Faster Payments QIAT

Proposer: The Clearing House and FIS

February 21, 2017

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This Proposal is submitted under and subject to the terms of the Amended and Restated Faster Payments Task Force Participation Agreement for an Organization (the “Agreement”), and shall be used only as explicitly set forth in the Agreement. The Proposal includes technology that is owned by or proprietary to The Clearing House Payments Company L.L.C. and third parties. Proposed features, functionality, implementation details, requirements and timetables are in development and subject to change at any time.
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Executive Summary

The Clearing House (TCH), which is owned by 24 of the largest US commercial banks holding 61% of all US deposits, is developing a new and comprehensive real-time payment (RTP) system for all financial institutions. This system will enable consumers and businesses to send both real-time payments and non-payment messages (such as requests for payment, remittance advices, or payment acknowledgments) directly from their bank accounts to accounts at any other participating financial institution, 24 hours a day, year round, without requiring individuals or businesses to enroll in order to receive payments. These payments will settle immediately and leverage the safety and security of existing banking channels and risk management controls to ensure the highest degree of data security and fraud prevention.

By integrating immediate settlement with rich messaging capabilities, TCH is creating a powerful platform for digital innovation by both banks and their clients. Similar to the iPhone, banks and technology firms of all sizes will be able to build applications and products on top of the RTP platform to support an increasingly digital economy. The system will be built on ISO 20022 standards, which will position it to support cross border commerce and interoperability with other schemes as real-time capabilities evolve in the global marketplace. Bank implementations are scheduled to begin early in 2017.

The Clearing House RTP system improves current and proposed payment systems with seven unique features:

**Fast** – **Payments are completed immediately.** Payments are cleared and settled in seconds, accepted transactions are final, and funds are available to the recipient immediately. The ability to send and receive payments in real time gives customers more control over cash flow.

**Seamless** – **There is no need for individuals or businesses to “enroll”.** When FIs connect to the RTP system as participants, they will automatically enable their accounts for real-time payments (e.g. similar to ACH). There will be no need for individuals or businesses to further “enroll” in order to receive payments.

**Multi-purpose** – **Supports the complete payment cycle, not just a financial transaction.** RTP is capable of securely transmitting bills, invoices, confirmations and funds immediately and within the same flow. It also allows businesses to automate their cash application processes and investigations. FIs have the opportunity to develop innovative products to better meet customer needs, now and in the future.

**Safe** – **Protection against unauthorized transactions and fraud is built in by design.** The system will not support debit transactions, therefore providing customers with additional control. The future incorporation of tokenization will replace static account data with dynamic tokens to mitigate the risk of fraud. All transactions - payments, electronic invoices, bills, confirmations, payment details – will be sent over secure banking channels to mitigate the risk of unauthorized access.

**Compliant** – **TCH briefed Regulators about key design elements throughout the planning process.** TCH has kept regulators informed throughout the planning and design process to help ensure the RTP system will meet their expectations. In addition, TCH believes that the RTP system is consistent with CFPB’s Consumer Protection Principles for Faster Payment Systems.

**Ubiquitous** – **Built for all US financial institutions.** The RTP system will be accessible to all U.S. depository financial institutions. TCH’s goal is to achieve ubiquity rapidly; we are working with partner organizations, such as FIS, D&H and Jack Henry to achieve that goal.

**Global-ready** – **Designed for international compatibility.** The RTP system will use ISO 20022 standards for real-time payments and payment messages. The RTP system may eventually support international payments through interoperable domestic payment systems, and use of the ISO 20022 messaging standard will allow FIs and customers to use the same formats, technology and processes across borders.
Executive Summary

A select group of bank technology partners, including FIS, D+H and Jack Henry and Associates are accelerating the rollout of the RTP system in order to reach the many thousands of financial institutions in the United States. These companies will be integrating access to the TCH RTP system into their platforms that are used by FIs of all sizes, extending the reach of the system, easing bank and system integration, and automating the onboarding process. We have also chosen the global leader in technology for real-time payments infrastructure, VocaLink, to provide the core technology on which the RTP system is built. VocaLink has amassed a wealth of knowledge and expertise in real-time payments systems following key roles in deploying and operating real-time systems in the UK and Singapore.

The TCH RTP system enables all types of push payments: single immediate payments, recurring payments (standing orders), and scheduled payments, while providing the capability to link remittance data. Further, the RTP system offers a request for payment capability, which allows a payer to request a payment, while putting the control of making the payment in the hands of the payer. The transaction will only be completed if the payer takes an affirmative step and instructs his or her FI to complete the payment in response to the request.

The Clearing House is the only private entity with the depth and breadth of experience required to support a comprehensive, world-class operation for real-time payments in the United States. Its 40 years of proven performance in electronic payments and first-hand experience cannot be matched easily or quickly. The Clearing House’s designation as a Systemically Important Financial Market Utility further assures that the highest levels of safety, security, and reliability are maintained.
Domestic Coverage

TCH recognizes the need for flexibility and the opportunity for innovation in the domestic payments landscape. The RTP system has been designed to be use case agnostic to effectively support existing and future use cases, including: P2P, B2B, B2P and P2B. This will allow FIs to introduce innovative product concepts across all use cases. A summary of the use cases that will initially be supported by the RTP system and examples are shown below.

<table>
<thead>
<tr>
<th>Use case</th>
<th>Supported (Y/N)</th>
<th>Cross-border (Y/N)</th>
<th>Examples of payments supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business to Business (B2B)</td>
<td>Y</td>
<td>Y (Future release)</td>
<td>Small and large businesses can exchange payments in real-time accompanied by remittance information for instant order, processing and delivery. For instance, a small restaurant in need of urgent delivery of goods will be able to pay its supplier in real time. The supplier, having received the payment, can eliminate manual back office processes and expedite the processing and delivery of goods to its client. The two businesses can agree to send remittance data through the RTP system to enable increased straight through processing rates and ease reconciliation.</td>
</tr>
<tr>
<td>Business to Person (B2P)</td>
<td>Y</td>
<td>Y (Future release)</td>
<td>Businesses can offer real time payments to their customers and employees to allow for on-the-spot resolution of insurance claims. The following scenario provides an example. David has damages to his car from an accident. He calls his insurance company, which sends its local adjustor, Tom, to meet with David and view the damages. Tom inspects the car, determines the appropriate amount for the damages, and approves a settlement payout remotely. The insurance company immediately delivers the funds to David's bank or credit union account.</td>
</tr>
<tr>
<td>Person to Business (P2B)</td>
<td>Y</td>
<td>Y (Future release)</td>
<td>One of the differentiating capabilities of the RTP system is the ability for businesses to send a request for payment to their customers. It also benefits businesses by automating their accounting systems with payment information from the RTP system. The following scenario provides an example. Acme Plumbing is looking to automate its accounting system by distributing customer invoices electronically and enabling customers to view and pay the invoices on line and in real time. Steve, an Acme customer, is presented with a link from his FI’s RTP application that displays the invoice. An option to immediately pay all or a portion of the invoice is made available. Once Steve authorizes the payment, his FI sends the payment directly to Acme’s checking account while the remittance information is sent directly to Acme’s accounting system via Acme’s Bank’s interface, where it is immediately posted.</td>
</tr>
<tr>
<td>Person to Person (P2P)</td>
<td>Y</td>
<td>Y (Future release)</td>
<td>The RTP system makes everyday transactions simple and convenient. The following scenario provides an example. John wants to pay his roommate, Mike, for his half of the current month’s rent. Mike has an account at a different FI than John. John simply initiates the payment within his mobile banking app on his smartphone or tablet and the payment is received within seconds in Mike’s bank account.</td>
</tr>
</tbody>
</table>
Cross-border Coverage

TCH plans to “link” the RTP system to real-time systems in other countries in the future and has developed the RTP system to be compatible with those systems, thereby laying the groundwork for worldwide connectivity. The RTP system will use the ISO 20022 messaging standard, which is the new global standard for international payments transactions. The use of ISO 20022 eases support of cross-border interoperability with real-time systems in foreign countries. TCH is also actively working with foreign real-time payment systems operators to share lessons learned and product ideas to bring common service to market. To help promote these efforts, TCH has been actively involved with the international community. For example:

- In April 2015, TCH and EBA Clearing launched the Global Real-time/Instant Payments (GRIP) Group, bringing together payment system operators from Australia, Canada, EU, Japan, Singapore, Sweden, US, and the UK to work toward cross-border interoperability of real-time payment systems.
- TCH played a central role in the drafting of a global message standard for real-time payments. The ISO 20022 Real-time Payment Message Guidelines for the core pacs.008 and pacs.002 messages (for payment instruction and payment status), and were adopted by the global standards community in December after an intense 5-month multi-national drafting effort - an unprecedented speed for such a project.

The RTP system consequently, is a real-time solution developed with the latest standards and guidelines to support future cross-border interoperability. Once implemented, industry and private individuals would be able to perform transactions in real-time, across different countries and different currencies as efficiently as they make US domestic payments. TCH is working with leading industry partners internationally to build the appropriate capabilities to enable the operation of RTP across a number of non-US corridors and systems through the GRIP Group. TCH expects that future cross border functionality would be available in connection with all RTP use cases: Business to Business (B2B), Business to Person (B2P), Person to Business (P2B), and Person to Person (P2P).

Cross-border Use Case Coverage

<table>
<thead>
<tr>
<th>USE CASE</th>
<th>Business to Business (B2B)</th>
<th>Business to Person (B2P)</th>
<th>Person to Business (P2B)</th>
<th>Person to Person (P2P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NON-US CORRIDOR(S) AND SYSTEMS</td>
<td>Discussions with other national scheme operators.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOTES</td>
<td>Discussions are focused on linking national systems and supporting all use cases. Other countries and corridors are being explored.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Before full cross border operations are implemented, Participating FIs may experience some benefits of these global connectivity efforts immediately. As countries move toward the same implementation of messages, efficiencies will arise as vendors and multi-national organizations build out their applications and processes around the same set of standards:

- Multi-national FIs and companies may be able to implement common processes and technology across countries, creating efficiencies even before cross-border payments are fully operational.
- Technology vendors will be able to create systems that work in multiple markets, spreading investment across more users and lowering costs.
- By investing in a global standard designed for digital payments, Participating FIs can overcome some constraints of legacy payment systems.
Proposal Assumptions

In developing our solution and preparing our proposal, The Clearing House and its co-proposer, FIS, have taken care to address all elements needed for a complete real-time payment system and this proposal, so that we are able to mitigate most external risks. Accordingly, the system is constructed with the following characteristics:

- The rules for the system will be written and managed by The Clearing House.
- The system channels competitive forces so that financial institutions and their customers are incentivized to develop innovative solutions and use cases.
- The system encourages the continuity of roles in the market. FIs, their outsourcers, technology providers, and other players maintain their current roles and responsibilities of authenticating and authorizing end-users, their own fraud monitoring solutions (which are enhanced by system monitoring), and reporting/messaging utilities for their end users.
- Settlement risk is eliminated by using fully pre-funded real-time settlement.
- This system only permits credit transactions and requests for payment, i.e., those initiated by the payer. Debits are not supported. This reduces fraud risk and gives the payer control over the transaction.
- The system does not rely on external channels for the transmission of contextual data. Data is transmitted with the transaction and additional, linked remittance data can be transmitted at the same speed.
- The system is based on existing, secure, bank-grade security procedures and protocols. All transactions – payments, electronic invoices, bills, confirmations, payment details – are sent over secure banking channels to protect against unauthorized access.
Part A: Detailed End-to-End Payments Flow Description

The Clearing House is introducing a new payment system that will provide consumers and businesses with the ability to conveniently send and receive immediate payments from any account at a US financial institution at any time. Real-time payments represent a new phase of evolution in the US payments industry and will provide a platform for innovation.

To ensure that the system meets current and future needs, The Clearing House has taken great care to ensure that its design addresses the requirements of a wide variety of stakeholders, users and use cases, as well as the effectiveness criteria articulated by the Faster Payments Task Force.

Part A of this proposal is composed of three sub-sections:

• Section 1 focuses on the broad solution across all eight stages of the payment lifecycle:
  1. Initiation
  2. Authentication
  3. Payer Authorization
  4. Approval by the Payer’s Provider
  5. Clearing
  6. Receipt
  7. Settlement
  8. Reconciliation

• Section 2 focuses on the details of the system by describing the supported use cases across the eight stages of the payment lifecycle.

• Section 3 provides a summary table of whether the Effectiveness Criteria are addressed by each supported use case.

Section 1: Solution Description

The RTP system will enable consumers and businesses to send and receive payments in real time, 24 hours per day, 365 days per year. Its introduction represents a significant advance for the U.S. payments industry, with several key features that differentiate it from current payment methods, specifically speed, value-added messaging capabilities, data, and immediate availability of transaction status. The Clearing House is using its decades of innovation and operational excellence in connection with a multi-year effort to build an RTP system from the ground up. The RTP system will provide the industry with the functionality and features to serve the need for safer and faster payments in an increasingly digital economy. A new world needs a new payment system, and TCH is building the system of the future.

The Clearing House is bringing this solution to market with a number of partners, including FIS, D+H and Jack Henry and Associates. These companies will be integrating access to the TCH RTP system into their platforms used by FIs of all sizes, extending the reach of the system, easing the integration, and automating the onboarding process. We have also chosen the global leader in technology for real-time payments infrastructure, Vocalink, to design and deploy the infrastructure for the new RTP System. Like The Clearing House, Vocalink link brings a practitioner’s view to payment systems. With its wealth of knowledge and expertise with real-time payments systems following key roles in deploying and operating systems in the UK and Singapore, Vocalink is ideally positioned to assist in developing a solution for the United States.

The description of the overall RTP system comprises the following five sub-sections:

• Defining the RTP ecosystem
• Users and Use Cases
• Roles of Technology Partners
• Addressing the Effectiveness Criteria
• End-to-end Payment Flow
Defining the RTP Ecosystem

1. **The Clearing House** hosts the RTP core infrastructure for the U.S. that provides:
   - *Payment processing and settlement services* – The RTP system will clear and settle payments and transmit value-added, payment-related messages to and from FIs.
   - *Anti-fraud* – The RTP system will centrally monitor for network-level fraudulent activity and provide fraud alerts to FIs. This capability will augment and support the FIs own automated real-time fraud detection capabilities with respect to transactions they send to and receive from the RTP system.

2. **Financial Institutions of all sizes** will have the ability to **directly** connect to the RTP core infrastructure to provide real-time payments capability and value-added services to their customers and clients. FIs may also connect through third-party service providers.

3. **Third-Party Service Providers** (for example: FIS, Jack Henry and D+H) will provide connectivity to RTP providing access to FIs that may not want to connect directly to the RTP system. They will also integrate RTP into their existing and new payments products for the benefit of these FIs’ account holders.

4. **Banks*, Bankers’ Banks, Community Banks and Corporate Credit Unions**, will provide connections to RTP as well as funding services for their FI customers that may not want to connect directly to the RTP system or provide their own funding.

   *Note: Although banks and credit unions may provide connectivity and funding services to other FIs, no correspondent payments will be permitted through the RTP system.

5. Note: There should be no difference in the user experience for customers of direct FIs and those connecting through a TPSP.
Users and Use Cases

The Clearing House RTP system was designed to cover all direct and indirect customers of all financial institutions in the United States, regardless of whether they are corporate or institutional customers, government agencies, or consumers. The system may also be used to serve the unbanked insofar as eligible nonbank payment services providers utilize an account relationship with a participating financial institution to provide their services.

The Clearing House RTP system supports all of the use cases articulated in the effectiveness criteria and proposal template: B2B, B2P, P2B, and P2P. The Clearing House does not require end-users to register or open any kind of special account to use the system.

To this end, the core RTP system is built with flexibility and extensibility in mind. It uses the newest generation message standard – ISO 20022 – to maximize the value that real-time payments can provide. It enables significant amounts of contextual data to be included with the payment and a substantial amount to be associated with a separate remittance message. It also enables access through any channel that the FI provides, and will include a request for payment functionality that provides an alternative to electronic debits in a real-time environment. In particular, a payee may send a request for payment to a prospective payer. The transaction is completed only if the payer expressly authorizes his or her FI to make the payment in response to the request.

Roles of participants in RTP

The solution can be categorized into three component groups: financial institutions, the core infrastructure (TCH), and third party providers (including FIs that provide a technical connection to the RTPS or act as a settlement agent for an FI participant). Each category serves a specific role in the system contributing to the solution. The TCH core infrastructure serves as the center of the RTP system, clearing transactions, performing settlement in real-time and providing receipt confirmations. FIs and third party providers will extend the reach of the solution to virtually every segment of the market in the U.S. The graph below illustrates the role of each participant group in the RTP system.
Technology Partners

The Clearing House has developed strong partnerships with leading technology providers to ensure the delivery and implementation of the RTP system is seamless, and that the system is accessible to all FIs. The participation of technology partners assists with TCH’s efforts to achieve ubiquity given their ability to simplify the integration of FIs back-end systems to the RTP core infrastructure, regardless of the FIs level of technological readiness. Partners thus bring expertise and a customer base, easing adoption across the RTP ecosystem.

Some technology providers offer end-to-end solutions that cover the entire lifecycle of the payments, while other technology partners may opt to provide RTP standalone solutions enabling virtually any FI to participate in the system.

TCH has secured partnerships with FIS, D+H and Jack Henry for the deployment of the RTP system, with other partnerships forthcoming. FIS particularly, has been closely collaborating with TCH to deliver a range of solutions that cover the entire RTP lifecycle, from Initiation through reconciliation. The solutions from FIS are modular in nature and therefore flexible enough to enable customization and adaptation according to the specific needs of each FI.

VocaLink has significant experience in successfully delivering national payments solutions both within the UK and internationally. They operate leading payment clearing systems and ATM switching platforms that underpin the majority of UK electronic payments, and their proven capability in implementing real-time payment systems in the UK has led to the development of immediate payment solutions for other countries. In addition to processing the UK Bacs, Faster Payments, Account Switching and the LINK ATM services, they currently process Swedish payments on behalf of BGC and have successfully delivered their Immediate Payment System (IPS) in Singapore as a core component of their FAST national payments program. Vocalink is also at the forefront of UK mobile payments with Zapp, an application that resides within mobile banking apps and allows users to make real-time payments to retailers when shopping online or in-store.

Vocalink’s Immediate Payment System (IPS), which will be at the core of the TCH RTP, was developed as a software solution that would address the needs of any country with ambitions to deliver real-time payments infrastructure. The demands placed on a real time system that must support an entire country are well understood by Vocalink. The resulting platform has been developed specifically to meet the exacting demands that emerge from the need to support real time payment processing at scale. These demands have resulted in the creation of a very focused, functionally rich core switch and other components that are required to support fast and reliable roll out to both the financial services community and those corporates requiring direct access to the infrastructure. The system has been designed to have no single points of failure, support ISO20022 message sets, and to be capable of processing thousands of transactions per second. IPS has been designed to deliver message flows that meet the requirements of the community of users with speed and certainty for every transaction.
Addressing the Effectiveness Criteria

The Clearing House RTP system maximizes coverage of the Effectiveness Criteria:

The system will achieve **Ubiquity** by addressing a variety of possible use cases; being accessible to all types of depository FIs; and providing a wide variety of access channels, predictable interbank results, extensive contextual data, cross-border payment compatibility, flexibility and extensibility.

It will help improve the **efficiency** of the U.S. payment system by enabling competition, offering a credible plan for rapid implementation and roll out, and supporting features and functions such as value added services, interoperability, comprehensiveness, scalability, and support for exceptions and investigations processing.

**Security** has always been a core consideration at The Clearing House and has been incorporated into the system design from the start. We employ industry-leading frameworks for risk management and data security. In addition, by supporting only credit push payments, the RTP system eliminates the possibility of unauthorized debits. The use of a prefunded model to achieve real-time settlement will eliminate settlement risk and enable immediate finality of all payments. As an established payment systems operator, TCH has significant resources devoted to system reliability and resiliency, as well as overall risk management. These same rigorous standards will apply to the RTP system.

It will be **fast**, with clearing and settlement taking place in approximately 5 seconds, and typically in under 2 seconds. Payment status will be visible to all parties in real-time.

The **legal framework** and **governance** will be built on our decades of experience in managing three national payment infrastructures for U.S. financial institutions: CHIPS, EPN, and Image Exchange, and will meet or exceed the effectiveness criteria for these categories.

End-to-end Payment Flow

Real-time payments are executed through a sequence of payment messages. The sequence starts with a customer sending a payment instruction via a channel made available by their FI. As a general matter, this will involve the FI checking funds availability, conducting any required screening, and securely sending the payment instruction message to the TCH RTP core infrastructure. The TCH RTP core infrastructure validates the transaction and routes it to the receiving FI. The receiving FI responds to the message indicating that the payment is accepted (or in some cases rejected or held for further review for risk management purposes). The TCH RTP core infrastructure provides an acknowledgment message to the sending and receiving FIs and manages their pre-funded settlement accounts. The receiving FI posts the transaction to the receiving customer’s account. This provides immediate availability of funds to the recipient.
1. Initiation

The Clearing House recognizes that no single channel is appropriate for all use cases. Accordingly, we have chosen an open, flexible, and channel-agnostic approach so that FIs and their partners can build the initiation channels that best meet their customers’ needs for present and future use cases.

By clearing payments and making the funds available immediately, the RTP system will enable every person, institution, business, and government agency with a qualified account at a participating FI to initiate and/or receive payments in real-time 24 hours a day, 7 days a week, and 365 days a year.

Further, through the use of internationally used industry standards (ISO 20022), the TCH solution is positioned to provide international interoperability in the future. We expect that the RTP system’s functionality will be expanded to provide multi-currency and cross border transactions as business demands develop in the market.

Potential Use Cases

- **P2P**
  Transactions between two consumer account holders within participating FIs

- **B2B**
  Transactions between organizations with accounts in participating FIs (B2B)

- **B2P**
  Transactions between organizations and individuals with accounts at participating FIs

- **P2B**
  Transactions between individuals and organizations with accounts at participating FIs

- **Others**
  The flexible architecture of the system will allow FIs to adapt and innovate to changing market needs

Potential Channels

- **Smartphone**
  Transaction initiated via smartphone application

- **On-line**
  Transaction initiated via on-line portal of the FI

- **Telephone**
  Transactions between organizations and individuals with accounts at participating FIs

- **Branch**
  Transaction initiated in-person at a FI branch

- **ATM**
  Transaction initiated at an FI’s automated teller machine

- **API**
  Transaction initiated via an Application Program Interface (e.g., a FI may open its payment systems to third parties following appropriate vetting)

The Clearing House RTP system will serve as a foundation for innovation. Rather than the core infrastructure dictating how users will have to interact with the system, participating FIs will have the flexibility and opportunity to offer services tailored to the needs of their customers.
1. Initiation

RTP on-line

FIs and their IT providers will create channels that best suit their customers’ needs. These examples of a consumer bill payment interface, provided by FIS, illustrate a method for consumers to initiate payments online and with a smartphone. FIs and consumers benefit from the FI reusing and augmenting the existing interfaces and making real-time transactions directly within a familiar context.

Similar interfaces are under development for mobile apps and corporate customers.
1. Initiation

Requests for Payment
In addition to supporting credit push payments, the TCH RTP system also supports requests for payment, which require a payer to authorize a payment in response to the request. A request for payment provides payees with an effective method to initiate a potential transaction, while also combatting fraud and allowing the payer to maintain control over the payment flow. In a request for payment, the payee sends a message via its FI through the core infrastructure to the payer’s FI, which then requests approval for the payment from the payer. Only then is the payment processed as a credit from the payer’s FI to the payee’s FI.

Fee Disclosure
Only regulated depository FIs will be allowed to directly participate in the RTP system and FIs will be expected to comply with applicable consumer protection laws, regulations and regulatory guidance, including disclosure requirements. The requirements applicable to participating FIs include disclosure obligations under Regulation E for electronic fund transfer services. Among other things, Regulation E requires FIs to provide disclosures regarding fees that are imposed for electronic fund transfer services and other information about a consumer’s rights, such as limitations on liability for unauthorized transactions and the process for reporting an error involving an electronic fund transfer.

Multi-currency / Cross-border Payments
As previously noted, the TCH solution was designed with global compatibility in mind and will provide interoperability through the use of the ISO 20022 messaging format.

TCH is coordinating with international standards groups and payment system operators in other countries to ensure interoperability, appropriate transaction security, and the ability to support currency conversion.

The ability to perform multi-currency and cross border transactions is anticipated to be implemented as real-time systems in foreign countries achieve cross-border interoperability.

Directory Services
The TCH RTP system will have a modular architecture that was designed to allow participating FIs to utilize directory services and support payment origination based on a recipient’s alias (instead of their account/routing information). This functionality will be supported by either TCH directory services (UPIC, EBIDS) or services provided to a participating FI by another party. TCH partners and participating FIs may maintain their own directories for resolving aliases for payment routing and TCH will have the ability to make calls on these databases when they become available to TCH.

Contextual Data
The RTP system will allow for the real-time exchange of financial and non-financial messages that include contextual data. The messages are being designed to carry, among other things, a unique reference ID and sender name, remittance data, references to external data and processes (i.e., a link or URL), and other data that is related to a payment or supports value-added services and administration (e.g. biller reconciliation information). The use of the ISO 20022 global messaging standard will facilitate the integration of RTP messaging functionality into business and personal finance systems.

The system will support 140-characters of contextual data embedded in each payment message. Additionally, extensive and highly configurable contextual data can be included in an ISO 20022 remittance advice message, which can be linked to the payment. This message (remt.001) uses a highly flexible format that allows the parties to agree to virtually any structured format for data exchange.

Security
Participating FIs will be responsible for satisfying bank-grade payment authorization and customer authentication requirements in accordance with the security framework that TCH is developing for RTP participants.

Payments will be able to be routed to any addressable ABA number, and the system will support the ability of FIs to utilize directories and the future incorporation of tokenization.
1. Payer initiates the transaction via a channel supported by its FI. Channels include: online, smartphone, tablet, in-person, etc. The payer’s FI authenticates the customer, verifies the transaction authorization, and approves the transaction.

2. The transaction is submitted to the TCH RTP core infrastructure for processing.

3. Once the transaction is cleared by the core infrastructure, it is transmitted to the payee’s FI.

4. The payee’s FI returns a message to the core infrastructure accepting or rejecting the credit (or in some cases indicating that further review is necessary for risk management purposes). For an accepted transaction, the core infrastructure will receive the accept message and the net positions of the payer FI and payee FI are adjusted in real-time.

