup>10</sup>. With the RBI operating the UPI and PMJDY leading banks to offer accounts with no minimum balance, transaction fees/costs have been largely eliminated and banking has become highly accessible for all citizens.

APIs are deeply embedded throughout the UPI system to integrate with existing bank infrastructure. APIs are used to retrieve information, initiate transfers, authenticate users, send funds, process transactions, and integrate with third-party applications.

## What Comes Next?







The rapid rise of API Banking is forcing an evolution of the money movement and payments landscape, transforming the way customers and companies interact with money and unlocking innovations that were previously confined by legacy systems and manual processes. With its capacity to enable real-time 24/7 transactions, seamless integrations, and unprecedented levels of customization, API Banking is setting a new standard for Banking and Capital Market firms.





The trade clearance, settlements, and payments landscape are continuously evolving, and some challenges still exist. Ensuring data security, navigating regulatory landscapes, addressing integration complexities, and ongoing innovation are vital aspects that demand careful consideration and where financial services need to proactively make investments to remain competitive, differentiated, and relevant.



# Appendix: Payment Rails and Solutions Available in the US – Comparative Chart:

The chart compares the different Payment Rails/Solutions available in the US today.

Payment Rail	ACH Network	RTP	FedWire	FedNow	CARDS Networks
<b>Regulator</b> 	National Automated Clearing House Association (Nacha) and The Clearing House	The Clearing House (TCH)	Federal Reserve	Federal Reserve	PCI DSS, Nacha and Federal & State Governments
<b>Operator</b> 	Federal Reserve Bank or TCH	TCH	Federal Reserve's Fedwire or the Clearing House Interbank Payment System	Federal Reserve's FedNow	Operated by each provider (Visa, Master Card, AMEX, Discover).
<b>Settlement Time</b> 	Typically, 1 business day to 3 business days, but Same Day ACH and Next Day ACH are available.	Immediate availability	Immediate availability	Immediate availability	Authorized immediately, but takes 1 day to 2 days to settle.
<b>Availability Timeframe</b> 	Traditional business hours Monday–Friday, excluding federal holidays.	24/7/365	22 hours each business day from 9 p.m. on the preceding calendar day to 7 p.m. ET, excluding Holidays.	24/7/365	24/7/365
<b>Error Handling</b> 	Reversal is possible	Irrevocable, but there is a process to facilitate FI-to-FI communication around return of funds.	Final and irrevocable	Cannot be reversed.	Depends on the provider and specific to each transaction through disputes.
<b>Transaction Limits</b> 	\$1 million per payment limit	\$1 million per transaction limit	\$50 Million Securities Transfer Limit	\$25,000 per transaction limit, initially. Potentially will be increased in the future.	Specific for each customer.

Payment Rail	ACH Network	RTP	FedWire	FedNow	CARDS Networks
<b>Fees</b> 	Free to low cost to send, less fees (\$0.2-\$1.5, \$1-\$5 for same day ACH).	Real-Time Payments do cost more than standard ACH transactions (\$0.25-\$1).	Pricing is based on each customer's monthly volume.	\$25 monthly participation fee + \$0.045 per credit transfer.	Average card processing fees 1.5% to 3.5% per transaction.
<b>Online/Batch</b> 	Batch	Online - Transactions clear and settled individually.	Online - Transaction processed individually and settled upon receipt.	Online - Transactions clear and settled individually.	Batch
<b>Domestic/ International</b> 	Domestic (US only)	Domestic (US only)	Domestic and International	Domestic (US only)	Usually, international
<b>Adoption</b> 	All US banks and credit union accounts <sup>11</sup>	70% of U.S. depository institutions <sup>12</sup>	Institutions that hold an account with a Federal Reserve Bank	35 participating banks and credit unions (as of July 2023) <sup>13</sup>	84% of U.S. adults have a credit card (2021) <sup>14</sup>

**For more information, please contact:**



**Vivek Pandey**  
**Managing Director,**  
 Banking & Capital Markets  
 Deloitte Consulting LLP  
[vivepandey@deloitte.com](mailto:vivepandey@deloitte.com)



**Tushar Daru**  
**Principal,**  
 Banking & Capital Markets  
 Deloitte Consulting LLP  
[tdaru@deloitte.com](mailto:tdaru@deloitte.com)



**Jayesh Bhatt**  
**Senior Manager,**  
 Banking & Capital Markets  
 Deloitte Consulting LLP  
[jabhatt@deloitte.com](mailto:jabhatter@deloitte.com)



**Philip Matricardi**  
**Specialist Leader,**  
 Banking & Capital Markets  
 Deloitte Consulting LLP  
[pmatricardi@deloitte.com](mailto:pmatricardi@deloitte.com)



**Maria Soler**  
**Manager,**  
 Banking & Capital Markets  
 Deloitte Consulting LLP  
[masoler@deloitte.com](mailto:masoler@deloitte.com)



**Amrita Ramamurthy**  
**Consultant,**  
 Banking & Capital Markets  
 Deloitte Consulting LLP  
[amramamurthy@deloitte.com](mailto:amramamurthy@deloitte.com)

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