The Last-Mile Playbook for Global Payments

Discover new opportunities to streamline and grow your business in this country-by-country primer on domestic payment systems.
Blockchain and digital asset technology is transforming the complex and often unreliable global payments process.

When paired together, these technologies offer a solution for streamlining the entire payments system, especially the "last mile" where speed, transparency and liquidity are critical for efficient payment processing.

Find out what your organization needs for the last mile to build differentiated value propositions in 14 key regions including Mexico, Thailand and Nigeria.

Revolutionizing Today’s Cross-Border Payments

Through the power of blockchain technology, financial institutions are enabling seamless, instant global payments. This transformation is providing access to new markets and opening revenue streams for financial institutions.

Blockchain enables real-time settlement, complete end-to-end transparency into the payment process, instant confirmation of delivery and certainty that the full amount is received in the recipient’s home currency, inclusive of the last mile. These capabilities are all critical to achieving straight-through processing in cross-border transactions. This new technology offers huge opportunity for financial institutions to resolve persistent complexities in today’s payment ecosystem.

What Is the Last Mile in Payments?

Similar to supply chain management and transportation logistics, the “last mile” in global payments refers to the movement of value from a financial institution to the final delivery destination, the end recipient. This last leg of the payment’s journey is plagued with inconsistencies, due in part to the differing policies and infrastructure, country to country.

In many emerging economies, much of the global population remains unbanked and must seek alternative means for payment receipt. To meet this demand, the last-mile payment incurs additional time for settlement and costs. Connecting these different domestic networks is just another roadblock in the last-mile payment experience.

In an attempt to create more cross-border interoperability between the different local payment networks, industry players are building new capabilities atop a complicated web of legacy systems. This practice is not fixing the root cause of slow global payments. Rather, these solutions are glossing over the original prohibitive infrastructure.

Until this base infrastructure is improved, performance will always be limited. The adoption of blockchain alleviates these constraints by unifying the underlying infrastructure and uniting the framework of institutions and suppliers working on top of it—thereby, enabling a seamless last mile process that meets consumer expectations and needs.
Blockchain-enabled technology is overcoming these limitations of legacy systems. But, at the foundational level, it is the domestic payment networks that create the most restrictions in terms of speed and transparency during the last mile.

Across regions, there are significant process variants with respect to how modern and efficient the last-mile payment networks are. An example of a country that’s managed to modernize their domestic systems to achieve real-time settlement and interoperability in low-value payments is India, with Unified Payments Interface (UPI).

Today’s Complicated Global Payment System

Large, traditional messaging networks for sending and receiving money transfer instructions are a core component of the legacy process underpinning global payments. These networks have several serious drawbacks that result in slow settlement times and zero visibility into the payment process.

Messaging on these networks isn’t in lock-step with the movement of funds. Additionally, there is a limitation in the richness of data and the structure in which it can be transmitted. Also, these networks don’t always have bi-directional messaging to enable pre-validations or confirmations.

Instead, the primary function is to send payment orders between a long chain of correspondent banks, who ultimately settle the payments. This process requires financial institutions to build relationships and integrations in each country—a complex, time consuming experience that can take up to six months, cost thousands of dollars and tie up liquidity.

Traditional messaging networks have several serious drawbacks that result in slow settlement times and zero visibility into the payment process. Blockchain-enabled technology is overcoming these limitations of legacy systems.

Cross-Border Payments Take Weeks to Settle

Payment service providers sending a transaction from the U.S. to Argentina, for example, must follow this process today:

1-2 Days to Settle
Senders pay into the provider sending funds through the ACH or the card rails, as a requirement.

1-5 Days to Settle
Payment is then sent through a cross-border network or via a correspondent bank.

1-2 Days to Settle
Once payment arrives in the receiving country, it goes through the receiving country’s payment system. This leg of the process is known as the last mile.