5. The core infrastructure sends a confirmation of the successful transaction to both the payer FI and the payee FI.

6. The payer FI and the payee FI transmit the confirmation of the status of the transaction to their respective customers. This confirmation may be delivered via email, text or other notification format, depending on the channels provided by the FI.
Credit Transfer with Payee Acknowledgement

1. Payer initiates the transaction via a channel supported by its FI. Potential channels include: online, smartphone, tablet, in-person, etc. The payer’s FI authenticates the customer, verifies the transaction authorization, and approves the transaction.
2. The transaction is then submitted to the TCH RTP core infrastructure for processing.
3. Once the transaction is cleared by the core infrastructure, it is transmitted to the payee’s FI.
4. The payee’s FI returns a message to the core infrastructure accepting or rejecting the payment (or in some instances indicating that further review is necessary). For an accepted transaction, the core infrastructure receives the acceptance message. Then, the net positions of the payer FI and the payee FI are adjusted in real-time.
5. The core infrastructure sends a confirmation of the successful transaction to both the payer FI and the payee FI.
6. The payer FI and the payee FI transmit the confirmation of the status of the transaction to their respective customers. This confirmation is delivered via email, text or other notification format, depending on the channels provided by the FI.
7. Payee acknowledges the receipt of the payment to the payee’s FI.
8. Message acknowledging the receipt of payment is transmitted from the payee’s FI to the core Infrastructure.
9. The core infrastructure transmits the receipt confirmation to the payer’s FI.
10. The payer receives the confirmation that the payment has been successful.
Process steps in purple indicate those supplemental to the credit transfer transaction flow. The payment request message is delivered in real time by the RTP core infrastructure, however, the payer determines when to initiate a credit transfer in response to the request for payment.

1. Payee initiates a request for payment message via a channel supported by the payee’s FI.
2. The request for payment is transmitted from the payee’s FI to the core infrastructure for processing.
3. The core infrastructure transmits the request for payment to the payer’s FI.
4. The payer’s FI notifies the payer of a request for payment.
5. Payer may choose to respond to the request for payment by initiating the transaction via a channel supported by its FI. Potential channels include: online, smartphone, tablet, in-person, etc. The payer’s FI authenticates the customer, verifies the transaction authorization, and approves the transaction.
6. The transaction is then transmitted to the TCH RTP core infrastructure for processing.
7. Once the transaction is cleared by the core infrastructure, it is transmitted to the payee’s FI. The payment message includes a reference to the original request for payment that resulted in this payment.
8. The payee’s FI returns a message to the core infrastructure accepting or rejecting the credit (or in some instances indicating that further review is necessary). The core infrastructure receives the acceptance message. Then, the net positions of the payer FI and payee FI are adjusted in real-time.
9. The core infrastructure sends a confirmation of the successful transaction to both the payer FI and the payee FI.
10. The payer FI and the payee FI transmit the confirmation of the status of the transaction to their respective customers. This confirmation is delivered via email, text or other notification format, depending on the channels provided by the FI.
Credit Transfer with Additional Remittance Advice

1. Payer initiates the transaction via a channel supported by its FI. Channels include: online, smartphone, tablet, in-person, etc. The payer’s FI authenticates the customer, verifies the transaction authorization, and approves the transaction.
2. The transaction is then forwarded to the TCH RTP core infrastructure for processing.
3. Once the transaction is cleared by the core infrastructure, it is forwarded to the payee’s FI.
4. The payee’s FI returns a message to the core infrastructure accepting or rejecting the payment. The core infrastructure receives the acceptance message. Then, the multilateral positions are adjusted in real-time.
5. The core infrastructure sends a confirmation of the successful transaction to both the payer FI and the payee FI.
6. The payer FI and the payee FI forward the confirmation of the status of the transaction to their respective customers. This confirmation is delivered via email, text, notification, depending on the channels provided by the FI.
7. The payer sends additional remittance information. This information may be sent along with the transaction information. (Note: the Remittance Advice may be sent at the same time or after the payment. The flow diagram is depicted as a separate flow after the payment for simplicity purposes).
8. Remittance information is forwarded from the payer’s FI to the core infrastructure.
9. The remittance information is forwarded from the core infrastructure to the payee’s FI.
10. The payee’s FI forwards the remittance information to the payee. (Note: if for some reason the Remittance Advice cannot be delivered, the payee’s FI responds to the core infrastructure with a pacs.002)
ISO 20022

The Clearing House RTP system will use a non-proprietary, internationally-recognized and royalty-free messaging standard – ISO 20022 – to format payments and payment-related messages. ISO 20022 is an open, robust, extensible, XML-based messaging standard, developed by the global financial services community. The standard supports end-to-end flow of payment information and rich payment data. Additional payment data can improve straight-through processing and assist in compliance screening if required. While the RTP system will be a domestic payment system, ISO 20022, as an international standard, can facilitate both cross-border interoperability, if, in the future, the RTP system links to real-time systems in other countries. (See page 6 for TCH’s role in developing ISO 20022 RTPG Message Guidelines.)

Over the past 10 years, in the international community a number of legacy payment systems have migrated to ISO 20022 (e.g., in Japan, SEPA, Switzerland) and many new real-time systems have been built on the ISO 20022 standard (e.g., in Denmark, Poland, Singapore, Sweden). In the United States, the Federal Reserve Banks and The Clearing House have announced a preliminary timeline and plan to roll out ISO 20022 messages for Fedwire and CHIPS in 2020.

The RTP system will be built using the ISO 20022 standard, thereby benefiting from many of its advantages, including:

- Global interoperability
- Rich remittance data
- Uniform and reusable messages
- Use as a strategic platform for innovation

Key Message Types Used in the TCH RTP System

<table>
<thead>
<tr>
<th>Message Group</th>
<th>Message Name</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payment Clearing and Settlement</td>
<td>pacs.008</td>
<td>Payment instruction</td>
</tr>
<tr>
<td></td>
<td>pacs.002</td>
<td>Payment status (accept, accept without posting, reject)</td>
</tr>
<tr>
<td>Payment Initiation</td>
<td>pain.013</td>
<td>Request for payment</td>
</tr>
<tr>
<td></td>
<td>pain.014</td>
<td>Response to request for payment</td>
</tr>
<tr>
<td>Cash Management</td>
<td>camt.026</td>
<td>Request for information</td>
</tr>
<tr>
<td></td>
<td>camt.028</td>
<td>Response to request for information</td>
</tr>
<tr>
<td></td>
<td>camt.029</td>
<td>Response to request for return of funds</td>
</tr>
<tr>
<td></td>
<td>camt.035</td>
<td>Payment acknowledgement by payee</td>
</tr>
<tr>
<td></td>
<td>camt.056</td>
<td>Request for payment cancellation or Request for Return of Funds</td>
</tr>
<tr>
<td>Payments Remittance Advice</td>
<td>remt.001</td>
<td>Remittance advice</td>
</tr>
</tbody>
</table>
2. Authentication

Participating FIs will be required to use strong authentication for RTP payment initiation by their customers. The TCH RTP system is open and flexible and supports various authentication methods depending on customer segment or channel used to initiate the transaction. TCH will support independent authentication developments, as appropriate, while ensuring a consistent level of authentication end-to-end across all participants through application of minimum standards. The inherent flexibility of the system will adapt to alternative authentication methods as they develop and address evolving technology and cyber threats.

TCH requires the use of robust authentication methods commonly used in other countries, including two channel authentication in which two devices and two channels are used to prove the identity of the end-user. These two channels may be: a user name and password (online) combined with a one time TAN code sent via SMS to a designated mobile number (mobile telephone).

Some examples of authentication devices/methods that could be applied to the RTP systems are listed below.

**SMS-TAN**
- The payer initiates a payment from one of the channels made available by the FI (e.g. smartphone, online, tablet, etc.)
- The respective channel requires a log-in credential (e.g. username/account number/alias and password)
- After requesting a payment, the FI sends the customer a one-time password, known as a Transaction Authorization Number (TAN) to a separate device associated with the customer (commonly a mobile device).
- This code is used to authenticate the transaction.
- The advantage of using this authentication method is that it is simple, cost effective and does not require extra equipment. Corporate customers may not find it secure enough.

**PIN Generator or Fob**
- Some FIs provide their customers with a device that looks like a pocket calculator. The user is required to enter a PIN, and the device generates a one-time code used to log in.
- Alternatively, some FIs issue a fob that has a password that is only valid for a short period (60sec.) The password is generated anew every 60 seconds.
- This method can be seen as an alternative to the SMS-TAN.

**Chip Card**
- The user must insert a chip card and enter a PIN into a reader connected to the interface device to authenticate to the FI and initiate any transaction.
- This method is secure, but less convenient for some users and tied to specific hardware.

**Biometric**
- Some FIs may require their customers to authenticate their identities by providing a fingerprint, retina scan, facial recognition or any biometric scan available.
- The customer engages the biometric reader. Only then, the payment is authorized.
- This method is becoming increasingly popular with the availability of fingerprint scanners in modern smartphones.
3. Payer Authorization

Credits Only Systems Simplify Authorization

In a payment system that processes only credit transfers, authorization of a properly authenticated transaction is based on a risk evaluation by the payer’s FI. No third party authorization or pre-authorization is needed. The timing of the authorization is dependent only on internal processes at the payer FI and therefore should be nearly instantaneous, measured in milliseconds.

The FI may offer a range of options to authorize RTP transactions for different scenarios. For instance, users wishing to schedule a transfer on a monthly basis, may have the option to set up a recurring transaction with their respective FIs. The range of services provided may include the following:

Types of payments supported

Direct debits or any other type of “pull” payment, whereby the payment initiation is controlled by the payee cannot be made through the RTP system. The risk of unauthorized payments is therefore greatly reduced.

Request for Payments

The “request for payments” feature of the RTP system provides particular value for business payment applications. It can minimize remittance errors by providing payers with pre-populated information from the payee while enabling convenient products for end-users such as e-invoicing and e-billing.

Requests for payments are initiated by the payee, which sends a request via its FI through the TCH core infrastructure to the payer’s FI, which forwards it to the payer. The payer is then provided with the necessary pre-populated information for the RTP payment. Based on the channel provided by the payer’s FI, the payment can be authorized and initiated by the payer with a single click of a button. This gives payees a means to communicate through the payment system a payment request along with contextual data to assist with reconciliation. Payers, however, retain control over whether to send a payment in response to a request for payment.
4. Approval by Payer’s Provider (FI)

The payer’s provider (FI) will be responsible for authorizing the payer’s payment. The payer’s FI may, at its sole discretion, permit the payer to fund a RTP payment from a checking or savings account, a line of credit, business account, card account, or other account. The interbank settlement is based on pre-funded settlement and the payer’s FI has an obligation to settle transactions it transmits to the core infrastructure. The payer’s FI must therefore manage the credit risk vis-à-vis its customer.

The timeline for payment approval, including balance checking, pre-payment screening, and any other parameters should normally take no more than a few seconds. Once the payer FI approves the payment message, the FI will transmit the payment to the core infrastructure operated by TCH. Once the payment has been transmitted to the core infrastructure, it can no longer be cancelled by the payer or the payer’s FI.

**Assurance of good funds**

The TCH RTP system will clear and settle payments on a good funds model. All payments will be settled in real-time using previously deposited funds. A payer FI will not be permitted to initiate a payment that would cause its prefunded position to be negative.

**Types of Accounts Supported**

Accounts addressable through a routing and transit number:
- Checking account
- Savings account
- Corporate demand deposit account

**Technologies Employed to Prevent Fraud**

A number of technologies are available in the market and might be used by TCH or FIs to identify fraudulent RTP payments:

**Pattern Recognition**
- Frequency of origination
- Value of transactions
- Aggregate value
- Time of day / day of the week
- New payees in short period of time

**Counterparty network analysis**
- Establish profiles for how payments flow among groups of people
- Identify recipients of fraudulent payments

**Parameter-based variations**
- Modify parameter to reduce false positives / negatives
- Modify parameters to account for changes in the customer behavior over time

**Rules-based preventative measures**
- Credits only. No third party debits.
- Transaction value limits
- Account number masking service

**Fraud Mitigation at the Core Infrastructure**

The TCH RTP system will include a centralized utility that analyzes network-level data to identify and report potential fraudulent behavior (i.e. potential “mule” accounts, concentration points, etc.) to FIs, as well as acting as a platform for the real-time exchange of fraud-related information. FIs are required to report fraudulent behavior and to respond to alerts from the fraud monitoring utility.

**Fraud Mitigation Efforts at the FI**

Most FIs employ layers of fraud prevention in their payment platforms that include: velocity checks, pattern recognition checks, looking for a large number of new beneficiaries, etc. Generally, unusual activity triggers a response that may cause a temporary hold on the transaction, an investigation or placing the transaction request in a different queue for verification before sending the payment to the RTP core infrastructure.
4. Approval by Payer’s Provider

Risk management and compliance (required for both payee and payer Providers)

The Clearing House has established a tiered approach to fraud prevention and mitigation segmented by the types of activities in which participating FIs engage. Not all FIs will be participating in real-time payments at the same level (e.g., some will send and receive real-time payments, while others will only receive). The level of risk management required by TCH will increase with more complex and risky activities.

In addition to the centralized fraud monitoring TCH will conduct, TCH will have the ability to limit the RTP activities of participating FIs that violate system rules and risk management requirements. For example, an FI whose customers repeatedly issue fraudulent or unsolicited requests for payment could be prevented from initiating further requests for payment while remaining able to send and receive payments.

All participating financial institutions will be required to:
- Comply with FFIEC guidelines as applied through prudential regulator examination
- Report fraudulent behavior to The Clearing House and/or sending financial institutions
- React to alerts from centralized activity monitoring utility

FIs that also send payments must:
- Comply with requirements for all participating financial institutions
- Have a minimum of two factor authentication.
- Employ real-time fraud and risk screening for payments being originated

FIs that permit customers to make requests for payment must:
- Comply with requirements for all participating sending and receiving financial institutions
- Perform due diligence on and monitor requests for payment initiators, with the ability to identify abusive or fraudulent use and take corrective actions if abusive or fraudulent use is identified
- Make warranties and representations that requests for payment are for legitimate purposes

FIs that permit third party payments (i.e., nonbank payment providers that wish to utilize the system via an account at a participating FI) must:
- Comply with requirements for all participating sending and receiving financial institutions that permit customers to initiate requests for payment
- Perform due diligence on and monitor the RTP activity of third parties
- Make warranties and representations that third party is abiding by rules for payment origination
- Follow FFIEC guidelines regarding third party relationships
- Not permit third parties to originate values greater than the FI’s financial resources can support

In addition TCH will require third parties to apply to participate in the RTP, enter into an agreement with TCH to abide by RTP system requirements for third parties, certify that the third party meets certain prudential and risk management requirements, and comply with certain consumer protection laws and regulations as if the third party was a depository FI.
5-7. Clearing, Receipt, and Settlement

The processes defined in the Faster Payments Task Force template as clearing, receipt and settlement are grouped into a single step in the proposed solution. In the RTP system, these processes are expected to take less than 10 seconds in total and operate around the clock, 365 days per year. TCH has put a robust settlement model into place to enable fully prefunded real-time gross settlement at any time of day or night.

The precise flow of messages and steps is detailed in the flow charts on page 16-19 above, and includes the following steps:

- After the payer’s FI approves the RTP payment, it is forwarded to the RTP core infrastructure for processing. Once sent to the core infrastructure, the payment cannot be cancelled or recalled.
- The TCH core infrastructure determines whether the payer FI has sufficient funds to cover the payment.
- If sufficient funds are in the payer FI’s pre-funded account, the transaction is forwarded to the payee’s FI.
- The payee’s FI returns a message to the core infrastructure indicating whether the payment is accepted, accepted without posting, or rejected. Payments that are accepted without posting will be limited to payments that require special review before the payee FI can determine whether the payment can be made available to the payee.
  - Accepted and accepted without posting payments will be immediately and finally settled.
  - Rejected payments will not be settled.
- To effect settlement of accepted and accepted without posting messages, the RTP system will simultaneously credit the prefunded position of the payer FI and debit the prefunded position of the payee FI. Settlement is final and irrevocable.
- The core infrastructure sends a confirmation of successful transaction to the payer FI and the payee FI.
- The payer FI and the payee FI send confirmations to their respective users.

The RTP system clears and settles payments on a good funds model. All payments are pre-funded by the payer FI into an account jointly owned by all FIs that provide funding for themselves or other FIs. The RTP system verifies and reserves settlement capacity by the payer’s FI before forwarding the payment to the payee’s FI, eliminating the risk of settlement failure. If the payer FI has an insufficient prefunded position to cover a payment, the core infrastructure will reject the payment. Overdrafts or negative prefunded positions are not permitted.

TCH will establish a prefunded requirement for each payer FI, which must be funded and maintained for an FI to send payments. FIs that do not fund for themselves must have an arrangement in place with another FI that will fund for them. In TCH’s current model, funding participants will provide funding through Fedwire payments to an account on the books of a Federal Reserve Bank.* Prior to the close of Fedwire, FIs must ensure that there is sufficient prefunding in place to fund the net amount of transactions until Fedwire reopens on the next business day. (In combinations of weekends and public holidays, this could be 3-4 calendar days).

Contextual data and remittance advices are cleared and routed at the same speed as payment messages.

*TCH is in the process of requesting a Federal Reserve account to be held for the joint benefit of funding FIs.
5-7. Clearing, Receipt, and Settlement

RTP operating characteristics

The RTP system operates on a continuous basis, 24 hours per day, 365 days per year. FIs have the ability to submit transactions at any time, including non-working hours/days and holidays. The central infrastructure receives the transaction order from the payer FI and clears the transaction in real time while also provisionally debiting the payer FI’s prefunded position. Once the payee FI has responded to the central infrastructure with an acceptance message the central infrastructure adjusts the settlement accounts of the respective FIs, debiting the payer FI’s prefunded position and crediting the payee FI’s prefunded position. In this fashion, settlement is performed in real time and automatically.

All messages transmitted between the core infrastructure and participating FIs are ISO 20022 compliant. Please see page 20 for a listing of key messages to be used.

RTP allows for payments to be transacted continuously, at any time, 24 hours per day, 365 days per year. The end-to-end transaction time takes only a few seconds and FIs notify their customers of transactions in real-time.

Funding and defunding of prefunded accounts can be managed during Fedwire’s business hours (9pm – 6:30pm). FIs can manage their liquidity during this window and anticipate liquidity needs after Fedwire is closed.

As soon as the payment is accepted by the payee FI and settled, the account balance of the payee is updated in real-time and funds are made available. Transaction confirmations (or rejections) are transmitted in real time to FIs, which in turn must make this information available to their customers, ensuring transparency and visibility of the payment status to all parties at all times.

Settlement of payments occurs automatically and in real-time. As soon as the payment is accepted by the payee, the prefunded positions of the corresponding FIs are adjusted. Payments initiated by FIs with insufficient prefunded positions will be rejected by the RTP system.

RTP enables seamless reconciliation not only for participant FIs but also for businesses using the system. RTP performs the adjustment of settlement in real-time, avoiding the need to reconcile batches of payments. RTP system does, however, establish reconciliation windows for FIs to ensure that transaction records are synchronized.
8. Reconciliation

In light of its use of continuous, real-time settlement, the TCH RTP system updates settlement totals continuously and FIs receive real-time information about successful and rejected transactions. The reconciliation process is therefore vastly simplified in comparison to systems that use deferred net settlement, in which multiple reconciliations must take place (batch volumes, batch values, settlement cycle volumes, settlement cycle values, returns, etc.)

To give FIs the opportunity to reconcile their transaction histories with their current prefunded positions, the system establishes several reconciliation windows each day. At a given point in time, the core infrastructure provides a reconciliation report for each FI that includes:

- The prefunded position of the FI at the beginning and end of the reconciliation window
- The net position (total of payments sent and received) during the reconciliation window
- A list of all transactions sent and received during the reconciliation window
- A record of any supplemental funding or disbursements from the prefunded account made during the reconciliation window

If the totals do not match, then an investigation is launched to identify and correct the discrepancy.

Through its ability to carry extensive contextual data and by giving the payee the ability to determine the remittance details in a payment, the system gives businesses and governmental entities ample opportunity to reconcile payments against their accounting and payment management systems. In addition, the use of international standard message formats should ease technical integration and automation of transaction reconciliation.

The system does not have after-the-fact returns. If a payment cannot be applied to a payee account, it is simply rejected. In case of an erroneously or fraudulently initiated payment, the payer FI can make a request for return of funds from the payee FI, but there is no right to a return of funds. In general, RTP provides a simpler process with increased functionality in comparison to other available low-value payment systems.
Part A1 Summary

TCH has developed the RTP system carefully considering the needs of the US market, while bringing a robust solution that addresses the criteria outlined by the Faster Payments Task Force. The solution is built with a flexible architecture adaptable to a range of use cases, domestically and internationally. Nevertheless, the RTP rules still guarantee a reliable and consistent delivery of the core features across all use cases, participating FIs and channels. The RTP system supports all identified use cases: Business to Business (B2B), Business to Person (B2P), Person to Business (P2B), and Person to Person (P2P).

TCH has partnered with technology industry leaders such as FIS, Jack Henry and D+H (more partners forthcoming) to ensure the solution is accessible to a wide range of users in a variety of use cases. These technology providers, along with participating FIs, are working collectively with the TCH to continuously improve the capabilities of the RTP system and develop cutting edge technologies.

Compared to the available alternatives in the US payments market, the RTP solution excels. The following table and graph present a comparison of the functional and operational capabilities of the RTP system with the current alternatives.

How does RTP compare to the alternatives?

<table>
<thead>
<tr>
<th></th>
<th>RTP</th>
<th>ACH</th>
<th>Wire</th>
<th>Cards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Request for payment</td>
<td>Supported</td>
<td>Not supported</td>
<td>Not supported</td>
<td>Not supported</td>
</tr>
<tr>
<td>Cross-border interoperability</td>
<td>Functionality planned</td>
<td>Yes, but limited in reach</td>
<td>Yes, but can be slow</td>
<td>Yes</td>
</tr>
<tr>
<td>Contextual data</td>
<td>140 characters in payment message + extensive remittance advice</td>
<td>9999 addenda records of 94 characters each</td>
<td>9000 characters</td>
<td>Very limited</td>
</tr>
<tr>
<td>Authorization</td>
<td>Real-time</td>
<td>Varies but never real-time</td>
<td>Real-time</td>
<td>Real-time</td>
</tr>
<tr>
<td>Clearing</td>
<td>Real-time and continuous</td>
<td>Multiple times daily</td>
<td>Real-time (during operating hours)</td>
<td>Once daily</td>
</tr>
<tr>
<td>Settlement</td>
<td>Real-time and continuous</td>
<td>Twice daily, will become three times daily in Sep 2016</td>
<td>Real-time (during operating hours)</td>
<td>Once daily</td>
</tr>
<tr>
<td>Settlement finality</td>
<td>Real-time</td>
<td>Depends on reason for return, can be up to 60 days</td>
<td>Real-time</td>
<td>Depends on reason for return, can be up to 60 days</td>
</tr>
<tr>
<td>Posting</td>
<td>Real-time</td>
<td>Same day as a settlement</td>
<td>Real time; may be delayed in some cases</td>
<td>Next day</td>
</tr>
<tr>
<td>Reconciliation</td>
<td>Real-time</td>
<td>After settlement cycle</td>
<td>Complex, sometimes manual process</td>
<td>Automated, but with time delay for settlement</td>
</tr>
</tbody>
</table>
Summary

Operating timelines

The RTP system is able to receive and process transactions continuously 24/7/365. Settlement positions are adjusted in real-time and posting to customers is performed in real-time.

Settlement in Fedwire occurs continuously while the system is operational (Fedwire operates from 9pm – 6:30pm ET and CHIPS from 9:00 pm - 5:00pm on business days). There is no service for several hours each evening or on weekends. Posting transactions to customer accounts may take several hours.

The ACH system receives and processes transactions on a continuous basis. Settlement and posting for forward transactions, occurs once daily at 8:30 am. (A second settlement, only for returns, occurs at 4:00 pm.) The ACH network will increase settlement cycles to 3x daily in late 2016. Posting times by banks vary and may take several hours after interbank settlement.
Part A, Section 2: Use Case Description

Real-time payments are executed through a sequence of messages. The sequence starts with a payer sending a payment instruction via a channel made available by their FI (initiation). The FI (i) authenticates the payment instruction to determine that the instruction is from the FI’s customer, (ii) ensures the customer has adequate funds or credit to pay for the payment (approval), (iii) conducts required screening, and (iv) securely sends the payment instruction message to the TCH RTP core infrastructure. The TCH RTP core infrastructure validates the message and routes it to the receiving FI (clearing). The receiving FI immediately sends a response to the RTP core infrastructure. The TCH RTP core infrastructure provides an acknowledgment message to the receiving FI as well as the issuing FI (receipt) and manages the settlement between FIs. Upon receipt of the confirmation message, the receiving FI makes notice of the payment available to the recipient and provides immediate availability of funds to the recipient.

These real-time payments are applicable to a variety of use case scenarios. Representative use cases are presented below.

**Person-to-Person (P2P)**

1. John’s FI carries out its normal authentication process to verify John as the account owner. John instructs his FI through Online Banking to pay Mike via RTP. He includes Mike’s alias (or routing and tokenized account number) to address the payment. He may also add additional reference information so that Mike knows what the payment is for.
2. John’s FI verifies that John has sufficient funds or credit to pay for the payment. In certain cases, the FI may need to hold the payment to perform more extensive fraud checks. John’s FI may also opt to perform additional authentication if this payment exceeds a certain threshold.
3. John’s FI resolves the alias (if used) and submits the payment to the RTP core infrastructure. At this point, the payment can no longer be cancelled by John or his FI.
4. The RTP core infrastructure validates the payment details and reserves the amount of the payment with the prefunded position for John’s FI.
5. Once Mike’s FI has received the transaction, it checks that the account number is valid and then sends a message back to the RTP core infrastructure that it has accepted (or rejected) the payment.
6. Upon receiving the accept message from Mike’s FI, the RTP core infrastructure settles the payment by adjusting the prefunded positions of John and Mike’s FIs in the amount of the payment and sends a message to John and Mike’s FI to confirm that the payment was completed. Mike’s FI simultaneously credits his account with the value of the transaction sent by John.
7. John’s FI marks the transaction as complete.
8. FIs notify John and Mike respectively, the status of the payment. Each sending FI will decide how their customers will be notified of transaction status.