*Total Maximum Days to Settle: 9 Days
The Future Is Blockchain and Digital Assets

Today, countries around the world are addressing the frictions inherent in the last mile by upgrading and modernizing their domestic payment schemes. Out of 195 countries, there are now over 54 real-time payment schemes developed and many more in development globally.¹

These new systems enable real-time settlement of low-value payments and rich data transfer. Governments are ensuring broad access to this through banks or other financial institutions and trying to empower domestic interoperability via standardized messaging and identity schemas. This presents an opportunity to connect these domestic systems and create compatibility for cross-border payments through modern payment networks.

India’s Demand for Real-Time Solutions

In 2016, mobile wallets exploded in India amid an influx of mass cell phone adoption and creation of mobile-first businesses. With this shift, the Indian government recognized a need for a unified network that enables wallets and bank accounts to both build applications on top of the payment system and be able to send and receive money from each other.

India’s vision for payments addressed broad coverage, simplicity, reliability, affordability and convergence of disparate networks. Of these, convergence was the most challenging due to the lack of interoperability between the broad array of existing options.

UPI, which was built for the purpose of enabling interoperability for real-time domestic payments. Aside from the added compatibility, through a set of APIs, UPI linked contrasting interfaces and provided seamless authentication and authorization. UPI is transforming digital payments in India and enabling greater competition and innovation.

Blockchain and digital asset technology provide a payment solution that is ubiquitous internationally, solving today’s pain points. When paired with blockchain technology, digital assets act as a bridge between two currencies, ensuring payments are sent and received in local currency in real-time—for example, last mile liquidity.

The need for a standard international payment system that is both fast and verifiable is reaching critical mass. Already at $127T per year, the value of international payments continues to grow at rates faster than the economy.²

To provide a clear understanding of the opportunities of the last mile systems that are necessary for global payments, we’ve pulled together a simple guide for building differentiated value propositions in key markets.

99# is NPCI USSD Service Code to access banking services via a phone.
The country scores are determined by considering the market size of low-value cross-border payments and capabilities of the last-mile payment system.

Markets that score a five on each pillar have:

i. a high level of incoming low-value payments (above $100B)

ii. a modern domestic payment system for low-value payments that is real-time 24*7*365, widely penetrated and enables additional layers of services.
Argentina

Opportunity Size
- Total Remittance Flows: $4.58B
- Total SME Flows: $48.6B

Customer Characteristics
- Payout Preference: Cash, Banks
- Unbanked Population: 52%

Local Payment Platform
- Name: Medio Electrónico de Pagos (MEP)
- Year Live: 1997
- Speed of Posting to Accounts: Unknown

State of Digital Asset Regulation
- Digital Asset Classification: No specific classification of digital assets.
- Guidelines for Digital Asset Exchanges:
  - Not subject to licensure or registration.
  - Currently not subject to anti-money laundering (AML) regimes, but likely to change soon.

Considerations for Using Digital Assets to Source Liquidity
- FX regulations limit purchase of digital assets via credit or debit and must transfer funds to the exchange account through non-card payment rails.
- Foreign exchange laws and currency controls are a potential hurdle.

Maximum Value:
- Unknown

Individual/Batch Payments:
- Batch

Speed of Settlement:
- Between 8-20 Hours

Operating Hours:
- Unknown

Open APIs:
- Unknown

Payment Applications/Overlay Services:
- Unknown

Winning Move
- Get ahead of the FX regulations and liquidity management to protect your margins.