**Use case scenario:** Transaction from a person (John) to another person (Mike) with accounts at different FIs.

**Note:** Funds are accessible within seconds.
Use case scenario: Single business to business transaction between a restaurant and its supplier. The restaurant needs supplies immediately, and the supplier needs to be paid before shipping the goods.

1. The supplier reviews an order received from a restaurant and sends a “Request for Payment” (RFP) through their FI. The supplier’s FI sends the RFP message to the RTP core infrastructure. Sending the request through a secure, trusted channel reduces fraud risk associated with an e-mail invoice.

2. The RTP core infrastructure validates the request and routes it to the restaurant’s FI, which then notifies the restaurant.

3. The restaurant receives the RFP that contains a “Pay Now” button. Upon selecting the “Pay Now” button, a pre-populated payment message that includes all pertinent payment data (e.g., remittance information, payment amount, etc.) is presented to the restaurant so they can confirm and make the payment to their supplier quickly and easily.

4. After verifying that sufficient funds or credit is available in the restaurant’s account, the restaurant’s FI submits the payment to the RTP core infrastructure validates the payment details and reserves the amount of the payment with the prefunded position for the restaurant’s FI.

5. Once the supplier’s FI has received the payment, it checks that the account number is valid and then sends a message back to the RTP core infrastructure that it has accepted (or rejected) the payment.

6. Upon receiving the accept message from the supplier’s FI, the RTP core infrastructure settles the payment by adjusting the prefunded positions of both FIs in the amount of the payment and sends a message to both FIs to confirm that the payment was completed.

7. The supplier’s FI notifies the supplier of payment. The supplier sends a payment acknowledgement message to the restaurant, confirming the goods are on the way.

8. The supplier loads goods for delivery to the restaurant, confident that payment has been made.

Note: The exchange of information between buyer and seller goes beyond the remittance detail that typically accompanies B2B electronic payments. Remittance data is essential and enables the supplier to apply payment to the correct invoice, account for any differences, and reconcile those differences. In this immediate payment example, the payment request, notification message, and confirmation message all provide additional value for a time-sensitive transaction.
Use case scenario: David has damage to his car from an accident. He calls his insurance company, which sends its local adjustor, Tom, to meet with David and view the damages. Tom inspects the claim, determines the appropriate amount for the damages, and approves it remotely. Tom’s insurance company immediately sends David the claim amount.

1. Tom instructs the insurance company’s FI to pay David the approved amount of damages. The payment instruction also includes claim information that both the insurance company and David can access. (Extensive claim information could be included in a remittance advice message or through a reference to an external source).
2. The insurance company’s FI uses appropriate customer processes to verify Tom has authority to initiate payments from this account and that sufficient funds or credit are available.
3. The insurance company’s FI submits the payment message to the RTP core infrastructure. At this point, the payment can no longer be cancelled.
4. The RTP core infrastructure validates the payment details and the payment instruction reserves the amount of the payment with the prefunded position of the insurance company’s FI. Associated claim information is then sent to David’s FI as a part of the payment message.
5. Once David’s FI has received the transaction, it checks that the account number is valid and then sends a message back to the RTP core infrastructure that it has accepted (or rejected) the payment.
6. Upon receiving the accept message from the David’s FI, the RTP core infrastructure settles the payment by adjusting the prefunded positions of both FIs in the amount of the payment and sends a message to both FIs to confirm that the payment was completed.
7. David’s FI simultaneously credits his account with the value of the payment and makes funds available immediately.
8. The insurance company’s FI confirms the status of the payment and provides transaction details to the insurance company. Each sending FI will decide how their customers will be notified of transaction status.

Note: The exchange of information between insurance company and the insured person goes beyond the remittance detail that typically accompanies B2C electronic payments. The insurance company may include additional detail so that it can reconcile the payment with the claim.
Use case scenario: Person to Business scenario with request for payment. Steve, an Acme customer, is presented with a link from his FI’s customer facing application that displays an invoice. An option to immediately pay all or a portion of the invoice is made available. Once Steve instructs his FI to pay, his FI sends the payment directly to Acme’s checking account while the remittance information is routed directly to Acme’s accounting system.

1. Acme Plumbing creates an invoice to be presented to Steve, their customer, for payment. Acme’s accounting system creates a file containing a link to the invoice, (including remittance info) and a Request for Payment for its customers. The Request for Payment is sent to Steve’s FI for routing through the RTP network.
2. Acme’s FI uses appropriate customer authentication processes to verify Acme’s Accounting personnel has authority to make payment requests.
3. Acme’s FI submits the Request for Payment (RFP) messages to the RTP core infrastructure.
4. The RTP core infrastructure validates the payment request and routes the message to Steve’s FI.
5. Once Steve’s FI has received the payment request, it validates that Steve has elected to receive RFPs. Steve is presented with a RFP that has a “Pay Now” button. Upon selecting the “Pay Now” button, Steve is presented with a pre-populated payment message including all pertinent data (i.e., remittance information, payment amount, etc.). Steve authenticates himself to his FI in an appropriate manner and authorizes the payment.
6. Steve’s FI verifies that Steve has sufficient funds or credit to pay for the payment. Steve’s FI sends the payment message including the related remittance information and a reference ID to the RTP core infrastructure. From this point he payment can no longer be cancelled. The RTP core infrastructure validates the payment details and reserves the amount of the payment with the prefunded position of the insurance company’s FI.
7. Once Acme’s FI has received the transaction, it checks that the account number is valid and then sends a message back to the RTP core infrastructure that it has accepted (or rejected) the payment.
8. Upon receiving the accept message from Acme’s FI, the RTP core infrastructure settles the payment by adjusting the prefunded positions of both FIs in the amount of the payment and sends a message to both FI’s to confirm that the payment was completed.
9. Acme Plumbing receives remittance information into their accounting system via their FI’s interface, avoiding manual entry of payment information, and applies payment to the appropriate customer account.
10. Acme sends confirmation that payment has been posted to Steve via a Payment Acknowledgement message through RTP.

Note: The exchange of information between buyer and seller goes beyond the remittance detail that typically accompanies C2B electronic payments. Remittance data is essential and enables the supplier to apply payment to the correct invoice, account for any differences, and reconcile those differences. In this immediate payment example, the payment request, notification message, and confirmation message all provide additional value for a time-sensitive transaction.
**Part A, Section 3: Use Cases by Effectiveness Criteria**

The RTP solution supports all use cases outlined by the Faster Payments Task Force, including Business to Business (B2B), Business to Person (B2P), Person to Business (B2P), and Person to Person (P2P).

The Clearing House’s RTP solution supports all use cases with a single solution. Accordingly, all use cases share the same effectiveness ratings. The comprehensive solution has been designed to address all steps in the lifecycle process to the same extent in each use case. Without exception, the effectiveness criteria outlined by the Faster Payment Task Force are met with an ‘effective’ rating or better.

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# Part A, Section 3: Use Cases by Effectiveness Criteria

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Part B: Business Considerations

The Clearing House has carefully designed a market-leading proposition for real-time payments, and distinguishes its solution from current and proposed payment systems with seven unique features:

**Fast** – Payments are completed immediately. Payments are cleared and settled in seconds, accepted transactions are final, and funds are available to the recipient immediately. The ability to send and receive payments in real time gives customers more control over cash flow.

**Seamless** – There is no need for individuals or businesses to enroll. When FIs connect to the RTP system, they automatically enable their accounts for real-time payments (e.g., similar to ACH). There is no need for individuals or businesses to further enroll in order to receive payments.

**Multi-purpose** – Supports the complete payment cycle, not just a financial transaction. The RTP system is capable of securely transmitting not only payments, but also bills, invoices, and payment confirmations. It also allows businesses to automate their cash application investigations. FIs have the opportunity to develop innovative products to better meet customer needs, now and in the future.

**Safe** – Protection against unauthorized transactions and fraud is built in by design. The system will not support debit transactions, therefore providing customers with additional control. The future incorporation of tokenization will replace static account data with dynamic tokens to mitigate the risk of fraud. All transactions – payments, electronic invoices, bills, confirmations, payment details – are sent over secure banking channels to mitigate the risk of unauthorized access.

**Compliant** – TCH briefed regulators about key design elements throughout the planning process. TCH has briefed regulators throughout the planning and design process to help ensure the RTP system will meet regulators’ expectations. In addition, TCH believes the RTP system is consistent with the CFPB’s Consumer Protection Principles for Faster Payment Systems.

**Ubiquitous** – Built for all US financial institutions. The RTP system will be accessible to all U.S. financial institutions. TCH’s goal is to achieve ubiquity rapidly; we are working with partner organizations, such as FIS, D&H and Jack Henry to achieve that goal.

**Global-ready** – Designed for international compatibility. The RTP system will use ISO 20022 standards for real-time payments and payment messages. The RTP system may eventually support international payments through interoperable domestic payment systems, and use of the ISO 20022 messaging standard will allow FIs and customers to use the same formats, technology and processes across borders.

In designing our RTP system, we have built on our decades of experience operating efficient, reliable, and secure payment systems. The Clearing House payment systems clear and settle more than 65 million transactions with a total value of $2 trillion each day. This is nearly half the daily ACH, funds transfers and check image payments in the United States. TCH systems operate with the highest standards for safety, soundness and reliability. Our highly resilient data centers are synchronized with backup delivery and have an uptime/availability of 99.999%.
Part B: Business Considerations

The Clearing House is uniquely qualified to conceptualize—and then execute on—strategic new ideas for payments to meet the challenges of a fast changing market. We operate industrial-strength payment systems at the center of the industry and work within trusted frameworks to create new capabilities for the next generation of payments with the same safety and soundness principles that have always underpinned our core systems.

The Clearing House is the only private-sector ACH Operator in the country, processing approximately 50% of all commercial ACH volume in the U.S. through our network. Our customers include credit unions, commercial banks, savings banks and savings and loans. CHIPS is the largest private-sector U.S.-dollar funds-transfer system in the world, clearing and settling an average of $1.5 trillion in cross-border and domestic payments daily. It combines the best of two types of payments systems: the liquidity efficiency of a netting system and the intraday finality of a RTGS. The Clearing House’s Check Image Exchange Network is an industry utility that connects financial institutions of all sizes to get check images anywhere they need to go. Institutions exchange images through our Image Exchange Network, and share best practices and industry developments through our customer forums.

The Clearing House is bringing its proven industry experience to real-time payments, and is working with national and global leaders to deliver the solution. A select group of bank technology partners, including FIS, D+H and Jack Henry and Associates are enhancing our rollout strategy. We have also chosen the global leader in technology for real-time payments infrastructure, Vocalink, to provide the core technology platform for the RTP system. Like The Clearing House, Vocalink link brings a practical view to payment systems. Vocalink has amassed a wealth of knowledge and expertise on real-time payments systems following key roles in deploying and operating systems in the UK and Singapore. Vocalink has engineered a solution to cater to the needs of the real-time market.

Part B of this proposal focuses on business considerations and is divided into 4 parts:

- Implementation Timeline
- Value Proposition and Competition
- Integration Effort
- Legal Framework and Governance
1. Implementation Timeline

TCH RTP Transaction Volumes (projected)

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<tr>
<th>Year</th>
<th>B2B</th>
<th>B2P</th>
<th>P2B</th>
<th>P2P</th>
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- Program launched
- Technology selected
- Design phase commenced
- Initial Legal & regulatory work commenced
- Design complete
- Interface specs complete
- Initial Legal & regulatory work complete
- Internal testing
- Partners in place
- Partner & FI IT development
- Partner & FI IT testing
- Commence FI and partner onboarding
- All core services go live
- Onboarding additional FIs
- Adoption through partners increases
- Rollout to customers
- Adoption through partners increases
- Approaching ubiquity
- Volume begins to scale
- Rollout to additional FIs (see table on p 39)
- Ubiquity achieved
- Continue efforts to implement cross border partnerships
- Drive volume through additional value-added services and partnerships
- Approaching ubiquity
- Ubiquity achieved
- Continue efforts to implement cross border partnerships
- Drive volume through additional value-added services and partnerships
- Approaching ubiquity
- Ubiquity achieved
1. Implementation Timeline

Reaching ubiquity

The Clearing House’s RTP solution will help to improve the overall efficiency of the US payment system and drive innovation in the marketplace, which we believe will incentivize FIs to participate. Technology partners are essential to our efforts to reach the many thousands of financial institutions in the United States that wish to connect to the RTP system. To that end, we have made, and continue to make, significant progress on a multi-pronged strategy to reach financial institutions of all sizes, with the intent of achieving effective ubiquity with rapid and broad enablement through third-party channel engagement and gateway access tools.

We have partnered with FIS, who will make the RTP service available to its 3,000+ banks and credit unions; in addition, we have signed an MOU with Jack Henry to reach its 7,600+ FIs and an MOU with D+H to reach 6,000+ FIs. These partners are developing complete suites of software to enable their FI customers to offer real-time payments to their accountholders. Multiple vendors including FIS, D&H, VocaLink, ACI, and AccessPay have announced gateway appliances to enable FI connectivity. These will ease access for larger FIs that maintain their own payment processing capabilities.

We anticipate these partners, and others, will bring solutions to market that will create turn-key integration for many FIs and expect to see the first such FIs adopt them in 2017, with more to follow in 2018 and beyond.

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<tr>
<th>Vendor</th>
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<th>Current Status</th>
<th>Network Access</th>
<th>Core RTP Ready</th>
<th>Origination Apps</th>
<th>Payment Processing</th>
<th>Network Gateway</th>
<th>Indirect Sales/Service</th>
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*Note: Banks may have relationships with multiple vendors*
2. Value Proposition and Competition

The RTP system is a new payments system that creates value for financial institution participants, technology providers, and end users (including consumers and businesses), and will provide an immediate electronic payment solution that serves the needs of participants in our increasingly high speed and digital economy. The system will promote market forces by enabling FIs to compete with each other to provide RTP services to their customers. As previously noted, the RTP system will be accessible to all U.S. financial institutions, regardless of size or charter type, provided that they satisfy technical specifications and other eligibility requirements set forth in the RTP system rules.

In particular, the RTP system will support competition for value added services through flexible ISO standards, while ensuring the end-to-end process is consistent and reliable for FIs and end users. FIs will determine their own fees and will compete with each other to provide customers with services that utilize the RTP system. TCH does not enforce a specific end product interface, which allows FIs to leverage the flexibility of the RTP system and messaging functionality to develop innovative and competitive services. The participation of technology service providers in the ecosystem (e.g., by developing applications and products related to RTP) will drive further competition and innovation in the market place. The use of ISO 20022 data standards enables building or integrating value-added services for FIs and their customers. Through the use of non-payment messages the RTP system allows for value added services that can result in the creation or support in applying a payment (see use case examples that refer to non-payment messages) while ensuring the end-to-end process is consistent and reliable for users.

Benefits to key stakeholders

- **Consumers**
  - Available anytime of day or night
  - Real time availability of funds 24x365
  - Pay from any account
  - Real-time information about status
  - Convenient use of directories
  - Uses bank grade security
  - Requests for Payments provide more control than direct debits

- **Businesses**
  - Available anytime of day or night
  - Pay from any account
  - Lower risk
  - Improves back office efficiency
  - Better supply chain management
  - Cash flow improvements
  - Real-time information about status
  - Extended remittance data

- **Financial Institutions**
  - New product development
  - Modernization of existing product portfolio
  - Competitive opportunities
  - Better serve customer needs
  - Operational simplicity
  - Revenue opportunities
  - Improves back office efficiency

- **Technology Providers**
  - Serve FI customers with products they need
  - Utilize existing networks and partnerships more fully
  - Revenue opportunities
  - Operational simplicity
  - Improves back office efficiency

- **TCH**
  - Serve FI customers with products they need
  - Utilize existing networks and partnerships more fully
3. Integration Effort

Financial institutions, technology providers, and processors

The investment required to enable the TCH RTP system is expected to overlap with other ongoing investments financial institutions are making (e.g., investments in their core technology systems to improve functionality and efficiency). For FIs that choose to make all the changes required to participate in RTP themselves, it is projected that typically, 60 percent of the expected build costs (based on a study done by TCH) related to RTP will be for online or mobile channel improvements, cybersecurity, payments architecture modernization and compliance platforms – all of which have utility beyond RTP, and are capabilities that most FIs are already looking to invest in for strategic banking purposes. With this in mind, implementation of an RTP solution may also serve as an opportunity for FIs to modernize their core infrastructure in a way that enables them to leverage their upgraded IT environments across business and product lines.

Because RTP is a single solution that supports a variety of use cases, a single integration can support all of these use cases, although the specific use cases an FI chooses to support may impact the complexity of the integration. Several FIs have researched and established the costs associated with planning or implementing technology upgrades, payment hubs, or automated compliance tools to keep pace with an evolving digital economy. The industry is finding that these existing efforts for these technology upgrades can overlap with RTP and significantly reduce the cost to support a new RTP system.

To address the needs of FIs that find these improvements cost-prohibitive or that already outsource many of their core IT functions, TCH has partnered with several of the leading FI IT outsourcers so that the integration of RTP functionality becomes available as a standard offering across the banking industry.

Existing investments that may overlap with RTP

<table>
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<th>Function</th>
<th>Comment</th>
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| Channel (Mobile & Online)         | • FIs are able to include RTP in planned upgrades to online and mobile banking at moderate incremental cost  
                                 | • FIs that have already invested in upgrading online and mobile banking find that these platforms can incorporate RTP more readily than older systems |
| Payment Engine / Hub Processing   | • Many FIs are already planning to implement payment hubs or similar architectures, significantly reducing the cost to support RTP  
                                 | • TCH is encouraging payment hub vendors to create payment “appliances” that can reduce the cost and complexity of supporting RTP |
| Compliance (Fraud/AML/Sanctions)  | • A number of FIs are already implementing advanced data analytics and automated tools to meet compliance requirements and address payment fraud risk which support all payment types, including RTP |
| Accounting & Settlement           | • Risk management and compliance requirements, as well as the increasingly real-time nature of mobile banking and card payments, have also led financial institutions to enhance accounting and settlement to eliminate internal float and timing gaps, another prerequisite for RTP |
| Payment Products and Services     | • FIs are prioritizing which products will take advantage of real-time in order to integrate into specific business strategies |
3. Integration Effort

RTP represents a transformation of the U.S. payments ecosystem and will impact the entire value stream for participating FIs. Developing and offering new services based on the capabilities the RTP system provides will require FIs to assess key areas of their operations, including Products and Services, Communications and Marketing, Planning, Execution and Delivery, Regulations and Compliance, and Governance. TCH has prepared materials to assist FIs in thinking through the key decisions that will impact integration and implementation issues for FIs that connect to the RTP system. Business, Operations and Technology Playbooks and detailed specifications documents will assist FIs through all stages of the evaluation and deployment of RTP (see Appendix for sample).

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<thead>
<tr>
<th>Sample RTP Customer Solutions</th>
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<tr>
<td><strong>Business-to-Business</strong></td>
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<td><strong>Business-to-Person</strong></td>
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<td><strong>Person-to-Business</strong></td>
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<td><strong>Government-to-Consumer</strong></td>
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<th>Planning, Execution and Delivery</th>
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<tr>
<td><strong>RTP functionality level</strong></td>
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<td><strong>24/7/365 Customer Services and Operations Support</strong></td>
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<td><strong>SLA and performance metrics</strong></td>
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<td><strong>Aliases and directories</strong></td>
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<td><strong>Tokenization</strong></td>
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<td><strong>Settlement</strong></td>
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<td><strong>ISO 20022 Messaging</strong></td>
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</table>
3. Integration Effort

Corporate customers and government

Corporate and government customers are expected to use the RTP system in a variety of ways through their preferred FIs, both for initiating and receiving payments. The integration effort will vary widely depending on the size of the organization, the current accounts payable and receivable software being used, and the types of system messages that the organization wants to use (send payment, initiate requests for payment, etc.), and whether they wish to outsource aspects of their operations.

Communication between FIs and their customers is outside the scope of the system, but TCH expects that the use of ISO 20022 in the interbank arena will be paralleled by similar developments in the communication standards that are used between FIs and their customers. The use of ISO 20022 has significant advantages for corporate customers as well as for FIs, and the standard defines messages for payment initiation.

The Clearing House believes that using market forces to achieve integration is one of the strengths of its proposal. While the solution defines a standardized, predictable, and scalable level of service in the interbank arena, it relies on the existing vigorous market for FI software and services as well as for corporate payment software and services to create solutions for the market segments they serve. TCH has developed and will continue to develop partnerships with a number of leading companies in this market to make the RTP solution accessible, scalable, adaptable, and extensible.

The Clearing House is confident that the market for corporate payment software and payment outsourcing will provide these capabilities, enabling small businesses using standard accounting software and large companies using Enterprise Resource Planning (or ERP) software or dedicated billing and accounts receivable solutions to initiate outbound RTP transactions and receive automated transmissions of inbound transactions. Managed services will also be available in the market as they are today.

* Note: This list of laws and regulations is intended to provide examples of legal obligations that may be relevant to RTP. Each FI should consult with legal and compliance staff to determine applicable legal requirements.
4. Legal Framework and Governance

Legal framework

TCH is developing participation and operating system rules that will establish the rights and obligations of participants in the RTP system. As an established payment system operator, TCH is well-positioned to draft and implement these system rules. Further, existing laws, regulations and regulatory guidance will apply to Participating FIs and end-users, such as the Electronic Fund Transfer Act and Regulation E (for consumer transactions), UCC 4A (for commercial transactions), the Gramm-Leach-Bliley Act and Regulation P, the prohibition on Unfair, Deceptive and Abusive Acts and Practices under the Dodd-Frank Act, and the Bank Secrecy Act and implementing regulations. Participating FIs, which hold their customers’ accounts, will be responsible for compliance with banking and payments laws that apply to payments to and from those accounts. The RTP system will support Participating FIs’ anti-fraud processes through centralized monitoring, and AML/OFAC compliance by ensuring that the RTP message format includes data element fields that can carry information required for AML/OFAC compliance.

Payment System Rules

TCH is in the process of developing comprehensive participation and operating rules that will govern the rights and obligations of participants in the RTP system.

The participation rules will address topics including, among others, general eligibility requirements; the process for connecting to the RTP system through a third-party service provider; and requirements in the event of a change of name, form of organization, or control of a participant.

The operating rules will address topics including, among others:

- General participant eligibility requirements and operating responsibilities
- Eligible payments
- The protection of confidential information and customer information security
- Payment notification and messaging
- Funds availability
- Errors and unauthorized transfers
- Funding and settlement
- Risk management
- Enforcement of RTP rules
4. Legal Framework and Governance

Consumer protections

Regulation E, which implements the requirements of the Electronic Fund Transfer Act ("EFTA"), sets forth the rights, liabilities and responsibilities of consumers and financial institutions concerning the use of “electronic fund transfer” products and services. Consumer payments transmitted through the RTP system will be “electronic fund transfers" subject to Regulation E.

Consumers who use the RTP system will benefit from applicable Regulation E requirements, such as requirements regarding disclosures, error resolution, and limitations on liability for unauthorized transactions. For example, if a fraudster initiates an unauthorized real-time transaction from a consumer’s account, the account holding institution will be required to investigate the transaction and the consumer will be protected from liability (subject to Regulation E’s notice and reporting provisions).

The existing protections for consumers under Regulation E will be supplemented by additional controls that are established through system operating rules or are inherent to the system and the transaction types it supports.

- **Credit Push.** The system will support the clearing and settlement of credit push payments only, which minimizes the potential for unauthorized debits to a consumer’s account.
- **Process to Request Return of Erroneous Payments.** The RTP system will provide a mechanism to FIs to send and respond to requests for the return of an erroneous payment. A payer will be able to request return of a payment resulting from the payer’s error, which FIs will handle in accordance with RTP system rules.
- **Centralized Fraud Monitoring and Controls.** The RTP system will include a centralized utility that will analyze network level data to identify and report potential fraudulent behavior to participating FIs. In addition, the RTP system rules will require participating FIs to report fraudulent behavior to TCH and/or other relevant participating FIs, and to respond to alerts from the centralized activity monitoring utility.
- **Tokenization.** The system will support routing of tokenized transactions. Once implemented, tokenization will increase payment security and help to limit the proliferation of consumer account credentials.
- **Security and Privacy.** To participate in the system, financial institutions will be required to satisfy certain data security requirements and standards for payer authentication/payment authorization.

Further, the TCH RTP system is being designed with a flexible architecture that will enable Participating FIs to meet the needs of their customers, including through accommodations that may exceed the requirements of applicable consumer protection laws.
4. Legal Framework and Governance

Data privacy

In addition to applicable privacy laws for depository institutions and related regulatory expectations, participating FIs will be required by system rule to satisfy minimum security and privacy standards to participate in the RTP system.

The Clearing House is also planning to implement tokenization in connection with the RTP system. Once implemented, transaction information will be tokenized (i.e., actual account/routing information will be stored in a highly secure token vault and will be accessible only for the purpose of ensuring proper transaction routing). Further, as an established payment systems operator, TCH has significant resources devoted to data security, risk management, and incident response, and will be applying similar standards and controls to the RTP system.

Intellectual property

The TCH RTP system will employ the ISO 20022 messaging scheme, which is an open, international standard for financial communications. Organizations that contribute to the standard grant third parties a non-exclusive, royalty-free license to use the contributed information. Additional details regarding the intellectual property rights policy for ISO 20022 is available at https://www.iso20022.org/intellectual_property_rights.page.

TCH has engaged VocaLink, a leading international payment systems provider, to provide the core technology platform for the TCH RTP system. VocaLink built and manages the real-time technology behind the UK Faster Payments Service. The technology that VocaLink has agreed to license to TCH was developed independently by VocaLink, has been in use in foreign real-time payment systems (e.g., the FAST payments service in Singapore), and has not been subject to infringement claims.
4. Legal Framework and Governance

Effective governance

The Clearing House has established governance arrangements for the RTP system that are designed to ensure its success through arrangements that, among other things, provide for clear lines of responsibility and provide for oversight by The Clearing House’s member financial institutions, which supplied the capital that is being used to build the RTP system and are expected to be among the largest users of the system. As such, these FIs have a paramount interest in ensuring the system’s success, including achieving ubiquitous, safe, faster payments that improve the overall efficiency of the U.S. payment system. The Clearing House’s governance arrangements are further enhanced through public disclosure of the system’s governance and, as is more fully discussed below, by a process for public input into system rules and by provisions for appropriate due process regarding RTP rules decisions. The Clearing House’s governance arrangements will also allow for independent validation through independent audits and examination and supervision by federal financial institution regulators.