All Regional Sources Include: World Bank, OECD, FXC Intel and Ripple-Owned Analysis.
### Australia

<table>
<thead>
<tr>
<th>Opportunity Size</th>
<th>Maximum Value:</th>
<th>Opportunity Size</th>
<th>Maximum Value:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Remittance Flows: $18.8B</td>
<td>No Limits</td>
<td>Total Remittance Flows: $4.5B</td>
<td>BRL 1 M</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Customer Characteristics</th>
<th>State of Digital Asset Regulation</th>
<th>Winning Move</th>
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</thead>
<tbody>
<tr>
<td>Payout Preference: Banks</td>
<td>Digital Asset Classification • Legal status of a token or coin dependent on its individual characteristics, which determines whether existing regulations apply (i.e. does the token confer rights and is it a financial product?).</td>
<td>Be ready to connect to NPP for a competitive edge, if and when it becomes widely available for straight-through processing of cross-border payments.</td>
</tr>
<tr>
<td>Unbanked Population: 1%</td>
<td>Guidelines for Digital Asset Exchanges • Must register with Austrac, the local financial crimes regulator. The requirements will generally require an exchange to develop, implement and maintain an AML program, register with the local financial crime agency and perform periodic reporting on potentially violative activity.</td>
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<thead>
<tr>
<th>Local Payment Platform</th>
<th>Considerations for Using Digital Assets to Source Liquidity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name: NPP</td>
<td>• A digital asset may be treated as an asset that is held or traded and not as money or a currency. • Certain activities could deem an entity to be categorized as a “remittance provider.”</td>
</tr>
<tr>
<td>Year Live: 2018</td>
<td></td>
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<tr>
<td>Speed of Posting to Accounts: Real-Time</td>
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### Brazil

<table>
<thead>
<tr>
<th>Opportunity Size</th>
<th>Maximum Value:</th>
<th>Opportunity Size</th>
<th>Maximum Value:</th>
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<tbody>
<tr>
<td>Total Remittance Flows: $4.5B</td>
<td>No Limits</td>
<td>Total Remittance Flows: $137.7B</td>
<td>BRL 1 M</td>
</tr>
<tr>
<td>Total SME Flows: $137.7B</td>
<td>Individual/Batch Payments: Individual</td>
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<thead>
<tr>
<th>Customer Characteristics</th>
<th>State of Digital Asset Regulation</th>
<th>Winning Move</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payout Preference: Cash</td>
<td>Digital Asset Classification • No specific classification of digital assets.</td>
<td>Work with a local clearing agent that has an FX partner set-up for your business use case.</td>
</tr>
<tr>
<td>Unbanked Population: 22%</td>
<td>Guidelines for Digital Asset Exchanges • Not subject to licensure, registration or any specific guidance from regulators, including AML authorities.</td>
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<thead>
<tr>
<th>Local Payment Platform</th>
<th>Considerations for Using Digital Assets to Source Liquidity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name: SITRAF</td>
<td>• Foreign exchange laws and currency controls are a potential hurdle.</td>
</tr>
<tr>
<td>Year Live: 2002</td>
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</tr>
<tr>
<td>Speed of Posting to Accounts: Less Than 1 Minute</td>
<td></td>
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</tbody>
</table>

| Open APIs: No | | |
**Opportunity Size**

- **Total Remittance Flows:** $5.88B
- **Total SME Flows:** $28.7B

**Customer Characteristics**

- **Payout Preference:** Cash, card
- **Unbanked Population:** 50%

**Local Payment Platform**

- **Name:** Sistema Electronico de Cuentas de Deposito (CUD)
- **Year Live:** 1998
- **Speed of Posting to Accounts:** Real-Time

**State of Digital Asset Regulation**

- Although Colombia’s Central Bank has issued public remarks recognizing digital assets and warning against potential risks, financial watchdogs have not yet taken an official position or adopted a specific regulatory framework.
- Banks are largely blocked from providing services to digital asset companies.

**Winning Move**

> Providing real-time settlement or certainty or arrival will differentiate you against the competition.

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**Europe (SEPA)**

**Opportunity Size**

- **Total Remittance Flows:** $234B
- **Total SME Flows:** $1.7T

**Customer Characteristics**

- **Payout Preference:** Mostly Bank Account
- **Unbanked Population:** 10%

**Local Payment Platform**

- **Name:** SCT Inst
- **Year Live:** 2017
- **Speed of Posting to Accounts:** Ten Seconds

**State of Digital Asset Regulation**

- **Digital Asset Classification**
  - Although nations in the EU (and EEA) conform to general standards (for example, set by the European Commission and/or European Central Bank), each individual region may have a particular stance on both digital assets in general as well as whether or not a financial institution can hold a digital asset. Therefore, it is largely a facts and circumstances analysis.

**Guidelines for Digital Asset Exchanges**

- Exchanges in EU regions must comply with the Fifth Anti-Money Laundering Directive (5AMLD), which requires each country to transpose SAMLD into local law. The requirements will generally require an exchange to develop, implement and maintain an AML program, register with the local financial crime agency and perform periodic reporting on potentially violative activity.

**Considerations for Using Digital Assets to Source Liquidity**

- Similar to the categorization of digital assets, although EU and EEA member countries follow general standards, certain activities that rely on traditional banking rails may be viewed as requiring authorization within the regulatory perimeter in a particular region.

**Winning Move**

> For a competitive edge, access SEPA Instant for real-time payments.
**India**

**Opportunity Size**
- Total Remittance Flows: $74.7B
- Total SME Flows: $287.5B

**Customer Characteristics**
- Payout Preference: Cash
- Unbanked Population: 14%

**Local Payment Platform**
- Name: IMPS
- Year Live: 2011
- Speed of Posting to Accounts: Real-Time

**State of Digital Asset Regulation**
- Court reversal of government's ban of digital assets is on appeal. Banks are currently banned from offering services to digital asset companies.

**Winning Move**
- **Ensure optimal payment experience at competitive prices for a cost-conscious customer base.**

**Maximum Value**:
- 200,000 INR-IMPS, 100,000 INR-UPI
- Individual/Batch Payments: Individual
- Speed of Settlement: Four Cycles Per Day
  - Operating Hours: 24/7
- Open APIs: Yes
- Payment Applications/Overlay Services:
  - P2P, P2B, B2B, and G2B through mobile and internet with account aliases, request to pay, e-commerce gateways, social media app payments and QR codes payment initiation.

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**Mexico**

**Opportunity Size**
- Total Remittance Flows: $33B
- Total SME Flows: N/A

**Customer Characteristics**
- Payout Preference: Cash
- Unbanked Population: 60%

**Local Payment Platform**
- Name: SPEI
- Year Live: 2004
- Speed of Posting to Accounts: Ten Seconds

**State of Digital Asset Regulation**
- Court reversal of government’s ban of digital assets is on appeal. Banks are currently banned from offering services to digital asset companies.

**Winning Move**
- **Optimize liquidity management for payouts into Mexico to protect against currency volatility.**

**Maximum Value**:
- Unknown
- Individual/Batch Payments: Individual
- Speed of Settlement: Hybrid, clears and settles within 20 seconds
  - Operating Hours: 24/7
- Open APIs: No
- Payment Applications/Overlay Services:
## Nigeria

<table>
<thead>
<tr>
<th>Opportunity Size</th>
<th>Total Remittance Flows: $23B</th>
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<tbody>
<tr>
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<td>Total SME Flows: N/A</td>
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<table>
<thead>
<tr>
<th>Customer Characteristics</th>
<th>Payout Preference</th>
<th>Unbanked Population: 60%</th>
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<tr>
<th>Local Payment Platform</th>
<th>Name: NIBSS Instant Payment (NIP)</th>
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<tr>
<td>Year Live:</td>
<td>2011</td>
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<tr>
<td>Speed of Posting to Accounts:</td>
<td>Real-Time</td>
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<table>
<thead>
<tr>
<th>State of Digital Asset Regulation</th>
<th>Digital Asset Classification</th>
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<tbody>
<tr>
<td></td>
<td>• No specific classification of digital assets.</td>
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<table>
<thead>
<tr>
<th>Guidelines for Digital Asset Exchanges</th>
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<td>• Not subject to licensure, registration or any specific guidance from regulators, including AML authorities.</td>
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<tr>
<th>Considerations for Using Digital Assets to Source Liquidity</th>
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<tbody>
<tr>
<td>• Foreign exchange laws and currency controls are a potential hurdle. The “last mile” rate that a beneficiary receives may be impacted by the regulatory status of a local market participant.</td>
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### Winning Move