Clear Lines of Responsibility

The governance arrangements for the RTP system will ensure efficient decision making and rule making, including establishing clear lines of responsibility for all decision makers or decision-making bodies. The principal governance arrangements for the RTP system are set forth in the limited liability company agreement.

Management of TCH is under the direction of two boards of directors: the Supervisory Board and the Managing Board. The LLC Agreement provides that the Supervisory Board has overall responsibility for the business of TCH, while the Managing Board, which reports to the Supervisory Board, is responsible for oversight of TCH’s business and financial performance and for setting TCH’s strategic agenda.

In addition, The Clearing House intends to establish an RTP business committee, which will be responsible for certain strategic, risk management, and governance matters relating to the RTPS as set forth in the committee’s charter. Under these arrangements, the Supervisory Board of The Clearing House, the Managing Board of The Clearing House, the RTP business committee, and the executives, officers, and management of TCH each will carry out their respective governance functions with respect to the RTP system.

The RTP business committee will be comprised of individuals appointed by the Managing Board who are subject matter experts in payments. The business committee will be responsible for strategic, risk management, and governance matters relating to the RTP system. In addition, the RTP system will also be managed and supported by executives, officers, and employees of TCH, including product, operations, technology, customer relations, risk-management, audit, and legal staff.

Public Disclosure and Due Process

The Clearing House intends to publicly disclose the governance arrangements for the RTP system on The Clearing House’s website. The Rules also provide a process for anyone to provide suggestions and recommendations to The Clearing House regarding operating rules. In addition, the RTP rules will provide a process to handle violations of the rules by system participants and for system participants to appeal decisions relating to enforcement of the RTP rules that comports with due process requirements.

Independent Validation

Finally, regarding independent validation of the RTP system governance arrangements, it is anticipated that the RTP system will be subject to examination and supervision by the federal financial institution regulators, which supervision will include a host of issues including technology and operations, governance, strategic execution and other issues. Furthermore, the TCH’s Bylaws provide for an audit committee appointed by the Managing Board and independent from the board. As provided in the audit committee charter, the audit committee assists the Supervisory and Managing Boards by reviewing TCH’s internal audit function and system of internal controls.
4. Legal Framework and Governance

Inclusive governance

As defined in the FPTF effectiveness criteria, inclusive governance means the proposed solution should allow for input and representation from diverse stakeholders and support the public interest. The RTP business committee charter will state that the business committee will take the public interest into consideration when making decisions with respect to the RTP system, including RTP system rules. Further, as noted above, the RTP rules will include a process that will allow interested parties to submit suggestions and recommendations regarding the RTP operating rules.

The “inclusive governance” category also references conflicts of interest and that a solutions governance approach should address and manage actual, perceived, or potential conflicts of interest. TCH’s LLC agreement and bylaws include provisions that address conflicts of interest by board members and committee members. In addition, TCH has a Statement of Policy Governing Conflicts of Interest that provides further detail regarding the general standards for how board and committee members should conduct their relationships with TCH, prohibited activities, and authorized activities. The statement sets forth procedures for and requires board and committee members to disclose conflicts of interest and business affiliations. The statement further specifies procedures for board or committee members to recuse themselves from decisions or discussions in which they have a conflict of interest or to disclose their conflict to the board or committee or take further action to address the conflict. The statement is distributed to all board and business committee members annually.
1. Ubiquity

### Part C: Self Assessment Against Effectiveness Criteria

This section assesses how the solution meets each of the criteria outlined in the Effectiveness Criteria (considering all use cases supported by the solution). TCH include in its self-assessment any functionality that will be in place at the date of implementation or for which there is a credible plan to implement the enhancement at a future date. We assess our proposal as very effective on 33 of 38 criteria; all others are assessed as effective.

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<th>Effectiveness Criteria</th>
<th>Effectiveness Criteria Self-Assessment</th>
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<tr>
<td>Criteria Name</td>
<td># Consideration Name</td>
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<tr>
<td>Ubiquity U.1</td>
<td>Accessibility</td>
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<tr>
<td>Ubiquity U.2</td>
<td>Usability</td>
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<tr>
<td>Ubiquity U.3</td>
<td>Predictability</td>
<td>☀ ☀ ☀ ☀ ☀</td>
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<tr>
<td>Ubiquity U.4</td>
<td>Contextual data capability</td>
<td>☀ ☀ ☀ ☀ ☀</td>
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<tr>
<td>Ubiquity U.5</td>
<td>Cross-border functionality</td>
<td>☀ ☀ ☀ ☀ ☀</td>
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<tr>
<td>Ubiquity U.6</td>
<td>Applicability to multiple use cases</td>
<td>☀ ☀ ☀ ☀ ☀</td>
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**Justification for U.1 - Accessibility:**
The RTP system will be a ubiquitous, nationwide payment system that is accessible to all financial institutions, including U.S. branches of foreign financial institutions, and all account holders at those institutions, including consumers, businesses and government agencies. In addition, TCH is pursuing a ubiquity strategy that includes active discussions with third-party processors and large financial institutions, regarding their potential role as channels to sell and service TCH real-time payments to banks and credit unions. The RTP system is designed to be globally compatible and have the capability to support multi-currency payments by employing ISO 20022 message formats. TCH is coordinating with international standards groups and payment system operators and other countries to ensure future compatibility.

**Justification for U.2 - Usability:**
The RTP system provides end-users with the ability to send or receive payments, and to receive status information immediately, 24 hours a day, 365 days a year. The RTP system is designed with convenience and ease of use in mind, and will employ a flexible architecture that enables FIs to accommodate the needs of their customers. Customers will be able to pay each other directly from their existing accounts using online or mobile banking. The credit push model, immediate funds availability, and related notifications will provide FI customers with greater certainty regarding their payments. FIs are also expected to enable payments through many end-user channels (e.g., in person at a branch or through an ATM).
1. Ubiquity

Justification for U.3 - Predictability:
TCH has designed the RTP system and operating rules to support independent product development by financial institutions, and also to ensure that the system’s baseline core features, (e.g., real-time funds availability, immediate access to payment status information, data security/privacy standards), are consistent across all FIs regardless of choice of channel. The operating rules will incorporate relevant provisions of commercial law (e.g., UCC 4A). Further, FIs will be expected to comply with applicable consumer protection laws, including requirements regarding fee disclosures and limits on liability for unauthorized transactions. The RTP system will provide for real-time message transmission, including both payment messages and non-payment messages that support value-added services and administration. The operating rules will require Participating FIs to adhere to standard formats and usage rules.

Justification for U.4 - Contextual data capability:
The RTP system enables the real-time exchange of financial and non-financial messages that include contextual data. The messages are designed to carry, among other things, a unique reference ID and payer name, remittance data, references to external data and processes (e.g., a link or URL), and other data that is related to a payment or supports value-added services and administration (e.g., biller reconciliation information). The system also supports the transmission of extensive remittance data through the use of ISO 20022 remittance advice message (remt.001) that can be linked to payment messages. In addition, the solution architecture is designed to be flexible and adaptable to different application interfaces.

Justification for U.5 - Cross-border functionality:
The RTP system is designed with global compatibility in mind and will employ ISO 20022 message formats. TCH plans to link the RTP system with real-time systems in other countries in the future to enable a new, faster, and more cost-effective approach for cross border payments. TCH is coordinating with international standards groups and payment system operators in other countries to ensure interoperability, appropriate transaction security, and the ability to support currency conversion. Note that TCH participates in the ISO 20022 Real-Time Payments Drafting Group, a working group that TCH was instrumental in forming, as well as the Global Real-time / Instant Payments Group, which aims to achieve the interoperability of real-time payment systems in many countries.

Justification for U.6 - Applicability to multiple use cases:
The RTP system addresses a variety of use cases, including business-to-person, person-to-person, person-to-business, and business-to-business payments. Moreover, it is based on a flexible architecture that will allow additional use cases to adapt to changing market needs.
2. Efficiency

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<th>Effectiveness Criteria</th>
<th>Effectiveness Criteria Self-Assessment</th>
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<td>Efficiency E.1</td>
<td>Enables competition</td>
<td>10, 39-42</td>
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<td>Efficiency E.2</td>
<td>Capability to enable value-added services</td>
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<tr>
<td>Efficiency E.3</td>
<td>Implementation timeline</td>
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<tr>
<td>Efficiency E.4</td>
<td>Payment format standards</td>
<td>20</td>
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<tr>
<td>Efficiency E.5</td>
<td>Comprehensiveness</td>
<td>10-29</td>
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<tr>
<td>Efficiency E.6</td>
<td>Scalability and adaptability</td>
<td>11, 21, 38, 41-43</td>
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<tr>
<td>Efficiency E.7</td>
<td>Exceptions and investigations process</td>
<td>12, 16-19, 20, 27</td>
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**Justification for E.1 – Enables competition:**
The RTP system will support competition for value added services through flexible standards, while ensuring the end-to-end process is consistent and reliable for FIs and end users. FIs will determine their own fees and will compete with each other to provide customers with services that utilize the RTP system. Given the absence of TCH-defined overlay services, the RTP system does not enforce a specific end product look and feel, allowing FIs to leverage the flexibility of the message set to develop truly competitive services. Enabling third party service providers to participate in the ecosystem will drive additional competition and innovation in the market place. Further the RTP will be accessible to all U.S. financial institutions, regardless of size or charter type, provided that they satisfy certain requirements, including technical specifications and data security standards.

**Justification for E.2 – Capability to enable value added services:**
The use of ISO 20022 data standards enables building or integrating value-added services for FIs and their customers. Through the use of non-payment messages the RTP system allows for value-added services that can result in the creation or support in applying a payment (see use case examples that refer to non-payment messages on pages 32-33) while ensuring the end-to-end process is consistent and reliable for users.

**Justification for E.3 – Implementation timeline:**
TCH selected VocaLink as a technology vendor to assist in accelerating the TCH implementation of the RTP system. VocaLink is a very experienced technology provider that implemented the Faster Payments scheme in the U.K. Milestones for the implementation of RTP include multiple development and testing targets in 2016, and an early 2017 launch. In addition, TCH is pursuing a comprehensive ubiquity strategy that includes active discussions with third-party processors and large financial institutions, with the goal of serving the vast majority of U.S. financial institutions before 2020.
2. Efficiency

**Justification for E.4 – Payment format standards:**
The RTP system is designed to be globally compatible and will employ ISO 20022 message formats, which is a flexible standard that can be adapted to meet existing and future needs.

**Justification for E.5 - Comprehensiveness:**
The RTP system is designed to support all steps of the payment process, primarily focusing on the clearing, settlement, receipt and reconciliation of payment transactions as outlined by the Faster Payments Task Force. For all other steps in the initiation, authentication, authorization, payer’s provider approval, and reconciliation TCH is working closely with technology providers and FIs to ensure the development of appropriate solutions to meet the demands of the effectiveness criteria. Several major FI technology providers have announced intentions to integrate the necessary functionality to enable FIs to send receive RTP payments. TCH is also developing system operating rules that will apply to FI’s that will, among other things, help to deliver a consistent, reliable, and secure service regardless of delivery channel to the end customer.

**Justification for E.6 – Scalability and adaptability:**
The RTP system is designed to support the projected transaction volumes, values and use cases that TCH has identified and are described in this proposal and will employ a flexible technical architecture to allow the RTP system to adapt to changing market needs and other developments, including those driven by technological, economic, regulatory and customer demands.

**Justification for E.7 – Exceptions and investigations process:**
The RTP system rules will require FIs to take certain steps to prevent payers from making errors, including user interface controls at the time a payment is initiated. In the event that an error occurs, the operating rules will provide for a process (including an interbank messaging component) for a payer to request the return of an erroneous payment. The messaging framework is designed to address exception transactions and the system retains appropriate records to facilitate post-transaction evaluation when necessary. The system also includes a centralized utility that analyses network level data to identify and report patterns indicative of potential fraud.

It should also be noted that due to the extent of automation required for a Real-Time System, the ability for self-service investigations is greatly increased. Due to the fact that both end-users and FIs can discern the status of a payment at anytime, there is less need for the end-customer or FI to reach out to either the FI or Operator respectively to investigate a transaction—the status of the transaction is always known by all participants in the transaction chain.
3. Safety and Security

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<td>Payer authorization</td>
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<td>S.3</td>
<td>Payment finality</td>
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<td>S.4</td>
<td>Settlement approach</td>
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<td>Safety and Security</td>
<td>S.5</td>
<td>Handling disputed payments</td>
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</table>

Justification for S.1 – Risk management:
As an established payment systems operator, TCH has significant resources devoted to risk management, and has developed a robust risk management framework that will apply to the RTP system. This framework will address legal, credit, liquidity, operational and other risks.

Justification for S.2 – Payer authorization:
Every transaction conducted through the RTP system will be directly authorized by a payer to the corresponding FI that holds its account. TCH will not preclude FIs from offering pre-authorized payment services to their customers. Under the system rules, the participating FI will be responsible for verifying that its customer has authorized a payment, and for honoring a customer’s revocation of a pre-authorized payment.
3. Safety and Security

**Justification for S.3 – Payment finality:**
The RTP system operating rules establish the legal basis for payment irrevocability at the time the transaction is submitted to the core infrastructure. Payments will be final at the time the RTP system receives a message indicating the payee’s financial institution has accepted the transaction. The rules also require FIs to approve each payment following payer authorization and, through the use of a pre-funded settlement model to guarantee good funds to support the transaction. In addition, the RTP operating rules include terms regarding responsibility for payment authentication, liability for unauthorized transactions, and an inter-FI messaging process for payers to request the return of a payment sent in error. Participating FIs are expected to comply with applicable consumer protection regulations.

**Justification for S.4 – Settlement approach:**
The RTP system provides for real-time settlement by adjusting settlement account balances as transactions occur. Once the transaction is approved by the payer’s FI, the payment message is then sent to the RTP system for clearing. To effectuate settlement of accepted payments, RTP system will simultaneously credit the pre-funded position of the payee FI and debit the pre-funded position of the payer FI. Settlement is final and irrevocable. The RTP system design eliminates settlement risk by requiring full pre-funding of every transaction. The system verifies and reserves settlement capacity by the payer’s FI before forwarding the payment to the payee’s FI, eliminating the risk of settlement failure. Participants will not be able to execute transactions that would overdraw their settlement accounts. TCH will also apply the risk management framework and tools that it uses in the administration of its other payment systems.

TCH intends to settle in central bank funds. If this facility is not available, it will pursue alternative arrangements with a commercial bank.

**Justification for S.5 – Handling disputed payments:**
The RTP system operating rules include rules regarding responsibility for payment authentication, liability for unauthorized transactions, and an inter-FI messaging process for payers to request the return of a payment sent in error. Further, the messaging framework is designed to address exception transactions (e.g., duplicates, invalid tokens).

In addition, consumers who use the RTP system are protected under existing federal consumer protection requirements, including EFTA/Regulation E, as consumer initiated transfers satisfies the broad definition of an “electronic fund transfer.”

As previously noted, the RTP system operating rules establishes the legal basis for payment irrevocability at the time the transaction is submitted to the RTP core infrastructure. However, the operating rules include a process for payers to request return of payments sent in error.

**Justification for S.6 – Fraud information sharing:**
The RTP system provides a centralized utility that analyzes network level data to identify and report potential fraudulent behavior to payer and payee FIs. In addition, the RTP system rules will require FIs to report fraudulent behavior to TCH and other relevant participating FIs, and to respond to alerts from the centralized activity monitoring utility. TCH will share relevant fraud-related information with regulators pursuant to the customary practices that TCH has developed with members of the regulatory community.

**Justification for S.7 – Security controls:**
The RTP system is designed to meet the high standards for data security and privacy protection that are appropriate for a retail payment market utility. In addition, participating FIs will be required to meet auditable data security standards set by operating rules, including rigorous standards for payer authentication and payment authorization. As an established payment systems operator, TCH has significant resources devoted to risk management, security (e.g., physical, operational, network security) and incident response, and will be applying similar standards and controls to the RTP system. As part of the technical access components and control assessment, TCH is currently being evaluated on: the identity verification, access management, data encryption and data breach among other controls to ensure it meets industry quality standards (e.g., NIST, ISO, ANSI).
3. Safety and Security

**Justification for S.8 – Resiliency:**
TCH has significant resources devoted to system reliability and resilience, as well as overall risk management. This includes a dedicated risk office, and comprehensive business continuity plans that apply to the operation of the RTP system. Some features in place to guarantee end-to-end availability and reliability of the system are:

- The RTP system employs a distributed, multi-site, multi-node architecture to ensure 100% availability.
- Key components of the system run in an “active/active” mode across remote data centers.
- Within each data center, the application components are highly redundant, with each component running on at least two servers. As a result, there is no single point of failure.
- The application is partitioned, so that all message processing and routing is performed separately from non-real-time functions.
- TCH performs annual penetration testing of its internal environment utilizing a 3rd party, ensuring the environment is secure.

In case of events that render one data center inoperable, the system has been architected in a manner that allows the other data center to take over immediately, delivering an uninterrupted service.

**Justification for S.9 – End-user data protection:**
In addition to applicable privacy laws and related regulatory expectations, FIs are required to satisfy minimum security standards to participate in the RTP system. In addition, once implemented, transaction information may be tokenized enabling access to account and routing information only for the purpose of ensuring proper transaction routing.

**Justification for S.10 – End-user/provider authentication:**
Only Participating FIs will be able to access the RTP system and to submit and receive messages (including payment messages). As noted previously, participating FIs will be required to meet data security standards by operating rule, including rigorous standards for payer authentication and payment authorization. FIs will be responsible for unauthorized transactions from a customer’s account, which will create further incentives for FIs to make appropriate security investments.

FIs that send payments will be required to have, at a minimum, a two factor authentication process that is consistent with FFIEC guidance. FIs may adopt different methodologies for authentication for particular channels provided that a chosen methodology is consistent with the standards established by operating rules. Some methodologies are presented in, “Authentication” section 2 of this proposal. TCH intends to update the standards for customer authentication/verification of payment authorization on an ongoing basis to address evolving risks.

**Justification for S.11 – Participation requirements:**
The RTP rules will impose minimum requirements for risk control associated with the specific RTP system-related activities that a financial institution is offering (e.g., the capability to receive payments, the capability to send and receive payments, the capability to originate “requests for payment”, etc.); these requirements will be additive in nature for each increasing level of potential risk. FIs that support nonbank payment services will be subject to additional risk-based requirements. In addition TCH will require nonbank payment service providers (that may access the system through an account with a participating FI) to (i) apply to participate in the RTP system, (ii) enter into an agreement with TCH to abide by RTP system requirements for third parties, (iii) certify that the third party meets certain prudential and risk management requirements, and (iv) comply with certain consumer protection laws and regulations as if the third party was a FI.
4. Speed (Fast)

<table>
<thead>
<tr>
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<th>Effectiveness Criteria Self-Assessment</th>
<th>Reference</th>
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<tr>
<td>Criteria Name</td>
<td>#</td>
<td>Consideration Name</td>
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<tr>
<td>Speed (Fast)</td>
<td>F.1</td>
<td>Fast approval</td>
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<td>Speed (Fast)</td>
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<td>Speed (Fast)</td>
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<td>Speed (Fast)</td>
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<td>Fast settlement among depository institutions and regulated non-bank account providers</td>
</tr>
<tr>
<td>Speed (Fast)</td>
<td>F.5</td>
<td>Prompt visibility of payment status</td>
</tr>
</tbody>
</table>

**Justification for F.1 – Fast approval:**
Once a payer initiates a payment, FIs will be required to approve (i.e., assure good funds) immediately (target time of 2 seconds or less).

**Justification for F.2 – Fast clearing:**
The FI that receives a payment will be required to respond with a payment status message (accept without posting) immediately (target time of 2 seconds or less). Payments can be rejected for risk management, inability to post or legal compliance. Payments can be accepted without posting by the payee FI for review for a reasonable time only when necessary for risk management and legal compliance purposes (which is expected to be a small percentage of payments in the ordinary course of business), and after review the payment must be accepted or rejected.

**Justification for F.3 – Fast availability of good funds to the payee:**
FIs will be required to make funds available immediately (in seconds) for any accepted payment and to provide immediate notification of receipt to payers and payees (or provide a channel for payers and payees to inquire about payment status and receive an immediate response).

**Justification for F.4 – Fast settlement among depository institutions and regulated non-bank account providers:**
Settlement will be affected in real-time. See justification to criterion S.4 above.

**Justification for F.5 – Prompt visibility of payment status:**
The system operating rules will require FIs to provide detailed information about payment status and funds availability. This will include requiring an immediate (target time of 5 seconds or less) notification of payment to payers and payees, or a channel for payers and payees to inquire about payment status and receive an immediate response. FIs will integrate accurate real-time payment status inquiry, notification, and feedback into online and mobile banking services.
5. Legal Framework

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<th>Effectiveness Criteria</th>
<th>Effectiveness Criteria Self-Assessment</th>
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</table>

**Justification for L.1 – Legal framework:**
TCH is developing comprehensive operating system rules and participant agreements that will establish the rights and obligations of participants in the RTP system and will incorporate existing law where applicable. As an established payment system operator, TCH is well-positioned to draft and implement these system rules. Further, existing laws and regulations will apply to FIs and end-users.

**Justification for L.2 – Payment system rules:**
As noted in response to L.1, TCH is developing comprehensive operating system rules and participant agreements that will establish the rights and obligations of participants in the RTP system, including with respect to responsibility for payment authentication/customer verification, messaging, acceptance/rejection, funds availability, notifications to payers and payees, data security, liability for unauthorized transactions, payment irrevocability and finality, and settlement. The rules will also provide for an inter-FI messaging process for payers to request the return of a payment sent in error.

TCH is developing a governance approach that will include a process for updates and amendments to the operating rules.

The RTP operating system rules will support independent product development by financial institutions while ensuring that baseline features are consistent across all FIs. This approach will enable FIs with the flexibility to develop products and services to accommodate their customers, which may include variations on services provided to consumers and non-consumer entities.

Direct participation in the TCH RTP system will be limited to highly regulated depository financial institutions that are subject to detailed recordkeeping requirements as well as compliance and regulatory reviews. As previously noted, TCH will require nonbank payment service providers (that may access the system through an account with a participating FI) to (i) apply to participate in the RTP system, (ii) enter into an agreement with TCH to abide by RTP system requirements for third parties, (iii) certify that the third party meets certain prudential and risk management requirements, and (iv) comply with certain consumer protection laws and regulations as if the third party was a FI.

**Justification for L.3 – Consumer protection:**
See responses to L.1 and L.2 above.
Justification for G.1 – Effective governance:
As previously noted, The Clearing House has established governance arrangements for the RTP system that are designed to ensure its success through arrangements that, among other things, provide for clear lines of responsibility and provide for oversight by The Clearing House’s member financial institutions, which supplied the capital that is being used to build the RTP system and are expected to be among the largest users of the system. As such, these FIs have a paramount interest in ensuring the system’s success, including achieving ubiquitous, safe, faster payments that improve the overall efficiency of the U.S. payment system. The Clearing House’s governance arrangements are further enhanced through public disclosure of the system’s governance and, as is more fully discussed below, by a process for public input into system rules and by provisions for appropriate due process regarding RTP rules decisions. The Clearing House’s governance arrangements will also allow for independent validation through independent audits and examination and supervision by federal financial institution regulators. It is anticipated that the TCH RTP system will be subject to examination and supervision by federal financial institution regulators and will cover a variety of issues including technology and operations, governance, strategic execution and other issues.

Justification for G.2 – Inclusive governance:
TCH is developing a governance approach that will address the “inclusive governance” criteria established by the Faster Payments Task Force. In particular, as previously referenced, The Clearing House will establish an RTP business committee that will take the public interest into consideration when making decisions with respect to the RTP system, including RTP system rules. Further, the RTP rules will include a process that will allow interested parties to submit suggestions and recommendations regarding the RTP operating rules. In addition, The Clearing House has in place effective policies to address and manage actual, perceived, or potential conflicts of interest.
Proposed features, functionality, implementation details, requirements and timetables are in development and subject to change at any time.
Real-Time Payments Playbooks

Real Time Payments (RTP) provide consumers and businesses with the ability to immediately send and receive funds directly from their accounts at financial institutions anytime 24/7/365. RTP represents a new phase of evolution within the United States (U.S.) payments industry, with several key features that differentiate them from current payment methods, specifically speed, value-added messaging capabilities, and immediate availability of transaction status. RTP will provide FI’s with the functionality and features to innovate for the future.

Outside the U.S., many countries are developing “faster payments” systems to expedite the movement of money and increase the speed that transferred funds are made available to recipients. Within the U.S., The Clearing House (TCH) is leading a multi-year effort to build a real-time payments system (RTP) that addresses the needs for safer and faster payments in an increasingly digital economy.

Your institution has expressed interest in finding out more about the RTP system and what it would take to implement. TCH has developed three targeted playbooks highlighting considerations for business, operations and technology audiences. As each FI is different, these playbooks should be considered guidelines rather than rules to give your organization the information and insight it needs to get started. In addition, contact information for TCH experts can be found in the Contact Us section on page 47.

The Business Playbook provides a basic understanding of the real-time payments system and the potential for using it as a platform to develop new services. This playbook includes consideration of the involvement of various business units and specific items to consider as you develop your ideas and plans.

The Operations Playbook outlines the processes and procedures that may be needed across various operational areas within your organization as you implement the RTP system.

The Technology Playbook contains a technical overview of the RTP system for participating FIs in order for them to develop high-level estimates for interfacing to the RTP system.

The Clearing House owns and operates payments technology infrastructure, which clears nearly $2 trillion each day for financial institutions in the U.S. and around the world. Its business is developing and operating industry utilities focused on safer and faster payments.
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**Business Playbook 01**

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01: What is the RTP Playbook?

RTP Playbook purpose and objectives

The purpose of the RTP Playbook is to provide a clear and consistent description of RTPs from an FI’s perspective and to outline a tactical approach for implementing RTP. The Playbook offers information to support communications with its internal and external stakeholders (e.g., vendors and regulators) as an FI moves forward with its RTP effort. It can also be used to create awareness by providing a clear understanding of what RTP is, identifying key benefits, and providing a framework highlighting key actionable items organizations should consider as they begin planning and execution of their RTP solution.

The following pages include key tasks and decision points, along with practical tools and tips for RTP planning and implementation. It provides guidance and recommended practices in the form of checklists, reminders, and useful exercises to assist your organization in delivering RTP.
RTP Business Playbook target audience

The RTP Business Playbook is intended for FI business decision makers and partners who want to gain a better understanding of the business implications of implementing RTP. The following roles have been identified as being highly impacted by RTP. However, it is important to note that the impact may reach beyond the roles listed here as each FI is unique.