**Given Nigeria’s strictly controlled FX market and multiple ‘parallel rates’, perfect your FX and payout provider set.**

## Peru

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<tr>
<th>Opportunity Size</th>
<th>Total Remittance Flows: $287M</th>
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<tr>
<td></td>
<td>Total SME Flows: $31.7B</td>
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<table>
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<tr>
<th>Customer Characteristics</th>
<th>Payout Preference</th>
<th>Unbanked Population: 29%</th>
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<table>
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<tr>
<th>Local Payment Platform</th>
<th>Name: Sistema de Liquidación Bruta en Tiempo Real (LBTR)</th>
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<tbody>
<tr>
<td>Year Live:</td>
<td>2015</td>
</tr>
<tr>
<td>Speed of Posting to Accounts:</td>
<td>Real-Time</td>
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<table>
<thead>
<tr>
<th>State of Digital Asset Regulation</th>
<th>Digital Asset Classification</th>
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<tbody>
<tr>
<td></td>
<td>• No specific classification of digital assets.</td>
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<table>
<thead>
<tr>
<th>Guidelines for Digital Asset Exchanges</th>
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</thead>
<tbody>
<tr>
<td>• Money exchange activities are subject to AML/CFT obligations and must be listed in the register maintained and published by the local regulator.</td>
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</table>

<table>
<thead>
<tr>
<th>Considerations for Using Digital Assets to Source Liquidity</th>
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<tbody>
<tr>
<td>• N/A</td>
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</table>

### Winning Move

**With over half the population unbanked, access to cash payouts is key.**
### Philippines

#### Opportunity Size
- **Total Remittance Flows:** $33B
- **Total SME Flows:** N/A

#### Customer Characteristics
- **Payout Preference:** Cash
- **Unbanked Population:** 77%

#### Local Payment Platform
- **Name:** Instapay
- **Year Live:** 2018
- **Speed of Posting to Accounts:** Real-Time

#### State of Digital Asset Regulation
- **Digital Asset Classification**
  - Philippines SEC is working with the Central Bank to implement a new framework for digital assets. Date of implementation is unknown.
- **Guidelines for Digital Asset Exchanges**
  - Licensure with the Central Bank required.
- **Considerations for Using Digital Assets to Source Liquidity**
  - Guidelines for Digital Asset Exchanges Licensure with the Central Bank required.

#### Winning Move

**Cash payouts via pawn shops are the preferred remittance payout channel.**

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### Poland

#### Opportunity Size
- **Total Remittance Flows:** $8.4B
- **Total SME Flows:** $202.4B

#### Customer Characteristics
- **Payout Preference:** Bank Accounts
- **Unbanked Population:** 20%

#### Local Payment Platform
- **Name:** Express ELIXIR
- **Year Live:** 2012
- **Speed of Posting to Accounts:** 3 Seconds

#### State of Digital Asset Regulation
- **See Europe, above.**

#### Winning Move

**For a competitive edge with instant, last mile settlement, leverage Express ELIXIR for low-value payments, as opposed to ELIXIR.**
Thailand

Opportunity Size
Total Remittance Flows: $9.1B
Total SME Flows: $141B

Customer Characteristics
Payout Preference: Mobile Applications, Internet Banking
Unbanked Population: 18%

Local Payment Platform
Name: PromptPay
Year Live: 2017
Speed of Posting to Accounts: Seconds

State of Digital Asset Regulation
Digital Asset Classification
• Thailand is positive on digital assets with regulations in place permitting and regulating the trading of digital assets.

Guidelines for Digital Asset Exchanges
• Must be licensed as a Digital Asset Exchange by the SEC.

Considerations for Using Digital Assets to Source Liquidity
• N/A

Winning Move
Access PromptPay for the most efficient last mile remittance payouts.

United Kingdom

Opportunity Size
Total Remittance Flows: $31.1B
Total SME Flows: N/A

Customer Characteristics
Payout Preference: Digital
Unbanked Population: 2%

Local Payment Platform
Name: UK Faster Payments
Year Live: 2008
Speed of Posting to Accounts: 15 Seconds

State of Digital Asset Regulation
Digital Asset Classification
• N/A

Guidelines for Digital Asset Exchanges
• Exchanges in EU regions must comply with 5AMLD, which requires each country to transpose 5AMLD into local law. The requirements will generally require an exchange to develop, implement and maintain an AML program, register with the local financial crime agency and perform periodic reporting on potentially violative activity. Registration is therefore required with the FCA, who has been delegated supervisory authority by Her Majesty’s Treasury.

Considerations for Using Digital Assets to Source Liquidity
• See Europe, above.

Winning Move
Connect to FPS to provide transparent, real-time and low-cost payouts.
## United States

<table>
<thead>
<tr>
<th><strong>Opportunity Size</strong></th>
<th><strong>Maximum Value:</strong> $25,000</th>
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</table>
| **Total Remittance Flows:** $155B | **Individual/Batch Payments:** 
| **Total SME Flows:** N/A | **Operating Hours:** 24/7 |

<table>
<thead>
<tr>
<th><strong>Customer Characteristics</strong></th>
<th><strong>Speed of Posting to Accounts:</strong> Real-Time</th>
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<tbody>
<tr>
<td><strong>Payout Preference:</strong> Bank Accounts</td>
<td><strong>Operating Hours:</strong></td>
</tr>
<tr>
<td><strong>Unbanked Population:</strong> 22%</td>
<td><strong>Open APIs:</strong> No</td>
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<tbody>
<tr>
<td><strong>Name:</strong> RTP—operated by The Clearing House</td>
<td><strong>Consumers, businesses and the government can use the RTP network.</strong></td>
</tr>
<tr>
<td><strong>Year Live:</strong> 2017</td>
<td><strong>Open APIs:</strong> No</td>
</tr>
</tbody>
</table>

### State of Digital Asset Regulation

#### Digital Asset Classification
- Legal status of a token or coin dependent on its individual characteristics, which determines whether existing regulations apply (i.e. does the token confer rights and is it a security?)
- CFTC has ruled that BTC and other digital assets are commodities.

#### Guidelines for Digital Asset Exchanges
- Exchanges must register with FinCEN as a money service business, obtain money transmission licenses ("MTLs") from certain states and "Bitlicense" if services touch New York.

#### Considerations for Using Digital Assets to Source Liquidity
- Financial institutions treat the decision to engage in digital asset activity as a risk-based analysis.

### Winning Move

**Provide transparency for FX and USD payments, pricing and the payment status for a competitive edge.**

### References
About Ripple

Ripple provides one frictionless experience to send money globally using the power of blockchain technology.

By joining Ripple's growing global network, RippleNet, financial institutions can process their customers’ payments anywhere in the world instantly, reliably and cost-effectively.

Banks and payment providers can leverage the digital asset XRP through our On-Demand Liquidity service to further reduce costs and access new markets.

Join the Conversation

twitter.com/ripple
linkedin.com/company/ripple-labs
ripple.com/insights
facebook.com/ripplepay.

Contact Us

For more information about how RippleNet’s On-Demand Liquidity service can be leveraged as an alternative to pre-funding to process global payments at unprecedented speeds, please visit us at ripple.com/contact