**Program Sponsor/Business Strategist**

The program sponsor authorizes the project and is ultimately responsible to the business for the success of the project. This person owns the business case for the engagement and helps to remove roadblocks to successful execution.

**Product Manager**

The product manager champions the product(s) and manages the brand. This person is responsible for the planning, forecasting, marketing, adoption and management of RTP through the product life cycle. Product managers also liaise with the various departments that touch the product.

**Line of Business Lead**

The line of business (LOB) lead is responsible for managing the portfolio of products for their particular customer segment and the profit and loss within that segment. This person is responsible for leveraging RTP solutions to add value for their customers.

**Change Management Lead**

The change management lead is responsible for strategizing and overseeing the change process across the organization, including governance, communications and training. This person provides company leaders with the tools they need to implement change.

**Project Manager**

The project manager is responsible for planning and executing the day-to-day activities of the project. This person is also responsible for ensuring the project is running on time and within budget.

**Business Analyst**

The business analyst investigates goals and issues related to the project, analyzes the data, determines the most appropriate solutions, and facilitates development of functional requirements.

**Legal and Compliance Officer**

The legal and compliance officer is responsible for understanding the rules and regulations applicable to the banking and financial industry and developing and implementing appropriate compliance programs and processes.
How to use this document

Throughout the Playbook, icons will appear that represent important notes, tips, or resources that you can reference to help navigate the process of implementing RTP. There are specific callouts to focus attention on key decision points, action items, and checklists that FIs should consider.

**IMPORTANT** The “Important” icon marks the information or action item that is of utmost importance for a successful implementation. You should pay special attention to this information and ensure that these items are tracked to closure.

**TIPS / FACT CHECK** The “Tip / Fact Check” icon indicates helpful information about the industry. You may discover a leading practice in the field or an innovative way to implement your solution to save time or money.

**CHECKLIST** The “Checklist” icon highlights a list of recommended considerations for approaching a specific RTP concept or task. For example, these lists may be used as a starting point for project managers when creating a plan to complete a specific RTP-related task identified in the Playbook.

**RESOURCES** The “Resources” icon marks the section offering links to additional resources on a topic. Resources may include embedded file attachments, external sites, files, white papers, or press releases.

**DECISION POINT** The “Decision Point” icon highlights a step where your FI will need to make a decision regarding the implementation of RTP.

**STAKEHOLDERS** The icons displayed in the “Stakeholders” callout box indicate groups that may have an interest in RTP within your organization. Highlighted icons represent areas that should be involved in the discussion of the topic while grayed icons represent groups that may have less of an interest in that topic.
02: Overview of Real-Time Payments

What are RTPs?

Real-time payments provide consumers and businesses with the ability to conveniently send and receive immediate fund transfers directly from their accounts at FIs, anytime 24/7/365. RTP represents a new phase of evolution within the U.S. payments industry and provides a platform for product innovation. Financial institutions can leverage a variety of features—enhanced speed, security, and messaging capabilities—to create unique offerings for their retail and corporate customers.

Real-Time Payment Characteristics

01  24/7/365 – The RTP system will operate on a 24/7/365 model, which means the system will be available for customers to send or receive payments at any time.

02  Immediate Availability – Recipients will receive the payment within seconds of the Sender initiating the transaction; the Receiving FI is required to make funds available immediately, except where necessary for risk management or legal compliance purposes.

03  Payment Certainty – Senders will not be able to revoke or recall a payment once it has been authorized and submitted to the RTP system. However, there will be a process to facilitate FI-to-FI communication around return of funds sent in error.

04  Ubiquity – The RTP system will be accessible by all financial institutions, regardless of size or charter type, and will reach the vast majority of U.S. account holders.

05  Extensibility – Rich, flexible messaging functionality will be included to support value-added products. For example, the RTP system provides messaging capability enabling a request for payment directly via RTP.

06  Account Data Privacy – The system can support tokens to encrypt Receiver account information as it is transmitted through the RTP system.

07  Convenience – Users of the RTP system will be able to initiate payments from their existing accounts.

08  Cash Flow Control – The ability to send and receive payments immediately will give customers more control over cash flow, which is particularly important for cash-constrained small businesses and consumers.

09  Adaptability – The RTP system will have flexible architecture to adapt to changing market needs.

10  Global Standards – The RTP system will remain consistent with international global compatibility to the extent it is compatible with domestic U.S. requirements.
# Overview of Real-Time Payments

## How are RTPs different?

### CURRENT PAYMENT METHODS

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<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DELAYED AVAILABILITY</strong></td>
<td>Due to unpredictable clearing times, the sender does not know for 1-3 days whether the transfer was successful and that funds are available to the receiver for use.</td>
</tr>
<tr>
<td><strong>PAYMENT REVERSAL</strong></td>
<td>Payments may be reversed under certain circumstances and within a predefined period of time.</td>
</tr>
<tr>
<td><strong>CREDIT PUSH AND DEBIT PULL</strong></td>
<td>ACH supports credit push as well as debit pull transactions.</td>
</tr>
<tr>
<td><strong>LIMITED MESSAGING OPTIONS</strong></td>
<td>Remittance information must be included within the payment message itself.</td>
</tr>
<tr>
<td><strong>DELAYED FRAUD DETECTION</strong></td>
<td>The time between the sending and actual posting of a payment allows for a window during which fraud analysis may be conducted.</td>
</tr>
</tbody>
</table>

### REAL-TIME PAYMENTS

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Immediate Availability and Notification</strong></td>
<td>With TCH’s RTP system, receivers have immediate funds availability. Related status notifications are sent to senders (that a transfer was successful) and recipients (that funds are available).</td>
</tr>
<tr>
<td><strong>Payment Certainty</strong></td>
<td>Payments cannot be revoked or recalled once authorized by a sender and submitted to the RTP system.</td>
</tr>
<tr>
<td><strong>Credit Push Only</strong></td>
<td>TCH’s RTP solution will only support Credit push transactions. The payee may send a Request for Payment message but will not be able to pull funds directly from the payer’s account.</td>
</tr>
<tr>
<td><strong>Flexible Messaging Options</strong></td>
<td>TCH’s RTP solution will provide flexible, robust messaging components with multiple options for enclosing remittance information. Options include using the payment message, sending a non-payment message, or referencing an external remittance source.</td>
</tr>
<tr>
<td><strong>24/7 Fraud Detection</strong></td>
<td>Fraud detection and controls will need to be enhanced and automated to correspond with the ability to move funds nearly instantaneously. Platform level Anti-fraud detection/alerts will also be available.</td>
</tr>
</tbody>
</table>
Who can use RTP?

RTPs are intended to be used for transactions between any entity whether business, consumer, or government.

**Business to Business (B2B)**

- A small business paying an urgent invoice in order to receive goods or services
- A restaurateur who pays for farm-fresh produce from the local farmer to serve that evening’s dinner specials

**Business to Consumer (B2C)**

- A utility company requesting payment for services from a business or consumer
- A small businessman who is paying temporary employee salaries or tips on an ad hoc basis
- A retail bank distributing personal loan proceeds to a dealership on behalf of a customer who is at the showroom buying a new car
- A large corporation paying employees for travel expenses in time for payment of corporate credit cards
- An insurance company adjustor reviewing a claim, determining a settlement amount, and immediately providing funds to the policy holder

**Person to Person (P2P)**

- College roommates splitting monthly rent and utility payments
- A head of household sending emergency funds to a family member on vacation

**Consumer to Business (C2B)**

- A busy working individual paying for general services around the house such as the gardener, cleaning services, or child care provider
- A day trader sending real-time money transfers to his or her investment account to take advantage of the most recent market swing

**Government to Consumer / Consumer to Government (G2C/C2G)**

- A government agency paying out emergency disaster relief funds to citizens impacted by a natural disaster
- A tax payer making his or her tax payment in time for the April 15 deadline
Defining the RTP Ecosystem

1. **The Clearing House** hosts the RTP core infrastructure for the U.S. that provides:
   - *Payment processing and settlement services* – The RTP system will clear and settle payments and transmit value-added, payment-related messages to and from FIs.
   - *Anti-fraud* – The RTP system will centrally monitor for network-level fraudulent activity and provide fraud alerts to FIs. This capability will augment and support the FIs own automated real-time fraud detection capabilities with respect to transactions they send to and receive from the RTP system.

2. **Financial Institutions of all sizes** will have the ability to directly connect to the RTP core infrastructure to provide real-time payments capability and value-added services to their customers and clients. FIs may also connect through third-party service providers.

3. **Third-Party Service Providers** (for example: FIS, Jack Henry and D+H) will provide connectivity to RTP providing access to FIs that may not want to connect directly to the RTP system. They will also integrate RTP into their existing and new payments products for the benefit of these FIs’ account holders.

4. **Banks*, Bankers’ Banks, Community Banks and Corporate Credit Unions**, will provide connections to RTP as well as funding services for their FI customers that may not want to connect directly to the RTP system or provide their own funding.
   * Note: Although banks and credit unions may provide connectivity and funding services to other FIs, no correspondent payments will be permitted through the RTP system.

5. **Note**: There should be no difference in the user experience for customers of direct FIs and those connecting through a TPSP.

Illustrative RTP ecosystem
Drivers of RTP

Customer demand

In today’s world of sophisticated computing devices, information is moving in real-time. With high-speed data networks, and nearly universal presence of smartphones and wearables, customers expect everything – including payments – to keep up with their pace of life.

- **Increased speed**: Over the past decade, immediate delivery of electronic content and near real-time delivery of physical goods has become the norm. This along with faster, omnipresent technology, has increased the expectation for faster payment solutions.
- **More convenient**: Customers are moving away from cash and checks in favor of the convenience associated with newer banking channels, like online and mobile. Growth rates of non-cash transactions in mature markets (North America, Europe, mature Asia-Pacific) have accelerated in the past few years, accounting for almost three quarters of the payments market.¹
- **Increased transparency**: A faster pace of life means making sure payment information is transparent and readily available. Customers are looking for robust, real-time payment information, including payment status and immediate confirmation of funds availability.
- **Enhanced safety and soundness**: Despite an increase in data transparency, customers still expect their information to be kept secure and private. As data breaches have become nearly commonplace events, the demand from consumers for information privacy and security has continued to increase. FIs must work harder to implement the best and most secure systems to protect customer account data.
- **Greater value**: Banks and non-bank payment service providers are creating value-added services such as automated matching of purchase orders to invoices for businesses or geo-location based in-store promotions for consumers. These value-added services can span the entire purchasing experience beyond the payment itself. They enrich the basic payment data with a wider set of information to create added value.

The RTP system addresses consumer demands in the digital age – providing a way for consumers to make immediate payments to merchants and vendors in a safe and convenient manner.

![Customer Adoption of New Payment Mechanisms](image)

Drivers of RTP

Global competition

While TCH’s RTP System is a new capability for U.S.-based FIs, at least 12 countries have implemented 24/7 retail RTP systems supporting immediate low-value account-to-account transfers,¹ and work is well underway in Australia, Europe, and the United States. The European Retail Payments Board has agreed on “the need for at least one pan-European instant payment solution.”² In the United States, the Federal Reserve Board has called for the implementation of “a safe, ubiquitous, faster payments capability”³ and The Clearing House has announced that it will create a national RTP system.

The diagram below illustrates the global span of 24/7 retail RTP systems to date. There is a clear trend towards more and more countries either having the ability to conduct faster payment transactions or starting the process of developing a system that allows them to do so.

Countries with 24/7 retail RTP systems that are live or in development

![Map of Countries with 24/7 Retail RTP Systems](image)

Current 24/7 Retail RTP Systems

Systems in Development / Public Consultation

5. Denmark – Nets (2014)
10. India – IMPS (2010)
11. South Korea – HOFINET (2001)
14. United States – TBD
15. Colombia – TBD
16. EU – TBD
17. Thailand – TBD

¹KPMG Investigation
²Statement following the second meeting of the Euro Retail Payments Board European Central Bank European Retail Payments Board; December 1, 2014.
³Strategies for Improving the U.S. Payment System. United States Federal Reserve System; January 2015. p. 56
Drivers of RTP

Regulatory influence

Gaps in the current U.S.-based payments system around speed and price have not only impacted customer satisfaction, but they have also been identified as concerns by the Consumer Financial Protection Bureau (CFPB). The CFPB has raised several concerns with the existing payments systems and sees opportunity for RTP as a potential for FIs to more effectively serve consumers. As such, the CFPB is urging the financial services industry to make RTP an urgent priority to help mitigate many of the issues currently facing consumers.

<table>
<thead>
<tr>
<th>Identified consumer risks with current payment system</th>
<th>RTP mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unauthorized debits from consumer accounts via ACH leading to unexpected fees to the customer and a significant effort for customers to stop payments and revoke orders</td>
<td>Push transactions only; no auto-debit of customer accounts</td>
</tr>
<tr>
<td>Lack of transparency, particularly as it relates to funds availability, causing confusion for customers and often significant overdraft charges</td>
<td>Real-time funds availability with payment certainty and extensive set of payment and non-payment related messages</td>
</tr>
<tr>
<td>Need for expedited payments and expedited funds access for individuals with immediate needs or emergency situations leaving them to rely on high-cost money order services to expedite funds transfer</td>
<td>Real-time payment delivery for consumer, business, and other payment transactions available 24/7/365</td>
</tr>
</tbody>
</table>

Evolving payment technology capabilities

Evolving non-FI technology players are taking advantage of the existing gaps identified in the payments industry and are quickly FIs will need to offer their customers an RTP capability that provides speed, convenience, and transparency as well as the level of safety and security they expect from a traditional payments network.

Though not exhaustive, the following list represents the primary groupings of evolving technology players.

- **Closed loop cards and mobile apps**: Many non-bank companies have built closed loop card networks to promote loyalty programs and provide a convenient way for customers to pay for goods. The most successful example has been Starbucks’ mobile app, which has seen a 75 percent growth in its mobile app transactions from 2013 (4 million transactions per week) to 2015 (7 million transactions per week).1,2
- **Digital wallets (non-banks)**: Digital wallets are beginning to gain traction among consumers as they provide an easy and flexible method to transfer money. PayPal’s digital wallet continues to increase in mobile payment transactions, growing 40 percent year-over-year.3 The industry anticipates mobile wallet usage to reach 200 million transactions by the end of 2016.4
- **Mobile money (non-banks)**: Mobile money allows consumers to access financial services, such as money transfer or bank account access, via use of the mobile phone. In 2014 alone, mobile money services in the U.S. such as Square Cash and Venmo handled $5.2 billion in P2P payments.5

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3PayPal begins piloting NFC and records 40% growth in mobile payments. NFC World; April 27, 2015.
5Mobile Payments to Explode by 2019. PYMTS.com; November 18, 2014.
Four myths about RTP

**MYTH ONE** RTP is only for P2P

**TRUTH**
- The RTP system is designed to address unmet customer needs across all customer segments (i.e., B2B, B2C, C2B, P2P, G2C, etc.).
- Consumers, businesses, and government can use RTP.
- For example RTP scenarios, refer to page 9.

**MYTH TWO** RTP will only be available to TCH member banks

**TRUTH**
- Any participating FI, irrespective of their size or charter type, will have the ability to transmit payments through the RTP system.
- FIs will have the flexibility to choose their level of participation (i.e., Receive Only, Send, Allow Request for Payment, etc.) within the RTP system.
- Technology players and third-party payment providers will have a role in the environment to provide or facilitate connectivity where necessary.
- Refer to Real-Time Payments Ecosystem on page 10.

**MYTH THREE** RTP is the same as Same Day ACH

**TRUTH**
- **Value-Added Messaging** – RTP will have the ability to enable new products and services through the use of its extensive and multifaceted messaging capabilities.
- **Availability of Funds** – The RTP system will make funds available in real-time – 24/7/365.
- **Transparency** – The RTP system will provide status updates of payment and non-payment messages in real-time.
RTP checklist

A checklist of high-level key activities which should be considered as you start your implementation of RTP is included below.

High-Level FI checklist of key activities for implementing RTP

- Perform a Current-State Assessment of products, channels, processes, technologies, existing gaps, and required capabilities
- Conduct product ideation to develop new product ideas
- Determine functional areas that will be impacted by a real-time product offering (i.e. Lines of Business, Product and Services, Information Technology, Operations, Risk Management, Regulatory Compliance, Treasury, etc.)
- Perform risk analysis including AML, OFAC, and other regulatory compliance risk reviews
- Develop preliminary RTP business case
- Perform technology design and development including architectural design and connectivity to core system
- Develop Target Operating Model (channels, payment processing, real-time acknowledgements, risk and compliance, accounting, release to clearing, reporting, gap assessment versus current state, multi-generational plan)
- Develop final RTP business case
- Initiate an RTP Program that establishes a governance process including stakeholder management, management routines, and resourcing
- Develop RTP business and functional requirements
- System / IT Development
- Develop communication and training plans for internal and external users of RTP
- Perform Technology Testing of RTP system
- Perform integration testing with RTP system
- Deploy RTP technology solutions(s)
- Execute product launch
03: How do Real-Time Payments Work?

Sample P2P RTP Scenario

Real-time payments are executed through a sequence of payment messages. It starts with a customer sending a payment instruction via a channel made available by their FI. The FI ensures funds availability, conducts required screening, and securely sends the payment instruction message to the TCH RTP core infrastructure. The TCH RTP core infrastructure validates the transaction and routes it to the receiving FI. The receiving FI acknowledges the message and posts the transaction to the receiving customer’s account. This provides immediate availability of funds to the recipient. The TCH RTP core infrastructure provides an acknowledgment message to the receiving bank, manages the multi-lateral net settlement positions (clearing) between banks, and periodically settles positions based on predefined settlement windows.

**Use case scenario:** The flow of information and funds for an RTP transaction can be demonstrated in a simple person-to-person (P2P) transaction. In our scenario, John wants to pay his roommate, Mike, for his half of the current month’s rent. Mike has a bank account at a different bank than John.

1. John’s bank carries out its normal authentication process to verify John as the account owner. John instructs his bank through Online Banking to pay Mike immediately. He includes Mike’s routing and tokenized account number to address the payment. He may also add additional reference information so that Mike knows what the payment is for.

2. Before John’s bank allows the payment to be made, it will check that his account has sufficient funds and validate the payment request. Under certain cases, the bank may need to hold the payment to perform more extensive fraud protection checks.

3. John’s bank submits the transaction to the RTP core infrastructure. At this point, John can no longer cancel the transaction.

4. The RTP core infrastructure validates the transaction details and updates the multi-lateral net settlement position (MNSP) for the debtor and creditor institutions in the amount of the transaction before sending the payment instruction to Mike’s bank.

5a. Once Mike’s bank has received the transaction, it checks that the account number is valid and then sends a message back to the RTP core infrastructure that it has accepted (or rejected) the payment.

5b. Mike’s bank simultaneously credits his account with the value of the transaction sent by John.

6. The RTP core infrastructure sends a message to John’s bank to let them know that the transaction was successful (or rejected).

7. John’s bank marks the transaction as complete.

8. John’s bank confirms the status of the payment to John. Each sending bank will decide how their customers will be notified of transaction status. In all cases, once a payment has been made, a confirmation message will be sent between banks.

**Note:** Since Mike’s bank has opted to receive RTPs, he should be able to see the credit on his account within seconds and be able to access the funds.
Sample B2B RTP Scenario

Immediate payment systems are particularly well-suited to provide value beyond the inherent benefit of fast money movement. A fundamental feature of real-time payments is real-time communication among senders, receivers, and their FIs.

**Use case scenario:** A single business-to-business (B2B) transaction between a restaurant and its supplier illustrates the value of extensive immediate messaging. In this scenario, a restaurant orders produce for immediate delivery from a supplier that does not extend trade credit. The restaurant needs the produce for tonight’s dinner service and the supplier needs to be paid before shipping the goods. Using the immediate messaging capabilities of a fully-featured RTP system, the supplier can request and receive payment nearly instantly.

1. The supplier reviews an order received from a restaurant and sends a “Request for Payment” (RFP) through their bank. The supplier’s bank sends the RFP message to the RTP core infrastructure. Sending the request through a secure, trusted channel reduces fraud risk associated with an e-mail invoice.
2. The RTP core infrastructure validates the request and routes it to the restaurant’s bank, which then notifies the restaurant.
3. The restaurant receives the RFP that contains a “Pay Now” button. Upon selecting the “Pay Now” button, a pre-populated payment message that includes all pertinent payment data (e.g., remittance information, payment amount, etc.) is presented to the restaurant so they can make the payment to their supplier quickly and easily.
4. The restaurant’s bank submits the transaction to the RTP core infrastructure that validates the transaction details and updates the multilateral net settlement position (MNSP) for the transaction for the debtor and creditor institutions in the amount of the transaction. The payment message is then sent to the supplier’s bank that then confirms the account number is valid and accepts the payment.
5a. The supplier’s bank notifies the supplier of payment. The supplier sends acknowledgement of payment receipt to the restaurant, confirming the produce is on the way.
5b. The supplier loads produce for delivery to the restaurant, confident that payment has been made.
6. The supplier’s bank sends a message to the RTP core infrastructure with acceptance of the payment and receipt acknowledgement from the supplier.
7. The restaurant’s bank notifies the restaurant, confirming that the produce is on the way through a reliable, trusted channel, assuring the restaurant that diners will enjoy dishes made with fresh ingredients that evening.

**Note:** The exchange of information between buyer and seller goes beyond the remittance detail that typically accompanies B2B electronic payments. Remittance data is essential and allows the supplier to apply payment to the correct invoice, account for any differences, and reconcile those differences. In this immediate payment example, the payment request, notification message, and confirmation message all provide additional value for a time-sensitive transaction.
Sample B2C RTP Scenario

A business-to-consumer (B2C) transaction demonstrates that RTP offers value beyond P2P transactions. One example is the case of an insurance claims adjuster now having the ability to meet with a customer shortly after an accident or claim, assess value of damages, and provide funds immediately, thereby relieving the customer of worry in an already stressful situation.

**Use case scenario:** In this business-to-consumer (B2C) transaction, David has damages to his car from an accident. He calls his insurance company, which sends its local adjustor, Tom, to meet with David and view the damages. Tom inspects the claim, determines the appropriate settlement amount, and approves it remotely. Tom’s insurance company immediately sends David the settlement amount.

1. Tom instructs the insurance company’s bank to pay David the approved settlement amount. In addition to David’s routing and tokenized account number used to address the payment, the payment instruction also includes claim information that both the insurance company and David can access. (Extensive claim information could be included in a remittance advice message or through a reference to an external source).

2. The insurance company’s bank uses appropriate customer authentication and payment verification processes to verify Tom has authority to initiate payments from this account. They will also ensure that “good funds” are available.

3. The insurance company’s bank submits the transaction to the RTP core infrastructure.

4. The RTP core infrastructure validates the transaction details and the payment instruction and updates the multilateral net settlement position (MNSP). Associated claim information is then sent to David’s bank.

5a. Once David’s bank has received the transaction, it checks that the account number is valid and then sends a message back to the RTP core infrastructure that it has accepted (or rejected) the payment.

5b. If the payment is accepted, David’s bank simultaneously credits his account with the claim amount sent by the insurance company so he can have immediate access to the funds.

6. The RTP core infrastructure sends a message to the insurance company’s bank to let them know that the transaction has been made successfully. The insurance company’s bank marks the transaction as complete.

7. The insurance company’s bank confirms the status of the payment and provides transaction details to the insurance company. Each sending bank will decide how their customers will be notified of transaction status. In all cases, once the payment has been made, a confirmation message will always be sent between banks.

**Note:** The exchange of information between buyer and seller goes beyond the remittance detail that typically accompanies B2C electronic payments. Remittance data is essential and allows the supplier to apply payment to the correct invoice, account for any differences, and reconcile those differences. In this immediate payment example, the payment request, notification message, and confirmation message all provide additional value for a time-sensitive transaction.
Sample C2B RTP Scenario

A consumer-to-business (C2B) transaction demonstrates that RTP offers many features beyond traditional money movement. One example is a small business that wants to send electronic invoices to its customers, along with the ability for customers to view and respond immediately with payment. The small business wants to have the payment and remittance data instantly downloaded to its accounting software program to avoid manually entering payment remittances, which can take time and introduce errors.

Use case scenario: Steve, an Acme customer, is presented with a link from his bank’s RTP system that displays the bill. An option to immediately pay all or a portion of the invoice is made available. Once Steve is ready to pay, his bank sends the payment directly to Acme’s checking account while the remittance information is sent directly to Acme’s accounting system via Acme’s Bank’s QuickBooks interface, where it is immediately posted. Acme confirms receipt of the payment to Steve via RTP.

1. Acme Plumbing creates an invoice in their QuickBooks accounting system to be presented to Steve, their customer, for payment. QuickBooks creates a file containing a link to the invoice, (including remittance info) and a Request for Payment for its customers. The Request for Payment is sent to Steve’s bank for distribution through the RTP system.
2. Acme’s bank uses appropriate customer authentication and payment verification processes to verify Acme’s Accounting personnel has authority to make payment requests.
3. Acme’s bank submits the Request for Payment messages to the RTP core infrastructure.
4. The RTP core infrastructure validates the payment request and remittance details and forwards them to Steve’s bank for distribution to the customer.
5a. Once Steve’s bank has received the payment request, it validates that he is eligible to receive RFPs. Steve’s bank then posts the message to his online or mobile banking application.
5b. Steve is presented with a RFP that has a “Pay Now” button. Upon selecting the “Pay Now” button, Steve is presented with a pre-populated payment message including all pertinent data (i.e., remittance information, payment amount, etc.).
6. Once the payment is authorized and submitted, Steve’s bank forwards the payment and remittance message to Acme’s bank via RTP.
7. Acme’s bank informs Acme Plumbing that the customer’s payment, and related remittance data, has been received and funds are available in Acme’s account.
8. Acme Plumbing receives remittance information into their QuickBooks accounting system via their bank’s interface, avoiding manual entry of payment remittances, which can take time and introduce errors.
9. ACME sends confirmation that payment has been posted to Steve via RTP.

Note: The exchange of information between buyer and seller goes beyond the remittance detail that typically accompanies C2B electronic payments. Remittance data is essential and allows the supplier to apply payment to the correct invoice, account for any differences, and reconcile those differences. In this immediate payment example, the payment request, notification message, and confirmation message all provide additional value for a time-sensitive transaction.
04: Business Case Considerations

In 2014, The Clearing House launched its Future Payments Initiative to develop a strategic view of RTP based on an extensive study of payment needs in an increasingly digital economy. Through this review, TCH assessed several aspects surrounding RTP:

- TCH worked closely with industry associations including the Federal Reserve, NACHA, ABA, ICBA, NAFCU, CUNA and TCH banks to identify consumer and business cases with the greatest need for RTP that represent the best incremental value for customers.
- The Future Payments initiative considered the experience and lessons learned of other countries who had already established their own real-time payments system.
- TCH also reviewed ways in which a potential RTP system for the U.S. could maintain and improve the safety and soundness of existing payment systems.

Based on the findings, TCH announced a multiyear initiative to build a ubiquitous RTP system for the U.S. As FIs consider participating in RTP, they will likely need to create a business case for their organization that is specific to their unique payment offerings. Additional detail regarding considerations for the business case can be found in the following sections.

**Business Case Considerations for RTP**

- **New Product Ideation**
  Consider opportunities for new products and markets created by faster payments to deliver innovative products that transform the industry and drive adoption of RTP.

- **Impacted Products and Service Offerings**
  Assess customer needs alongside existing product and service offerings to determine the foundation for your organization’s RTP strategy.

- **Competitive Opportunities**
  Understand competitive opportunities across use cases. Develop your own value-added products and pricing strategies that align with your customers’ demand.

- **Impacted Investments and Associated Costs**
  Determine investment areas and associated costs to understand the overall cost and impact to your organization.
Opportunities for new product ideation and markets

The Clearing House is working on a safe, sustainable, standards-based RTP system that is inclusive of all U.S. FIs and includes extensible messaging and robust security. This system will provide a platform FIs can use to develop creative and innovative products for their customers. TCH’s guiding principles for developing a platform for product innovation include the following:

- **Ubiquity** – The RTP system will be accessible to FIs of all sizes and charter types in order to reach the vast majority of U.S. account holders.
- **Adaptability** – The RTP system will be able to adapt as expectations and risk environment inevitably change over time.
- **Extensibility** – The RTP system will include rich, flexible messaging functionality to support innovative value-added products.
- **Global Compatibility** – The RTP system will adhere to widely used global ISO 20022 standards to facilitate future interoperability and to ease the implementation burden for multinational banks and companies. To the greatest extent possible, RTP will remain consistent with international global standards to the degree that domestic U.S. requirements will allow.

**Demonstrated adoption of RTP in the United Kingdom**

Creating new products from the features and functionality offered by faster payments can help drive adoption of RTP. In 2008, the United Kingdom (U.K.) implemented their Faster Payment Service (FPS) to provide a speedier alternative to the country’s existing ACH system. Since the inception of FPS, the adoption of mobile banking between 2009-2010 significantly increased the volume of transactions sent through the FPS network. Based on data gathered from the U.K. Payments Council, FPS volume and value growth has surpassed expectations and is expected to continue following the increasing trend as mobile banking continues to grow and new product innovation creates additional demand in the market.

It is worthy to note the successful adoption trends that the U.K. experienced with FPS. However, the adoption of the service in the U.K. should not be used as a direct comparison for adoption in the U.S. as the implementation of FPS was driven by a regulatory mandate in the U.K. in 2011.

**U.K. FPS Volume and Value Growth**

![U.K. FPS Volume and Value Growth Graph](image)

1 U.K. Faster Payments Council
Assess customer needs, product, and service offerings

Each FI will need to perform its own comprehensive product analysis to understand its customers’ needs and how RTP will impact their existing products and services. Only then will an FI be able to lay the foundation for an RTP product strategy and truly assess the revenue impacts associated with adoption.

1. Assess customer needs

FIs must understand their customer’s latent needs and the gaps that may exist in meeting those needs. However, simply understanding current needs is not sufficient. FIs should also consider how customer behavior and expectations will change once they have experienced RTP capabilities. Participants should take into account future customer expectations and determine the many different ways RTP could impact and shape their existing product road map. This will not be a one-time activity, but rather an iterative process of assessing customer needs and wants.

2. Assess current products, service offerings and gaps

Once customer needs are assessed, FIs can conduct an analysis of their existing products and service offerings to their consumer, small business, and commercial clients. Analysis of this data will ensure that those in the Business and Product segments can compare existing offerings to future customer needs in a real-time environment. The results of this analysis will provide an assessment of existing gaps and potential opportunities for a real-time product.

3. Conduct product ideation workshops

Stakeholders should consider conducting product ideation workshops with Business and Product leads to potentially identify new real-time product opportunities based on identified customer needs and existing product gaps. Product opportunities should not be limited to the payment transaction; non-payment messages that enable value-added services associated with the payment transaction should also be included in these discussions. As FIs refine their RTP-related products and services, they should continue to conduct product ideation workshops to improve and enhance their collection of offerings.

Important

As product analysis and assessments are being conducted, some topics that FIs should consider are:

- What are customers’ (consumer and corporate) existing needs and how do we use that to drive adoption?
- What gaps in existing product or service offerings can be filled by RTP?
- How does RTP impact an FI’s road map? (Product, Operations, Technology, etc.)
- How will customer behavior change over time given adoption of RTP?
- How can RTP be utilized strategically to strengthen the FIs brand?

Tips/Fact Check

RTP systems are particularly well-suited to provide value beyond the inherent benefit of fast money movement. A fundamental feature is the real-time communication among debtors, creditors, and their FIs. The use cases for immediate payment are those that benefit from both immediate funds transfer and immediate messaging such as notification, confirmation or request for payment. With this, FIs will have the opportunity to extend their offerings beyond traditional payment transaction services.
Competitive opportunities across use cases

With RTP, FIs have the opportunity to create new competitive opportunities for themselves by offering products and services that fill gaps in the market. Services such as request for payment, bill pay, and other value-add services that include information about transactions will allow FIs the ability to develop new competitive revenue offerings driven by consumer demand.

In order to size the opportunities of RTP, an FI should:

- Define the products and services they will provide to address unmet customer demand
- Develop pricing strategy and non-pricing strategies commensurate with the value provided to customers given the chosen product/service set
- Forecast volumes for the new products and services considering:
  - Product potential of RTP
  - Volume saved from offsetting losses to bank and non-bank competitors
  - Impacts to existing product volumes
  - Any anticipated reduction in attrition

As an FI enhances its product line(s) with RTP capabilities, it should consider how it prices these new products and services for its customers. Enhanced revenue opportunities will exist. In addition to fees related to sending and/or receiving RTP, an FI could consider charging for related value-add services, including the messaging capabilities inherent in the RTP system that go above and beyond the financial transaction itself.

Each FI should consider its own strategies for advancing its competitive opportunities. There are several factors, however, that could be considered:

1. Projected cost of implementation to enable RTP
2. Ongoing cost of supporting a RTP infrastructure
3. Ongoing cost of supporting 24/7/365 operations for RTP
4. Clearing costs that are passed onto the participating FIs
5. New value-added service offerings
6. Customer willingness to pay and expected volumes
7. Pricing sensitivity analysis to maximize adoption rates and revenue
8. Product bundling to encourage repeat usage
9. Customer retention (customers that may otherwise leverage other payment options)

Each participating FI will need to evaluate its pricing strategy based on a holistic view of its product catalog, value proposition, and assessment of revenue impacts balanced with technology and operating cost considerations.
Impacted investment areas and associated costs

It is projected that typically, 60 percent of the expected build costs related to RTP will be for online or mobile channel improvements, cybersecurity, payments architecture modernization and compliance platforms – all of which have utility beyond RTP, and are capabilities that most banks are already looking to invest in for strategic banking purposes. With this in mind, implementation of an RTP solution could also serve as an opportunity for FIs to modernize their core infrastructure in a way that enables them to leverage this new infrastructure across business and product lines.

Several FIs have already researched the costs associated with planning or implementing technology upgrades, payment hubs, or automated compliance tools. The industry is finding that these existing efforts can overlap with RTP and significantly reduce the cost to support a new RTP system. The table below provides specific areas where FIs have found potential commonalities in RTP and existing investment.

In reviewing the costs associated with implementing an RTP system, FIs should conduct their own cost estimate, as each institution will have different criteria to consider for analysis and should not rely solely on the guidelines provided above.

## Existing investments that may overlap with RTP

<table>
<thead>
<tr>
<th>Function</th>
<th>Comment</th>
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<tbody>
<tr>
<td>Channel (Mobile &amp; Online)</td>
<td>• FIs are able to include RTP in planned upgrades to online and mobile banking at moderate incremental cost</td>
</tr>
<tr>
<td></td>
<td>• FIs that have already invested in upgrading online and mobile banking find that these platforms can incorporate RTP more readily than older systems</td>
</tr>
</tbody>
</table>
05: Impacted Areas: Key Considerations

RTP represents a true transformation of the U.S. payments ecosystem and will impact the entire value stream for participating FIs. The capabilities provided will require FIs to reassess such key areas as Products and Services, Communications and Marketing, Regulations and Compliance, and Governance.

Existing payment systems currently do not meet customer demands for immediate payments, transparency of payment status, or funds availability. RTP will allow for products to meet these customer demands. However, once customers have access and become accustomed to these attributes of RTP, they will become the “New Normal.” As such, FIs will have to continue to innovate and provide new products and services to take advantage of the RTP capabilities.

Products and Services

Topic 1: Products

RTP allows participant FIs the ability to identify new product opportunities based on the enhanced capabilities provided. Not only will banks be able to provide the fast money movement required by customers, but they will also be able to provide value-added information such as notifications, confirmations, and request for payments that enable easier and more robust bill payment. Example value-added products for FIs to consider include:

<table>
<thead>
<tr>
<th>Sample RTP Customer Solutions</th>
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<tbody>
<tr>
<td><strong>Business-to-Business</strong></td>
</tr>
<tr>
<td>• Just-in-time payments to suppliers</td>
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<tr>
<td>• Immediate bill payments with acknowledgement</td>
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<tr>
<td><strong>Business-to-Consumer</strong></td>
</tr>
<tr>
<td>• Temporary employee wages</td>
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<tr>
<td>• Emergency payroll</td>
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<tr>
<td>• Urgent B2C (e.g., disaster relief, insurance claim)</td>
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<tr>
<td><strong>Person-to-Person</strong></td>
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<tr>
<td>• Non-commerce payments (e.g., rent payment to a roommate)</td>
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<tr>
<td>• Urgent account-to-account transfers (e.g., to fund investments or purchases)</td>
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<tr>
<td>• Informal services (e.g., babysitting, lawn care)</td>
</tr>
<tr>
<td><strong>Consumer-to-Business</strong></td>
</tr>
<tr>
<td>• Immediate bill payments with acknowledgement</td>
</tr>
<tr>
<td>• Some e-commerce payments (e.g., utility bill)</td>
</tr>
<tr>
<td><strong>Government-to-Consumer</strong></td>
</tr>
<tr>
<td>• Immediate disaster relief payments with acknowledgement</td>
</tr>
</tbody>
</table>

FIs should identify opportunities to leverage RTP in order to fill gaps in their existing product or service lines as well as building new products and services utilizing RTP capabilities.

Stakeholders

- Consumer
- Small Business
- Legal, Regulatory & Compliance
- Wholesale
- Treasury/Finance
- Operations
- Marketing
- Technology
- Risk & Security

Tips/Fact Check

When a “Request for Payment” message is sent, the payer’s FI could include value-added functionality in the form of a “Pay Now” button. This would allow for payment essential transaction information (Remittance Data) such as receiver account information or editable payment amounts to be pre-populated in the payment message.
Products and Services

Topic 1: Products (continued)

Checklist for Assessing Impacts to Existing Products and Services

☐ Have you thought about how the core competencies of RTP align with your customer segment needs?

☐ Have you gained an understanding of products and services that your financial institution offers to consumer, small-business, and commercial clients?

☐ Have you conducted an assessment of opportunities to enhance existing products and services using RTP capabilities?

☐ Have you conducted an ideation session(s) with business stakeholders and product leads to discuss potential future and strategic opportunities and new products based on the value-added message types that RTP offers?

Tips/Fact Check

Including the reference number from the “Request for Payment” in the corresponding payment message will allow for easy traceability of a payment to the original RFP by the payee that sent the original request for payment.
# Communications and Marketing

## Topic 1: External Communications and Marketing

Focused marketing efforts on creating awareness and driving adoption will not only help FIs realize the benefits of RTPs, but will also be required to educate customers on features and functionality that differ from the traditional payments network. Customer education will be key to providing a positive customer experience. For example, with payment certainty, customers should be made aware that they cannot pull back transactions once they are complete.

### Key External Communication Requirements

<table>
<thead>
<tr>
<th>Segment</th>
<th>Key Messages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer</td>
<td>• Ability to send RTP (24/7/365)</td>
</tr>
<tr>
<td></td>
<td>• Real-time availability of funds</td>
</tr>
<tr>
<td></td>
<td>• Mobile, online, and ATM capabilities (including person to person transfers and real-time bill pay)</td>
</tr>
<tr>
<td></td>
<td>• Pricing/fees</td>
</tr>
<tr>
<td></td>
<td>• Implications of Payment Certainty</td>
</tr>
<tr>
<td></td>
<td>• Account data privacy</td>
</tr>
<tr>
<td>Small Business Banking</td>
<td>• Real-time availability of funds</td>
</tr>
<tr>
<td></td>
<td>• Ability to pay suppliers in real-time</td>
</tr>
<tr>
<td></td>
<td>• Potential for new merchant services</td>
</tr>
<tr>
<td></td>
<td>• Ability to send payment requests and other value-added functionality (i.e., bill pay, invoicing)</td>
</tr>
<tr>
<td></td>
<td>• Pricing structure of new products</td>
</tr>
<tr>
<td></td>
<td>• Implications of Payment Certainty</td>
</tr>
<tr>
<td></td>
<td>• Securing account data through use of tokens</td>
</tr>
<tr>
<td></td>
<td>• Cash management considerations</td>
</tr>
<tr>
<td>Commercial or Corporate</td>
<td>• Differentiation between RTP and wire processing (including transaction value limits)</td>
</tr>
<tr>
<td></td>
<td>• Product capabilities that can be used by large corporates</td>
</tr>
<tr>
<td></td>
<td>• Ability to send payment requests and other functionality</td>
</tr>
<tr>
<td></td>
<td>• Origination channel capabilities</td>
</tr>
<tr>
<td></td>
<td>• Improved financial supply chain</td>
</tr>
<tr>
<td></td>
<td>• Liquidity management considerations</td>
</tr>
<tr>
<td></td>
<td>• Pricing structure of new products</td>
</tr>
<tr>
<td></td>
<td>• Securing account data through use of tokens</td>
</tr>
<tr>
<td></td>
<td>• Cash management recommendations</td>
</tr>
</tbody>
</table>

### Tips/Fact Check

When creating the external messaging and communication to customers, FIs should consider tailoring the messaging and communication channels by customer segment:

- Consumers
- Small businesses
- Commercial / Corporations

### Stakeholders

- Consumer
- Small Business
- Legal, Regulatory & Compliance
- Wholesale
- Treasury/Finance
- Operations
- Marketing
- Technology
- Risk & Security
Communications and Marketing

Topic 2: Internal Communication

The adoption of RTP will have enterprise-wide impacts for FIs. RTP capabilities provide new product opportunities for all customer segments across consumer, business, and wholesale banking. Furthermore, the adoption of these capabilities may change the usage of other payment products by customers. Technology and Operations organizations will have to address new technology and processes from front-end channels through payment processing and accounting. With such broad-reaching impacts throughout the organization, FIs need to develop and execute multifaceted communication plans to inform the organization of ongoing changes.

Communications will be unique in that RTPs do not just represent an incremental change, but rather a new standard for the speed of business. For most customers, their exposure to the new speed of business will become the “new normal”. Participating FIs will experience a significant change in the characteristics of the payments network. These new characteristics will require a change in how FI staff view payments:

- 24/7/365 operations
- Payment certainty
- Immediate availability of funds to DDA accounts
- Potential liquidity impacts/cash flow control
- Multiple settlement cycles per day
- Value-added messaging
- Security through tokenization
- Potential for global payment transactions

Given the changes in adoption and product offerings over time, internal communications management will have to be dynamic and ongoing. Stakeholder management and internal communication begins with the project execution of RTP capability and continues throughout the product life cycle.
## Communications and Marketing

### Topic 2: Internal Communication (continued)

<table>
<thead>
<tr>
<th>Key Internal Messaging</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Internal Audience</strong></td>
<td><strong>Key Messages</strong></td>
</tr>
<tr>
<td>Line of Business / Product Teams (including Finance Partners)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Development of new products and impacts to customer channels</td>
</tr>
<tr>
<td></td>
<td>- Pricing assessment</td>
</tr>
<tr>
<td></td>
<td>- Impact analysis to existing products/revenue</td>
</tr>
<tr>
<td></td>
<td>- Change management/training for sales and customer facing teams on new products</td>
</tr>
<tr>
<td></td>
<td>- Ongoing adoption rates and necessary adjustments</td>
</tr>
<tr>
<td></td>
<td>- Governance Process</td>
</tr>
<tr>
<td>Marketing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Overview of new products and features</td>
</tr>
<tr>
<td></td>
<td>- Identification of potential customers and opportunities</td>
</tr>
<tr>
<td></td>
<td>- Coordination of products in marketing plans</td>
</tr>
<tr>
<td>Technology Teams</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Business and functional requirements requiring development for core payments processing, channel updates, new products, and reporting</td>
</tr>
<tr>
<td></td>
<td>- Awareness and requirements for RTP SLAs</td>
</tr>
<tr>
<td></td>
<td>- Infrastructure requirements (requires volume forecasts over time) across payments products</td>
</tr>
<tr>
<td></td>
<td>- Technical support requirements</td>
</tr>
<tr>
<td></td>
<td>- Governance process</td>
</tr>
<tr>
<td>Operations Teams</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Change management plans for coming changes</td>
</tr>
<tr>
<td></td>
<td>- Business process re-engineering to support RTP SLAs</td>
</tr>
<tr>
<td></td>
<td>- Training on new processes and tools for processing RTP transactions</td>
</tr>
<tr>
<td></td>
<td>- Potential changes to roles and teams based on volume migration</td>
</tr>
<tr>
<td></td>
<td>- Governance process</td>
</tr>
<tr>
<td>Customer Servicing Teams</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Awareness of new products and changes to operations to support</td>
</tr>
<tr>
<td></td>
<td>- Development of trouble shooting and scripts for handling RTP requests</td>
</tr>
<tr>
<td></td>
<td>- Updates to case management system for new products and services</td>
</tr>
<tr>
<td></td>
<td>- Governance process</td>
</tr>
<tr>
<td>Risk and Compliance Teams</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Clarity of regulatory controls and processes (e.g., AML, OFAC, etc.)</td>
</tr>
<tr>
<td></td>
<td>- Notifications to clients</td>
</tr>
<tr>
<td></td>
<td>- Potential fraud considerations</td>
</tr>
<tr>
<td></td>
<td>- Governance process</td>
</tr>
</tbody>
</table>

### Important

When communicating the approach of RTP to your internal organization, there are several key themes that you should keep in mind:

- Communicate the nature of the transformational change (What is RTP? Why is RTP necessary to your organization? How will RTP enhance the products and services of your organization?)
- Discuss the expected time line and process of implementing RTP
- Be sure to communicate and support your organization’s commitment to RTP
- Identify the target audience for each communication topic to ensure that the appropriate information is communicated to the right groups
Planning, Execution, and Delivery

Topic 1: RTP Functionality Level

As FIs make the decision to on-board onto the RTP system, a decision needs to be made regarding the level of capability they wish to offer their clients. TCH will provide a tiered approach to risk control associated with the activities that a financial institution is offering. This approach will be additive in nature based on level of participation.

Participating FIs that...

- ...provide support for third-party payment services
- ...support Request for Payments
- ...both send and receive payments
- ...may not be sending RTP, but have the capability to receive them

All participants must meet a minimum set of privacy and security standards in order to participate, even if to “Receive Only.” Starting with the “Send RTP” functionality, the level of risk materially increases and continues to accumulate with each increasing level of capability. In order to mitigate these risks, each access level entails adherence to incremental security safeguards and risk mitigation requirements that must be met in order to maintain the level of network security needed for RTP.

Decision Point

Each participating FI must decide on the level of functionality in which it intends to participate. Participants will have the option of the following capabilities:

- Receive RTP
- Send RTP
- Support Request for RTP
- Support third-party payment services

Stakeholders

- Consumer
- HR
- Legal, Regulatory & Compliance
- Small Business
- Treasury/Finance
- Wholesale
- Marketing
- Operations
- Technology
- Risk & Security
Planning, Execution, and Delivery

Topic 1: RTP Functionality Level (continued)

Receive RTP

“Receive Payment” capability means that a participating FI with this capability is only able to receive payments from other registered participants of the RTP network. An FI with only “Receive Payment” capability will not be able to send payments on behalf of its customers via the RTPS.

An FI who has “Receive RTP” capability must meet the following minimum requirements:

- Comply with FFIEC guidelines as applied through Prudential Regulator Examination
- Make funds immediately available to recipient’s DDA account
- Report fraudulent behavior to The Clearing House and/or sending FIs (note: Can be facilitated through TCH offering)
- React to alerts from centralized activity monitoring utility

Send RTP

Participants with “Send RTP” capability are able to transfer payments through the RTP system in addition to receiving real-time payments. As risk level increases with the ability to send payments, participants must have the ability to meet the increased level of requirements to participate in the RTP system.

An FI who has “Send RTP” capability must meet the following minimum requirements:

- Comply with all “Receive Only” requirements
- Have a minimum of two (dual) factor authentication (as defined through the RTP governance process)
- Must have robust customer onboarding and KYC process
- Must require registration of customers sending payments
- Screen for real-time fraud and risk for payments being originated
Planning, Execution, and Delivery

Topic 1: RTP Functionality Level (continued)

Support Request for RTP

Participants with “Support Request for RTP” capability are able to transmit end-user requests for RTP to other end users through the RTP system. As this functionality has an increased risk profile, a participant must meet the capability requirements established for:

- “Receive RTP”
- “Send RTP”

Additionally, a participant with this functionality must meet the following requirements:

- Make warranties and representations that Requests for Payment are for legitimate purposes
- Screen and monitor Request for Payment initiators, with the ability to identify abusive or fraudulent use and take corrective actions including suspension of initiator access to the network (as defined through the RTP governance process)
- Respond to network reports of abuse of Request for Payment

Support for RTP originated by third-party payment services

FIs that permit third party payments (i.e., nonbank payment providers that wish to utilize the system via an account at a participating FI) must:

- Comply with requirements for all participating sending and receiving financial institutions that permit customers to initiate requests for payment
- Perform due diligence on and monitor the RTP activity of third parties
- Make warranties and representations that third party is abiding by rules for payment origination
- Follow FFIEC guidelines regarding third party relationships
- Not permit third parties to originate values greater than the FI’s financial resources can support

In addition TCH will require third parties to apply to participate in the RTP, enter into an agreement with TCH to abide by RTP system requirements for third parties, certify that the third party meets certain prudential and risk management requirements, and comply with certain consumer protection laws and regulations as if the third party was a depository FI.
Planning, Execution, and Delivery

Topic 2: 24/7/365 Customer Service and Ops Support

FIs introducing RTP must be prepared to deliver these capabilities 24 hours per day, 7 days per week, 365 days per year with high availability regardless of their level of participation. This means they must be able to:

- Receive and respond to payments and non-payment messages 24/7/365
- Provide necessary back-office operations and customer service support 24/7/365
- Perform applicable real-time fraud and AML screening 24/7/365

This requires operational ability to perform necessary risk management and compliance functions such as customer authentication, authorization, regulatory compliance screening, and anti-fraud screening in an automated fashion. In addition, FIs will need to develop policies and procedures for handling requests for return of funds sent in error on both the sending and receiving side.

FIs will have to determine and address gaps in their servicing capabilities related to associate readiness, process capabilities, knowledge base specific to RTP, case management tools, and availability of support.

Topic 3: SLA and Performance Metrics

To ensure the effectiveness of the entire RTP ecosystem, participating FIs will be expected to meet specific Service Level Agreements (SLAs). Receiving FIs must make funds available to recipients via posting or memo posting within seconds for any accepted payment. Furthermore, receiving FIs need to be able to either accept or reject most payments automatically without manual review and make funds available 24/7/365. Both sending and receiving FIs must be able to receive and respond to payments and non-payment messages within allowable SLAs.

Response time SLAs will exist for:

- Credit transfer
- Request for payment
- Request for return of funds
- Remittance advice
- Pended transactions
- Non-payment messages
- Posting time
- Quality

Banks may additionally consider defining internal performance metrics for:

- Posting time
- Security
Planning, Execution, and Delivery

Topic 4: Tokenization:
To be supported in second half of 2017

What is Tokenization?

Tokenization is the process of substituting a random, format preserving credential (token) for a customer’s real account number. By keeping real account data safe, tokenization helps prevent fraud and makes it easier to recover from fraud if it occurs. When an account number is tokenized, the account data is held behind the FI’s firewalls and customers are not required to provide sensitive account information externally. As a token has no meaning or value outside the FI, if a tokenized account number is compromised, the token is of limited or no use to cyber criminals. Even if a token is stolen, it can be replaced quickly and without customer involvement, making recovery less costly and impactful.

How does TCH’s Token Services work?

TCH’s Token Services de-tokenizes transactions as they reach the RTP system. This allows payees to always receive “real” account information and therefore make little to no changes to their internal systems while still realizing all the protections that tokenization offers. In this model, the payee’s FI issues tokens to all directories or endpoints where real account information is currently stored. When a transaction using those tokenized credentials enters the real-time system, TCH knows to de-tokenize the transaction and send the payee’s FI the real account information.

Token Services decision

Participants have the ability to choose the method in which they would like to implement their token services for their RTP system. Participants must choose to either (1) Build their own in-house token vault, (2) Utilize TCH’s token services, or (3) Utilize a third-party token service. In making this decision, participating FIs should ensure that the Business, Product, IT, and Risk/Security teams are all represented in the decision making.

Decision Point

Prior to sending transactions to or receiving transactions from the RTP system, a participating FI will need to determine how to handle the tokenization/de-tokenization of account numbers. FIs may choose from several options. They can:

- Subscribe to TCH’s Token Services
- Subscribe to a third-party token service
- Build an in-house token vault

Stakeholders

- Consumer
- HR
- Legal, Regulatory & Compliance
- Small Business
- Treasury/Finance
- Wholesale
- Marketing
- Operations
- Technology
- Risk & Security
Planning, Execution, and Delivery

Topic 5: ISO 20022 Messaging Readiness

What is ISO 20022?

ISO 20022 is an international framework for the standardization of global financial messaging across payments, securities, cards, foreign exchange, and trade services. It is a worldwide effort to ensure that processes, messages, and terminology in financial services are synchronized across borders, facilitating global financial activity.

As a framework, it is important to note that ISO 20022 covers the entire life cycle of messages— the comprehensive methodology of how messages are proposed, developed, and maintained—and does not necessarily refer to a specific set of message formats.

ISO 20022 has emerged as an enabler of a single, common “language” for global financial communications that can assist organizations in responding to evolving demands. Recent global developments have highlighted the value of streamlining all financial communications and increasing the interoperability of expanded remittance information.

What are the strategic benefits of adopting ISO 20022?

Strategically speaking, the adoption of ISO 20022 for the RTP system is one that enables the system to capitalize on the global momentum of the message type. Several large and internationally active U.S. corporations and banks have already adopted ISO 20022 messaging as a standard message type which has driven down cost and complexity while increasing their processing efficiency.

ISO 20022 also enables the RTP system to provide a way for organizations to develop, source, and introduce new products and innovation without requiring customized development which allows the U.S. market to move in tandem with global markets to remain competitive.

ISO 20022 also offers users a central financial repository where industry users have access to a data dictionary of business and message components. If there is no ISO 20022 message available to cover a specific transaction, new models and messages can be petitioned with the ISO 20022 registration authority.
RTP Message Types

The RTP system utilizes several types of messages to transmit transactions and messages through the system. Below is a summary of the categories and types of messages that can be sent while a more comprehensive messaging toolkit can be found in the link located in the ISO 20022 Messaging Resources box.

1. Payment messages consist of the credit transfer transaction information sent by the debtor institution to the creditor institution for one single payment transaction. The return acknowledgement of this payment instruction will inform the debtor of the status of their payment transaction.
   - Payment Instruction (pacs.008)
   - Payment Status – Successful, Pending, Rejected (pacs.002)

2. Value-added messages are non-payment messages that can be used to initiate or support payment messages.
   - Payment Acknowledged by Receiver (remt.001) TBD
   - Request for Payment (pain.013)
   - Response to Request for Payment (pain.014)
   - Request for Information (camt.027)
   - Response to Request for Information (camt.028)
   - Remittance Advice (remt.001)

3. Exception messages will be sent to the appropriate transaction party should there be an instance where the RTP system does not successfully complete a message.
   - System Cancel (Time-Out) Message (camt.056)
   - Request for Return of Funds (camt.056)
   - Response to Request for Return of Funds (camt.029) TBD
   - Suspected Duplicate Transaction (pacs.002)
   - Token Not Valid (pacs.002)
   - Questionable Transaction (pacs.002)
   - Payment Rejected by Receiver (pacs.002)

Tips/Fact Check

In 2013, the Federal Reserve Bank of NY, The Clearing House Payments Company, NACHA, X9, and the Financial Industry Standards, Inc. conducted an evaluation to determine whether the U.S. should adopt ISO 20022 payment messages.

The study showed that demand for adoption of ISO 20022 in the U.S. exists among large global banks and corporations while smaller institutions maintain a general satisfaction with the status quo. The absence of a regulatory mandate or industry deadline may inhibit the sense of urgency needed for industry wide adoption of ISO 20022. However, the study also indicated that there were several strong strategic benefits to consider adoption in the U.S. payments market:

- **Global momentum:** Large U.S. corporates and banks are actively adopting ISO 20022 and this trend is expected to continue
- **Global competition:** Compatibility enables the U.S. to maintain parity with other global markets and U.S. dollar clearing systems in other jurisdictions that are adopting ISO 20022 messaging
- **Cost savings and processing efficiency:** Standardizing message formats allows for consolidation of payment platforms at banks and corporations, which could promote STP and drive down costs
- **Interoperability:** A common format promotes ease of transacting domestically and globally by using a single, open standard rather than multiple proprietary standards
### Planning 7: ISO 20022 Messaging Readiness (continued)

4. **Admin and system messages** are sent to users in the event that there is an event that affects the normal operations of the RTP system and users need to be notified of the event, action items, or warnings. The admin and system messages are not covered in the ISO 20022 format and will be proprietary to the RTP network and include the following:

   - Unsolicited messages (e.g., directed or broadcast)
   - Notification messages
   - Free format messages
   - Warning messages
   - Alert messages

#### Example messages for common scenarios

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Message Category</th>
<th>ISO Message Types</th>
</tr>
</thead>
</table>
| A head of household sending emergency funds to a family member | Value-added Messages | • Request for Payment (pain.013)  
• Payment Ack by Receiver (remt.001) |
| | Payment Messages | • Payment Instruction (pacs.008)  
• Payment Status (pacs.002) |
| A small business paying an urgent bill payment in order to receive goods or services based on payment request from supplier | Value-added Messages | • Request for Payment (pain.013)  
• Response to Request for Payment (pain.014)  
• Payment Ack by Receiver (remt.001) |
| | Payment Messages | • Payment Instruction (pacs.008)  
• Payment Status (pacs.002) |
| A utility company requesting payment for services from a late paying business or customer | Value-added Messages | • Request for Payment (pain.013)  
• Response to Request for Payment (pain.014)  
• Remittance Advice (remt.001)  
• Payment Ack by Receiver (remt.001) |
| | Payment Messages | • Payment Instruction (pacs.008)  
• Payment Status (pacs.002) |
| A tax agency issuing a refund to a taxpayer for their recently filed taxes | Value-added Messages | • Payment Ack by Receiver (remt.001) |
| | Payment Messages | • Payment Instruction (pacs.008)  
• Payment Status (pacs.002) |
| An individual who inadvertently sent two separate payments and would like to request a return of funds | Value-added Messages | • Payment Ack by Receiver (remt.001) |
| | Request for Return of Funds Messages | • Request for Return of Funds (camt.056)  
• Response to Request for Return of Funds (camt.029)  
• Suspected Duplicate Transaction (pacs.002) |
| | Payment Messages | • Payment Instruction (pacs.008)  
• Payment Status (pacs.002) |
### Checklist for implementing ISO 20022

1. Have you identified a resource that is knowledgeable in ISO 20022 to help your FI understand the necessary requirements for adoption of ISO 20022 messaging within your organization?

2. Have you conducted a business assessment to review your institution’s current ISO 20022 landscape from an external business perspective?
   - Business flows
   - Message types
   - Dependencies on external organizations
   - Value-added capabilities
   - Robust data transmission

3. Have you conducted a technology assessment to review your institution’s current ISO 20022 landscape from an internal application perspective?
   - Summary of business flows, message types, and interface specifications with all internal applications
   - Which existing applications will be affected?
   - What are the requirements to produce or consume ISO 20022 data?
   - Will internal applications manage the requirements directly within the application or indirectly via an integration or middleware solution?
   - What new application capabilities are required?

4. Have you outlined the proposed scope of ISO 20022 for your organization in a road map for your stakeholders?
   - List all impacted external organizations
   - List all business applications
   - List all specific business benefits
   - List all message flows and message types
   - Map out a high-level time table for implementation

5. Have you assessed the expected costs and benefits of the proposed ISO 20022 roadmap for the stakeholder business case?
Regulations and Compliance

Topic 1: Regulations and Compliance Review

As with any new product and capability, each FI should conduct an appropriate regulatory and compliance review regarding the implementation of RTP, consistent with regulators’ expectations. Among other things, an FI should assess the risks associated with a new product or service, including requirements for complying with applicable laws, regulations and regulatory guidance. Potentially relevant laws and regulatory requirements include:

- Electronic Fund Transfer Act/Regulation E
- Bank Secrecy Act/AML requirements
- OFAC/sanctions obligations
- Regulatory expectations regarding data security

Such regulatory and compliance reviews are not specific to RTP and FIs should perform these reviews following their standard policies and procedures.

Governance

Topic 1: SLA and Performance Metrics

The RTP system will have continuous monitoring of the proper governance procedures that define the expectations for performance of participating FIs. Required SLA and performance metrics will be clearly defined as a part of the governance process. Performance will be monitored and adjustments to standards may occur as part of the ongoing management routines.

As described previously, some initial SLAs have already been defined. Examples of these SLAs include:

- Receiving FIs must make funds available to recipients via posting or memo posting within seconds for any accepted payment
- Receiving FIs must be able to either accept or reject most payments automatically without manual review 24/7/365
- Both sending and receiving FIs must be able to receive and respond to payments and non-payment messages within allowable SLAs

These SLAs will be governed to manage and maintain the efficacy of the RTP system.
06: References and Supporting Documentation

If you would like to receive any of the following supporting documentation, please contact Mark Majeske via e-mail (Mark.Majeske@theclearinghouse.org) and specify the document(s) desired.

Functional Overview Diagram

The fundamental process for sending funds from one party’s account to another party’s account is conceptually straightforward. However, significant infrastructure and protocols are needed to enable the immediate routing, necessary controls, and robust messaging that is required. TCH will provide the core infrastructure to enable this RTP system for FIs. FIs will have to develop the appropriate capabilities, interfaces, and processes to connect with the RTP system. The functional overview diagram is a high-level overview of the core RTP infrastructure.

Business Requirements

The RTP business requirements outline the critical activities and objectives that will guide the development of the system architecture and technical specifications for the system. This document divides the business requirements into four categories in order to illustrate the policies and procedures the payment system requires, the policies and procedures for the participating FI and the operator, and the best practices of the RTP System for participants.

Functional Requirements

The RTP functional requirements capture and specify the particular intended behavior of the RTP System. This document provides users with the requirements framework as well as the functional requirements that will govern the RTP System.

Message Toolkit

The RTP ISO Messaging Toolkit illustrates the messages that can be transmitted through the RTP core infrastructure and the related ISO 20022 message type that is used. This document covers all anticipated message categories including payment messages, value-added messages, exception messages, administrative messages, settlement messages, and system messages.

Sequence Diagrams

The RTP Sequence Diagrams illustrate how message types interact with the RTP system and the sequence in which they are transmitted for each use case scenario. Each scenario shows the message type interactions arranged in the appropriate time sequence needed to carry out the functionality of the scenario.

Process Flows

The process flow diagrams of the RTP system represent schematic illustrations of the message flow for each use case scenario that the RTP core infrastructure will be able to process. Each diagram specifies an illustrative flow that a debtor and creditor institution might take along with the detailed step-by-step processes and decisions that the RTP system must conduct in order to transmit payment/non-payment messages.
## Operating Rules

TCH has established governance arrangements for the RTP system that is designed to ensure the integrity, effectiveness and success of the RTP system. TCH is developing comprehensive operating system rules and participant agreements that will establish the rights and obligations of participants in the RTP system. The following chart describes some of the key elements of the RTP system rules, as well as practices and procedures that FIs will need to implement in connection with their offering of RTP products and services (including practical implications for FIs that are not dictated by the system requirements or operating rules). Note that the chart below is intended only to provide examples of the issues the RTP rules will address, and the final RTP system rules may vary from the requirements described in this chart.

<table>
<thead>
<tr>
<th>RTP Requirements</th>
<th>Operating Rules and Procedures</th>
<th>FI Requirements</th>
</tr>
</thead>
</table>
| All payments are originated by the payer | • A legal basis must be provided for credit transfers that are authorized by a payer  
• Rights and obligations of all parties to the transaction must be defined- including the payer, the payee, the sending FI, the receiving FI, and the payment system operator | • Develop products and services for customers to send and receive credit transfers |
| FI customers have the ability to send or receive payments 24 hours a day, 7 days a week, 365 days a year | • FIs must be able to receive and respond to payments and non-payment messages 24/7/365 within an established SLA | • 24/7/365 as a receiving FI  
• FIs must have the ability to perform necessary risk management and compliance functions such as customer authentication, authorization, regulatory compliance screening, and anti-fraud screening 24/7/365 in an automated fashion |
| Senders and receivers will have complete, timely information about the status of RTP | • Receiving FIs must accept or reject the majority of payments within seconds and all payments in a reasonable time  
• FIs must make immediate notification of payment status to senders and receivers or provide a channel for senders and receivers to view payment status | • FIs must integrate accurate RTP status inquiry, notification, and feedback into online and mobile banking services |
| Receiving FIs will provide immediate availability of funds to recipients 24/7/365 | • Receiving FIs must make funds available to receivers within seconds for any accepted payment  
• Payments can be rejected for risk management, inability to post, or legal compliance  
• Payments may be held for review for a reasonable time only when necessary for risk management and legal compliance purposes (expected to be a small percentage of payments in the ordinary course of business). After review, FIs must accept or reject payments- not withhold availability | • Receiving FIs must either post or memo post funds for payments received immediately  
• Receiving FIs must be able to either accept or reject most payments automatically without manual review 24/7/365 |
| Real-time exchange of financial and non-financial messages that support a variety of use cases | • Sending FIs must adhere to standard formats and usage rules for payment and non-payment messages  
• Receiving FIs must make all relevant information from payment and non-payment messages available to receivers  
• Receiving FIs must act on administrative messages | • FIs must develop products, services, and processes to create, deliver, and respond to payment, non-payment, and administrative messages |
## Operating Rules (Continued)

<table>
<thead>
<tr>
<th>RTP Requirements</th>
<th>Operating Rules and Procedures</th>
<th>FI Requirements</th>
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</thead>
</table>
| System wide limits on transaction value, updated periodically based on objective criteria | • Limits on the value of transactions cleared through the payment system will be established by the RTP System  
• RTP System rules may include a process for revising the transaction value limit  
• Sending FIs may set lower value limits for their customers  
• Receiving FIs may not set a transaction limit lower than the system wide limit  
• An initial transaction limit will be established for the RTP system with the intention to review and raise the limit over time | • Policies and procedures must be available for a sending FI to set their transaction value limit and have it apply to payment origination  
• Risk management policies and procedures must be available to accept payments up to the system wide transaction value limit  
• FIs must have the ability to identify the potential structuring of transactions made to avoid established transaction limits |
| Funds cannot be taken back from the receiver; payer can request return of payment made in error | • The legal basis for payment finality will be established by the RTP System  
• The RTP System will not provide a basis for sending FIs to reclaim funds from receiving FIs for unauthorized payments (the sending FI only has obligation to verify payment authorization) | • FIs must have effective processes and technology to prevent unauthorized payment origination  
• Sending FIs must have policies and procedures in place for handling customer claims for unauthorized transfers and funds sent in error  
• Receiving FIs must have policies and procedures to respond to requests to reclaim funds sent in error |
| An inter-FI process including electronic messaging to support Requests for Return of Funds sent in error | • A process for senders to request return of payments sent in error must be established by each FI  
• An inter-FI process for handling Requests for Return of Payments sent in error will be established by each sending FI  
• Timely responses for Response to Request for Return of Funds will be requested. | • FIs must have products and services with features that prevent errors in sending payments  
• Sending FIs must establish policies and procedures for handling customer Requests for Return of Funds sent in error  
• Receiving FIs must establish policies and procedures for responding to requests to reclaim funds sent in error |
| Settlement process and legal framework that reduces or eliminates potential for settlement failure | • The RTP System rules will establish requirements and procedures for prefunding and settlement of RTP transactions | • FIs must have the capability to satisfy RTP prefunding requirements and monitor / manage their prefunded position on an ongoing basis either directly or through a funding agent |
| Use of a unique code in lieu of an account number that cannot be used to debit the account (token) | • The Secure Digital Payments company is developing an approach for tokenizing account numbers. | • FIs must create and operate their own Token Vault, outsource their tokenization process to a Token Service Provider, or leverage TCH’s token services  
• FIs must integrate tokenization into products and services  
• FIs must have the ability to educate customers on tokenization |
## Operating Rules (Continued)

<table>
<thead>
<tr>
<th>RTP Requirements</th>
<th>Operating Rules and Procedures</th>
<th>FI Requirements</th>
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</table>
| Participating FIs must meet minimum levels of standards for security and privacy protection | • RTP system rules should reference external security and privacy standards  
• All FIs must meet data protection standards  
• Sending FIs must meet rigorous standards for sender authentication and payment authorization  
• Rules will establish security and privacy standards for FIs that are auditable and audited  
• An FI’s security standards should not unnecessarily restrict usability | • Most security and data protection requirements should apply across all channels and products and not to a specific payment system |
| Support for anti-fraud, anti-money laundering, and OFAC / sanctions compliance processes | • Sending FIs should have rules that require them to provide the necessary data for regulatory compliance needed by the receiving FI | • FIs should have policies and procedures to obtain data required for regulatory compliance during the payment initiation process  
• Automated anti-fraud screening may be required to meet expectations to accept or reject payments in seconds or minutes |
| Use global message standards and define processes consistent with global practices | • RTP system should avoid unnecessary divergence from operating rules for payments systems in other countries  
• TCH will develop rules for international payments if the RTP system connects with foreign real-time systems in the future | • FIs should adapt products and services to use international standard payment formats and processes |
| Tiered approach to fraud prevention and mitigation segmented by activity-based system participation | • RTP system rules will ensure the minimum requirements for risk control are associated with the activities that a financial institution is offering and will be additive in nature for each increasing level of potential risk  
• RTP System to create a centralized utility that analyzes network-level data to identify and report potential fraudulent behavior (e.g., detect anomalous send/receive activity; excessive complaints)  
  o Velocity checks on origination, receive, and request for payment volumes  
  o Detection of patterns that indicate potential networked fraud or money mule activity  
  o Alerts with reason codes upon detection of anomalous activity for impacted financial institutions | All participants must comply with FFIEC guidelines as applied through prudential regulator examination  
• All participants must report fraudulent behavior to TCH and/or sending FIs (note: this could be facilitated through TCH offering)  
• All participants must react to alerts from centralized activity monitoring utility  
• Sending FIs must establish a minimum of two factor authentication (as defined through RTP governance process)  
• Sending FIs must require registration of customers sending payments  
• Sending FIs must screen for fraud and risk in real-time for payments being originated (continued) |
## Operating Rules

<table>
<thead>
<tr>
<th>Tiered approach to fraud prevention and mitigation segmented by activity-based system participation (continued)</th>
<th>Operating Rules and Procedures</th>
<th>FI Requirements</th>
</tr>
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</table>
| **Request for payment participants** (above requirements plus) | - Make warranties and representations that Requests for Payment are for legitimate purposes  
- Screen and monitor request for payment initiators, with the ability to identify abusive or fraudulent use and take corrective actions including suspension of initiator access to the network (as defined through RTP governance process)  
- Respond to network reports of abuse of Request for Payment  
**Originated by third-party payment service participants** (above requirements plus) | - Make warranties and representations that third-party is abiding by rules for payment origination  
- Apply same requirements to third-party payment services that are applied to FIs that send RTP and allow requests for payment (as applicable)  
- Follow FFIEC guidelines regarding third-party relationships  
- Allow network to enforce rules against FIs and third-parties by allowing network to levy fines and suspend activity on the network  
- Prohibit third-parties from originating volume greater than their financial resources can support in the case of third-party failure |

In addition TCH will require third parties to apply to participate in the RTP, enter into an agreement with TCH to abide by RTP system requirements for third parties, certify that the third party meets certain prudential and risk management requirements, and comply with certain consumer protection laws and regulations as if the third party was a depository FI.
07: Contact Us

Your questions and comments are very important to us. For more information about RTP, please contact us using the information provided below.

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Faster Payments QIAT

PRELIMINARY ASSESSMENT REPORT

Proposer: The Clearing House and FIS

APPENDIX A – QUESTIONS TO PROPOSERS

Ubiquity

U.1 Accessibility

U.1.3: Does the system currently support non-USD currency? If so, which currencies? Is there a prioritized sequence of currencies to be added? Is there an anticipated timeline to implement prioritized currencies?

No. The TCH RTP Program will initially support only US Dollar transactions. However, the technology that we have purchased from Vocalink has the demonstrated capability to support all currencies in single currency pairs (sending and receiving currencies are the same). It is currently deployed in Singapore as well as the UK.

At present, there are no plans to expand the currencies the TCH RTP System supports beyond U.S. Dollars, but we expect to consider such an expansion in the future as we work to support cross-border interoperability with real-time systems in other countries.

U.1.4: Are there any plans to open direct access to the RTP to PSPs (non-banks)?

No. The RTP System and its associated Rules have been designed to allow direct access to regulated U.S. depository institutions, which are subject to comprehensive regulation and oversight. Non-bank payment service providers (“PSPs”) may access the system through their relationship with a Participating FI, and will be subject to requirements intended to maintain the safety and soundness of the system and ensure consistent protections for end users of RTP services.

U.2 Usability

U.2.3: Will participating FIs be required to make funds immediately available to the Payee? Or will participating FIs have funds made immediately available to them but then determine when the Payee may have access to the funds?

Participating FIs will be required to make funds from RTP credit transfers accessible and usable to the Payee within seconds of completing the transaction, with the exception of those credits transfers that are designated as accepted without posting (i.e., because they require further review for legal or compliance purposes).

U.2.4: Please discuss how the Solution is ADA-compliant with respect to both visually and hearing impaired users (e.g., audio options, easy to use text size).

End users will not interface directly with the RTP System. Participating FIs are responsible for complying with the Americans with Disabilities Act with respect to the customers that they serve. The RTP System has been designed with a flexible and adaptable architecture to support independent product development by financial institutions. This will allow Participating FIs to
provide accessible RTP services that comply with applicable laws and meet the needs of their customers, including the visually and hearing impaired.

U.3 Predictability

U.3.2: How will disclosure of features and pricing be handled for regulated non-bank accounts that provide this Solution through a participating FI?

The RTP Operating Rules include certain compliance criteria for non-bank PSPs that access the RTP System through an account at a Participating FI, including consumer protection requirements. In particular, PSPs that provide money transmission services to consumers will be required to comply with applicable requirements of the EFTA and Regulation E as if they are a financial institution, including disclosures regarding applicable fees, the types of transfers a consumer may make, limits on liability for unauthorized transactions, and error resolution procedures.

U.3.5: Can the proposer detail the approach to the protections, rights, and liabilities of the Payer and Payee regarding error resolution?

The EFTA/Regulation E govern the rights and responsibilities of a consumer account holder and the account holding institution with respect to “electronic fund transfer” services, including RTP payments sent or received by consumers. With respect to such RTP transactions, consumers will be protected under the EFTA/Regulation E, which include requirements regarding disclosures, error resolution, and limitations on liability for unauthorized transactions.

In addition, Article 4A establishes a default, end-to-end framework of rights and responsibilities for banks and bank customers engaged in “fund transfers,” including business-to-business payments conducted through the RTP system. The RTP Operating Rules specify that Article 4-A of the New York Uniform Commercial Code will govern commercial RTP transactions. Hence, with respect to such commercial RTP transactions, the rights and obligations of the Sender and Receiver and their respective FIs, including liability for unauthorized or erroneous RTP payments, will be governed by Article 4-A of the NY UCC.

U.4 Contextual data capability

U.4.2: How does the system integrate with business and personal finance systems/applications? Please provide examples and where appropriate, the names of both personal and business systems the Solution has the ability to interface with (e.g., QuickBooks, Wave, etc.)

The RTP system interface may only be directly accessed by Participating FIs and third party service providers (which will provide a technical connection for some Participating FIs to the system). Those FIs and TPSPs will determine how they integrate RTP-related services into the personal/finance systems and applications that they offer their customers. Most banks and TPSPs already provide services that integrate with these applications and we expect that RTP messages and functionality will be incorporated into those existing interfaces. In addition, we expect that certain FIs and TPSPs may develop new interfaces for their systems and applications to support new products that they may bring to market based on the capabilities of the RTP system and the unique needs of the customers that they support.

U.5 Cross-border functionality

U.5.1: Please discuss the directional cost-effectiveness of the Solution to the participating bank as compared to existing mechanisms.

Because the RTP system operates 24x7, settles each transaction in real time (i.e. a transaction final state is known in seconds with the appropriate error reason code if rejected) and, supports payment
related messaging, we expect that straight through processing (STP) rates will be much higher than existing mechanisms and that exception handling across a number of dimensions (i.e. reconciliation, overall operational support, day 2 processing, and investigations) will be greatly reduced, if not eliminated. We expect that these benefits will not only accrue to the participating FIs, but also have the potential to extend to the end users, making the end-to-end system much more efficient and transparent than existing mechanisms.

What are the proposer’s plans for multi-currency support?

Currently, multi-currency support is not on our roadmap, however the core technology that underpins the RTP system does have the ability to support multiple currencies. See response to U1.3.

Is there an established, planned prioritization of rollout into other countries? If so, which countries are prioritized for development and implementation of the platform?

TCH strategy for RTP is to achieve cross-border functionality through reciprocal agreements with real-time payment systems in other countries. While the RTP Rules currently permit multi-national US FIs to allow customers of their foreign affiliates to initiate payments into the US, we have no imminent plans for additional cross border functionality at this time.

The RTP system is designed on ISO 20022 message standards, which will facilitate cross border interoperability from a technical perspective with systems in other countries that adopt or have adopted ISO 20022 as their real-time or faster payment standard. Our ability to fully interoperate with payment systems in those countries will be contingent not only on their technical capabilities, but also on alignment of settlement models, rules and regulatory regimes. TCH is already working with Operators globally to ensure future compatibility, but our roadmap will be heavily influenced by the readiness of the various countries that are developing ISO ready real-time systems. As far as our priority, we are targeting North America as an initial area of focus for potential interoperability, but will be opportunistic in our approach as development efforts continue globally.

U.6 Applicability to multiple use cases

[No questions]

Efficiency

E.1 Enables competition

E.1.3: How can the disclosure requirements be managed and monitored for PSPs that offer access through a master account held at a bank? Will Solution rules specifically provide for the required disclosure regarding any types of pricing, including value-added, optional services?

As noted in response to U.3, The RTP Operating Rules include certain compliance criteria for non-bank PSPs that access the RTP System through an account at a Participating FI, including consumer protection requirements. In particular, PSPs that provide money transmission services to consumers will be required to comply with applicable requirements of the EFTA and Regulation E, including disclosures regarding applicable fees, the types of transfers a consumer may make, limits on liability for unauthorized transactions, and error resolution procedures. PSPs will be required to certify on an annual basis that they meet the RTP compliance criteria for PSPs and such certification must be accompanied by an audit report validating such compliance.
E.2 Capability to enable value-added services

E.2.1: Will a translation engine be leveraged to allow those not currently deploying ISO 20022 to participate in the Solution?

There are a variety of translation tools available in the market today, so we have determined that it will not be necessary for TCH to develop a translation engine as a part of the RTP service. We expect that some banks may offer translation services to their commercial clients as a part of product specific offerings, and also expect that third party service providers connecting to the RTP system will support translation for smaller participating banks.

E.2.3: Do RTP rules require providers to clearly disclose to their customers that value-added services are optional? If so, how is this monitored?

The RTP rules do not specifically require disclosures regarding “value-added services.” That being said, federal law requires financial institutions to make comprehensive “initial disclosures” to consumers regarding the terms of electronic fund transfer services, and these requirements will apply with respect to RTP. In particular, the EFTA/Regulation will require Participating FIs to make disclosures to their consumer customers regarding applicable fees and the types of electronic fund transfers that a consumer may make, as well as any limitations on frequency or amount. In addition, if a Participating FI adds a new electronic funds transfer service to a consumer account and the terms and conditions for that service are different from those described in the initial disclosures, Regulation E requires the FI to provide new disclosures regarding the terms of the new service.

E.3 Implementation timeline

[No questions]

E.4 Payment format standards

E.4.1-2: Is a translation engine part of the Solution in order to accept non-ISO 20022 messages? If so, how does the Solution protect against losing expanded remittance data when down shifting from ISO 20022 messages to legacy formats with more restrictive capabilities?

All messages sent by and to the RTP system will be in native ISO 20022 formats. A translation engine is not part of the RTP solution; however, banks and vendors may offer their customers translation services. The RTP Operating rules establish obligations for Participating FIs to deliver messages to their customers, which will ensure that data in the RTP message set is delivered to the end client. See response to E2.1

E.4.1: Is the system capable of accepting communication from block chain solutions?

We have not specifically assessed interoperability with block chain solutions at this stage however the RTP system will be able to communicate with any existing or emerging technology that can support messaging in ISO 2002 format. In doing so, however, any payment initiated would need to meet all of our all requirements for initiation, including payment authentication, security and consumer protections as they are defined in the RTP Operating Rules and Technical Specifications.

E.4.3: How will the implementation of ISO 20022 impact U.S. FIs? Can non-ISO 20022-compliant FIs participate prior to upgrading their own capabilities?

Participating banks do not need to be fully ISO compliant in order to participate in the RTP system, but RTP messages will need to be sent in ISO 20022 format. We expect that TPSPs and solution vendors that support connectivity to the system and related functionality will provide end to end services to their bank customers that will be ISO 20022 compliant.
E.4.3: Please discuss the directional costs to participate and how they compare to the current marketplace.

See response to U.5.1

E.5 Comprehensiveness

E.5.2: How will changes to the core architecture be communicated to providers so that they can test (if necessary) impacts to innovative solutions that leverage this Solution?

All changes impacting participant systems will be communicated through regularly scheduled notifications as part of the quarterly release process. Significant planned changes to system functionality must be approved by the RTP Business Committee. Notification of scheduled changes will be made at least 3 months in advance for routine changes while longer notification periods will be employed for significant changes. Notifications will be delivered via RTP System Broadcast messages and emails to the designated operations staff with periodic reminders.

E.6 Scalability and adaptability

E.6.2: Please discuss anticipated TPS rates and the ability to add scale as needed.

The RTP system will go live with the ability to support 1,000 TPS (Transaction is defined as complete transaction, e.g. all five legs of a credit transfer = 1 transaction). Release 2 of the system (currently scheduled for the second half of 2017) will scale to 5,000 TPS and beyond. The system architecture is designed to be horizontally scalable to accommodate future growth beyond 5,000 TPS.

E.7 Exceptions and investigations process

E.7.2: Please discuss how data is recorded and stored for evaluation and investigation.

All incoming and outgoing messages are logged and all transactions are also stored in a transactional database. The transactional database may be queried by credentialed users at Participating FIs based on allowed privileges using the participant portal (web interface). The transactional database maintains 1 year of transaction data online. Data for transaction older than one year is archived.

E.7.2: Please provide detail regarding the “centralized unit”. Is it a dedicated group of people? Is it a real-time transaction monitoring capability?

The RTP system will provide centralized monitoring, reporting and alerting out to participating banks. This process will be highly automated and there will be no interdiction or explicit action on any transactions by TCH. It is expected that support requirements will be limited. While some degree of dedicated support may be required at the onset while history is being established and the system is being tuned, we foresee no need for dedicated staffing beyond this initial period.

E.7.3: If applicable, please discuss the Solution’s tools for aggregation of fraud data and detection of patterns. Is this responsibility left solely to the participating banks?

While each Participant is obligated to have real time fraud monitoring capabilities for both their send and receive volume as applicable, the RTP System will also provide network aggregate level fraud detection (including pattern detection) to supplement the participant level analysis being conducted.

E.7.3: Can TCH provide post-transaction tools to FIs that cannot develop these tools themselves? Has this possibility been discussed with technical partners?
The RTP System provides all Participating FIs with access to a User Portal that will provide tools to see system activity, run reports and perform inquiries, update user settings/roles, adjust key participant parameters, and facilitate settlement/funding related activity. In addition, TCH is exploring the possibility of standing up a centralized Anti-Fraud decisioning system that banks may subscribe to that would decision transactions in real time prior to the transaction being sent to the RTP system.

Safety and Security

S.1 Risk management

S.1.5: Please discuss the incentives (financial, non-financial, positive, and negative) to operators and providers to address and contain any risks that they might pose to other participants.

The incentives for TCH and participants to identify and manage risk that their RTP activities may pose to one another are found in the legal framework applicable to the system (the EFTA/Reg E; NY Article 4-A, RTP participation rules, and RTP Operating Rules); the rules enforcement regime for RTP; and the regulatory framework that applies to depository institutions and TCH. These incentives are financial (obligation to pay for certain losses), legal (ability to bring legal claims), and regulatory.

S.1.6: How often is the risk framework reviewed? Who is responsible for reviewing and recommending any updates/changes to the risk management framework?

TCH employs a sound, enterprise-wide risk-management framework that is approved by its Managing Board and reviewed on an annual basis. The risk-management framework provides the key components for enterprise risk identification, assessment, monitoring and reporting processes and the cross functional components necessary for an enterprise view of TCH’s risk environment. This risk-management framework is applied to the RTP system to identify, monitor, and manage risks to RTP, and RTP participants.

Pursuant to TCH’s Enterprise Risk Management Framework, TCH identifies and measures risk arising from RTP through (i) an annual product risk assessment that establishes an overall risk assessment based on business, operational, technological, information security, and legal risk to RTP; and (ii) continuous self-reporting by all departments of all newly identified risks. Any risks that are determined to be inconsistent with TCH’s risk appetite must be remediated or accepted using an exception process. TCH monitors risk related to the operation of RTP through business metrics and key risk indicators that are continuously tracked and reported.

TCH’s risk management framework is subject to regular examination by federal banking regulators under the FFIEC’s Multi-Regional Data Processing Servicer (MDPS) program. Further information regarding the FFIEC’s MDPS supervisory program is available here:

FFIEC IT Booklet - Supervision of Technology Service Providers (TSP)

S.2 Payer authorization

S.2.1: Will there be required “minimum standards” as part of the operating rules for the Solution?

The RTP Operating Rules will require Participating FIs to adhere to a standard set of requirements for payer authorization and customer authentication, including the requirement to utilize multi-factor authentication (something you know and something you have or something you are) and to require the use of passwords that have certain minimum characteristics (to the extent the Participating FI uses passwords to authenticate the identity of customers seeking to initiate RTP transactions). With respect to the concept of payer authorization, it is important to note that the RTP
system provides for “credit push” transactions that are directly authorized by a payer to the Participating FI that holds its account. (It does not support debit transactions in which a payer authorizes a third party payee to debit the payer’s account.)

S.2.3: Will TCH impose minimum service conditions on FIs for revocation?

One of the most significant benefits of the RTP system and settlement process is the payment certainty and finality it provides Participating FIs and the recipients of RTP transactions. Because the Operating Rules establish the legal basis for payment irrevocability at the time a transaction is submitted to the system (consistent with the FPTF effectiveness criteria), TCH will not impose minimum service conditions on participants with regard to the revocation of those funds. However, the RTP system does provide an FI to FI process to request and facilitate the return of funds on behalf of a Participating FI’s customers. The Operating Rules allow a Participating FI to send this “Request for Return of Funds” message for any reason.

S.3 Payment finality

[No questions]

S.4 Settlement approach

[No questions]

S.5 Handling disputed payments

S.5.4: How does the RTP system protect business and government payers against losses related to fraud or errors? How does it adhere to applicable laws or regulations?

It should be noted that any government payments through RTP would have to be sent through a bank as there are no present plans to allow government payments directly to the system. In addition, the RTP system will allow for a number of payment use cases and is not limited to transactions initiated by business and government payers. That being said, business and government payers will be protected against losses related to fraud or errors by existing applicable law (i.e., UCC 4-A), as well as a variety of additional, RTP system-specific controls. In particular, the RTP system (i) supports credit push payments only (which eliminates the potential for unauthorized debits), (ii) provides for a process to request the return of an erroneous payment, (iii) will enhance Participating FIs own fraud controls through centralized fraud monitoring, and (iv) has been designed to incorporate tokenization. Once tokenization services are implemented by a participant, transaction information will be tokenized (i.e., actual account/routing information will be stored in a highly secure token vault and will be accessible only for the purpose of ensuring proper transaction routing).

S.6 Fraud information sharing

S.6.2: What kind of encryption will be used for the centralized fraud database exchange?

The exchange of fraud related information will be subject to the same encryption that is used for all messaging that is transmitted through the RTP system.

S.6.4: How will fraud information be distributed to providers? Through alerts only?

As part of the RTP network level anti-fraud program, new transactions will be “scored” against other like transactions that have previously been conducted through the system (Retail, Commercial, BillPay) to evaluate the risk that a transaction is potentially fraudulent. Although transactions will not be decisioned, they will be scored in real-time based on the characteristics of known fraudulent transactions in the system. Fraud alerts will be created and sent as a system message through the
RTP communications infrastructure to Participating FIs. Participating FIs may then route the alerts to their existing internal fraud detection systems to supplement their existing transaction decisioning capabilities.

S.6.2: How would data owned by entities other than providers and operators be aggregated, managed, and protected for purposes of fraud information-sharing?

The RTP network level anti-fraud program utilizes bank-supplied transaction data (normally submitted to TCH RTP System as part of the transaction request), and a flag sent back from the bank indicating which transactions were fraudulent. There is no additional data provider or third party providers of data.

S.6.2: Please discuss the plan for data management. What third-party data will be used? How and where will data be stored? What are the proposer’s encryption plans?

Functional specifications have yet to be finalized. We will use only TCH data and data provided by Participating FIs in our solution. All data used for the application will be housed On Premise and encrypted in compliance with current TCH processes.

S.6.4: Please provide more detail on the centralized fraud utility—how will it work? Who will own it? How will information be messaged?

The RTP network level fraud utility will be housed at TCH facilities (On Premise) and will utilize the services of a nationally recognized fraud detection company (Currently in RFP stage). The utility will utilize RTP transaction data, housed in a local database, which will support a statistical model to match transaction characteristics against known fraudulent transactions. If a transaction is determined to have characteristics of potential fraud, an RTP (ISO 20022) system message alert will be created and sent to the sending FI, which will include information that the FI can incorporate into its decisioning engine for subsequent transactions. The alert will include a level (1-10) in addition to standardized reason codes. The Alerts are sent directly via the RTP transaction system to the bank for further routing to the banks existing Fraud engine in real time.

S.6.5: Do the Solution's information-sharing mechanisms support differential access to content based on the roles and responsibilities of each operator, provider, and regulator?

Alert messages are sent directly to the sending FI and receiving FI as appropriate via the RTP transaction messaging system. Banks are expected to route alert messages in a responsible manner within their organizations.

S.6.5: Can the Proposer address whether differential access will be provided to parties based on roles and responsibilities?

The system does not currently distinguish between specific roles and responsibilities within a Participating FIs internal fraud monitoring applications. Alerts are sent directly to the bank(s), which are responsible for routing the alert to the appropriate party (s) within the bank. The bank may elect to build or offer access internally based on roles and responsibilities beyond the TCH delivery of the Alert.

S.7 Security controls

S.7: Please provide details on the security controls and how they will be implemented.

At its highest level, security controls can be divided into two categories: (i) what the RTP system (TCH) is doing and (ii) requirements for participating FIs under the RTP Operating Rules, which
include information security standards and requirements that TCH has established. From the RTP System perspective, TCH implements the following security controls:

Physical Connectivity for Messaging—Physical connectivity is limited to the TCH MPLS network and the Secure VPN. All data is encrypted in accordance with FIPS 140-2 Standards. In the case of the MPLS network, TCH will own and control the routers at both ends of the connection. Additionally, all messaging is communicated via IBM MQ, utilizing TLS encryption.

Access to Information—Access to the User Interface is controlled by two layers of security – external users must first logon to the TCH VPN to access a launch page for RTP. External access to the TCH VPN (i.e. over the internet) requires use of an RSA Secure ID token. Once into the TCH VPN, users must use a different user id and password to sign into the RTP Management Console. Role based permissions are used to control what functions they may access. Regular Ethical Hacks and Penetration Tests are performed to ensure the system is secure.

S.8 Resiliency

S.8.5: Please discuss the contingency testing process and the frequency of the testing.

Quarterly Contingency tests will be performed to ensure resiliency. RTP runs Active/Active in two geographically dispersed data centers. During contingency tests, each TCH site will be taken offline in turn for a period of time to ensure seamless transition of communication and transaction processing.

S.9 End-user data protection

S.9: Will the Solution leverage and extend existing practices? What additional considerations related to real-time will be addressed by the Solution?

The RTP Operating Rules include provisions regarding the treatment of confidential information by TCH and Participating FIs, and also require Participating FIs to satisfy information security requirements for RTP, including encryption requirements for the storage and transmission of RTP message data. Further, Participating FIs will be subject to existing consumer privacy laws regarding the proper use of consumer data and restrictions on disclosure of such information to third parties. For example, Participating FIs are subject to the Gramm-Leach-Bliley Act, which governs the treatment of nonpublic personal information about consumers by financial institutions and requires financial institutions to safeguard the security and confidentiality of customer information. Additionally, the PSP compliance criteria discussed above require PSPs that access the RTP system through their banks to develop and implement administrative, technical, and physical safeguards to protect the security, confidentiality, and integrity of customer information, as well as to ensure the proper disposal of customer information.

S.10 End-user/provider authentication

S.10.1: How will the proposer ensure that FIs are compliant?

As noted in response to S.2, the RTP Operating Rules require Participating FIs to adhere to a standard set of requirements for payer authorization and customer authentication. Participating FIs are required to conduct an annual self-audit for compliance with the Operating Rules, including customer authentication standards, and to report their findings to TCH. The Operating Rules also provide TCH comprehensive authority to audit, monitor, inspect, and investigate any Participant or PSP for rules compliance, and to limit, condition, suspend, or terminate a Participant for non-compliance.
S.11 Participation requirements

S.11.3: Describe any/all processes to monitor and ensure compliance by all providers against these requirements.

As noted in response to question S.10.1, the RTP Operating Rules require Participating FIs to conduct a self-audit for compliance with the Operating Rules on an annual basis, and to report its findings to TCH. The Operating Rules also provide TCH comprehensive authority to audit, monitor, inspect, and investigate any Participant or PSP for rules compliance, and to limit, condition, suspend, or terminate a Participant for non-compliance. In addition, the RTP Participation Rules also provide TCH the authority to terminate or suspend a Participant at any time if in TCH’s discretion that the Participant’s continued participation in the RTP system would not be in the best interests of TCH, the RTP system or other Participants. TCH intends to monitor payment and request for payment activity at the systemic level, which will allow it to identify and respond to potential violations of the RTP Operating Rules.

Speed (Fast)

F.1 Fast approval
[No questions]

F.2 Fast clearing
[No questions]

F.3 Fast availability of good funds to payee

■ How much time may elapse between acknowledgement of receipt from the payee bank and acceptance/rejection of the payment?

Please note that accept/reject and acknowledgment of receipt are one and the same. On average we expect acceptance/rejection of a payment to occur within 1-2 seconds of receipt of the payment message, but the RTP technical specifications allow for a receiving participant to take up to 10 seconds to respond (accept/reject) the transaction in order to allow for the bank to account for any secondary procedures around safety, security or sanctions processes.

■ Will availability within seconds of acceptance be a requirement of participating banks or just a guideline?

Yes, for accepted transactions, the RTP Operating Rules obligate Participating FIs to make funds available to the recipient within the timeframes established in the RTP technical specifications.

F.4 Fast settlement among depository institutions and regulated non-bank account providers

■ Are there any scenarios in which an alternative to continuous, real-time settlement would either be required or beneficial?

None that are anticipated at this time.

F.5 Prompt visibility of payment status
[No questions]
Legal

L.1 Legal framework

L.1.1: On what model will the proposer’s legal framework be based?

The legal framework for The Clearing House’s RTP system consists of existing laws and regulations for consumer “electronic fund transfers” (i.e., Electronic Fund Transfer Act (EFTA)/Regulation E for RTP transactions to or from a consumer account), and commercial “funds transfers” (i.e., Article 4-A of the New York Uniform Commercial Code for commercial RTP transactions); and three categories of RTP-specific materials that The Clearing House has developed: (i) the RTP Participation Rules and Operating Rules, (ii) RTP Agreements, and (iii) RTP Schedules and Rules-Related Documents.

The framework, which was developed in consultation with outside counsel and reviewed with attorneys from The Clearing House’s owner financial institutions, is consistent with the approach used for other payment systems (e.g., the ACH network). In particular, it consists of private sector rules that overlay existing regulatory and legal requirements.

L.1: Please provide more details regarding the Legal Framework that will govern the Solution’s operation and/or impose any compliance obligations on the Solution or End Users. In doing so, please specifically address how the Solution supports the five Legal Framework subcriteria.

As noted above, the legal framework for The Clearing House’s RTP system consists of (i) existing laws and regulations that apply to Participating FIs; and (ii) three categories of RTP-specific materials that The Clearing House has developed: the RTP Participation Rules and Operating Rules, RTP Agreements, and RTP Schedules and Rules-Related Documents.

L.1.1. Relevant and Applicable Legal Sources.

As a general matter, Participating FIs, which hold their customers’ accounts, will be responsible for compliance with the banking and payments laws that apply to RTP transactions to and from those accounts and other related activities. In addition to the EFTA/Regulation E and Article 4-A of the NY UCC, key laws and regulations that may be implicated in connection with the provision of RTP services include:

- The Bank Secrecy Act and implementing regulations, which set forth anti-money laundering compliance requirements for financial institutions;
- The Prohibition on Unfair, Deceptive and Abusive Acts and Practices, which prohibits any provider of consumer financial products or services or (a service provider) from engaging in any unfair, deceptive or abusive act or practice;
- The Gramm-Leach-Bliley Act, which governs the treatment of nonpublic personal information about consumers by financial institutions and requires financial institutions to safeguard the security and confidentiality of customer information;
- The Fair Credit Reporting Act (as amended by the Fair and Accurate Credit Transactions Act), which requires banks that offer or maintain “covered accounts” to develop and implement a written identity theft prevention program and imposes restrictions on consumer information sharing;
- The Fair Debt Collection Practices Act, which establishes requirements for “debt collectors,” including prohibitions on debt collection methods that are abusive or harassing.
- The Expedited Funds Availability Act/Regulation CC, which require banks to make funds deposited into accounts available for use within certain specified schedules, and to disclose their funds...
availability policies and imposes timing and content requirements for such disclosures. (Note that under Regulation CC, electronic deposits of funds to a customer's account must be made available for withdrawal no later than the next business day after settlement. However, the RTP Operating Rules require a Participating FI that accepts a payment to make the funds available to its customer immediately.

In addition, Participating FIs will be subject to regulatory guidance (e.g., guidance regarding the oversight of all third party service providers and the development and maintenance of compliance management systems.

L.1.2. Known Gaps

TCH has not identified any “known gaps in legal sources” with respect to the legal framework for the RTP System. The legal framework does not require amendment to applicable U.S. law.

L.1.3. Description of How Participants, Service Providers and PSPs are Legally Bound

Participants will be bound to the RTP Participant and Operating Rules by the RTP Participant Agreement they will enter with TCH in order to participate in the system. In addition, Participants that use a third-party service provider as a technical connection to the RTP system are fully responsible and liable to TCH and other Participants for the acts or omissions of their Third-Party Service Providers with respect to the system, including the obligations and responsibilities of Participants under the Participation and Operating Rules. Nonbank Payment Service Providers that are approved to access the RTP system through their account relationship with a Participant will be bound to the PSP compliance criteria and other relevant provisions of the RTP rules by a separate agreement with TCH. Participants that sponsor PSPs into the RTP system will be jointly and severally liable with the PSP for the PSP’s noncompliance with the PSP compliance criteria.

L.1.4. Supports Compliance

As a general matter, Participating FIs, which hold their customers’ accounts, will be responsible for compliance with banking and payments laws that apply to payments to and from those accounts, such as Regulation E. In addition, the RTP System will support Participating FIs’ anti-fraud processes through centralized monitoring and by ensuring that the message format carries all data required for AML/OFAC compliance).

L.1.5. Unique Legal Provisions to Ensure Consistent Safety and Soundness and Consumer Protection Requirements

The RTP Rules contain a robust set of compliance requirements for non-bank Payment Service Providers that are intended to ensure that functionally equivalent safety, soundness and consumer protection requirements are met by all entities that provide payment services via the RTP System.

L.2 Payment system rules

L.2: Please provide more details regarding the Payment System Rules, including requirements, standards/protocols and procedures that govern the rights and obligations of all End Users, Providers, Payers and Payees. In doing so, please specifically address how the Solution supports the five Payment System Rules subcriteria.

TCH has developed comprehensive Participation Rules and Operating Rules that will enable the system to operate effectively and efficiently. Participants will be bound to these rules by the RTP Participant Agreement they will enter with TCH in order to participate in the system. TCH developed the Participation and Operating Rules in consultation with outside counsel and conducted
an extensive review process with representatives from The Clearing House’s owner financial institutions.

The Participation rules include provisions that address:

- eligibility to participate in the RTP system,
- the process for becoming a Participant,
- different categories of Participants (e.g., Funding Participants, Non-funding Participants), and
- requirements relating to use of a Third-party Service Provider or a Funding Agent for settlement.

The Operating rules and technical specifications include provisions that address:

- requirements relating to use of the system to send and receive RTP Payments and messages,
- obligations and responsibilities of Participating FIs with respect to (a) eligible payments, (b) payment initiation and customer authentication, (c) timing and response requirements for payments and messages, (d) acceptance and rejection of payments, (e) funds availability, (f) requirements to immediately notify senders and receivers regarding payment status, (g) requirements to deliver message information to customers (h) errors and unauthorized transfers, (i) requests for the return of funds, (j) funding and settlement, (k) fraud reporting, (l) protection of Confidential Information, (m) PSP risk management, and (n) rules enforcement.

L.3 Consumer protections

[No questions]

L.4 Data privacy

L.4: Please provide more details regarding data privacy, including an approach to identify whether and how payment and related information can be collected and disclosed, consistent with applicable policy, law, and End User preference, and an approach, consistent with law, to secure information that should not be disclosed. In doing so, please specifically address how the Solution supports the five data privacy subcriteria.

As also stated in response to S.9, the RTP Operating Rules include provisions regarding the treatment of confidential information by TCH and Participating FIs, and also require Participating FIs to satisfy information security requirements for RTP, including encryption requirements for the storage and transmission of RTP message data.

Further, Participating FIs, which hold their customer’s accounts, are subject to existing consumer privacy laws regarding the proper use of consumer data and restrictions on disclosure of such information to third parties. For example, Participating FIs are subject to the Gramm-Leach-Bliley Act, which governs the treatment of nonpublic personal information about consumers by financial institutions and requires financial institutions to safeguard the security and confidentiality of customer information.

In addition, the RTP Operating Rules require nonbank PSPs to satisfy certain data security and privacy standards, as well as authentication and information security program requirements.
L.5 Intellectual property

[No questions]

Governance

G.1 Effective governance

G.1.3: Please describe the process to appeal specific TCH decisions.

The RTP Operating Rules include provisions that authorize TCH to investigate any Participating FI or PSP for rules compliance, and upon determination of a rules violation by the RTP rules enforcement committee, to limit, condition, suspend, or terminate a Participant for non-compliance. The rules also provide appropriate due process in the event of a suspected rules violation, including the opportunity for a Participating FI or PSP to respond to a suspected rules violation and to explain its belief that a rules violation has not occurred or that the rules violation has been corrected.

G.1: Please provide more details regarding effective governance, including decision and rule-making processes that are transparent and support both the Solution's objectives and Public Policy Objectives. In doing so, please specifically address how the Solution supports the four effective governance subcriteria.

As stated in our proposal submission, The Clearing House has established governance arrangements for the RTP system that are designed to ensure its success through arrangements that, among other things, provide for clear lines of responsibility and provide for oversight by The Clearing House’s member financial institutions, which supplied the capital that is being used to build the RTP system and are expected to be among the largest users of the system. As such, these FIs have a paramount interest in ensuring the system’s success, including achieving ubiquitous, safe, faster payments that improve the overall efficiency of the U.S. payment system. The Clearing House’s governance arrangements are further enhanced through public disclosure of the system’s governance, a process for interested parties to provide input into system rules, and by provisions for appropriate due process regarding RTP rules decisions. The Clearing House’s governance arrangements will also allow for independent validation through audits and examination and supervision by federal financial institution regulators.

In addition, the RTP business committee charter states that the business committee will take relevant and appropriate public interest into consideration when making decisions with respect to the strategic direction, safety and soundness of the RTP system.

G.2 Inclusive governance

G.2.1-2: How will the proposer involve non-bank stakeholders?

As noted above, the RTP business committee charter states that the business committee will take the relevant and appropriate public interest into consideration when making decisions with respect to the strategic direction, safety and soundness of the RTP system.

G.2: Please provide more details regarding inclusive governance, including input and representation from diverse stakeholders, and support for the public interest. In doing so, please specifically address how the Solution supports the five effective governance subcriteria.

See response to G.2.1-2.
Faster Payments QIAT

DRAFT ASSESSMENT

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Faster Payments QIAT

DRAFT ASSESSMENT

Proposer: The Clearing House and FIS

Summary Description of Solution:
The TCH-FIS solution is a new, comprehensive, real-time payment (RTP) system for all financial institutions (FIs). Based on internationally tested solutions and established structures, the system will enable real-time credit push payments from any account at a U.S. financial institution, as well as non-payment messages directly from bank accounts to accounts at any participating FI. Providers can also connect indirectly through one of TCH's partners. The system operates 24x7x365 and leverages the safety and security of existing bank channels and risk management controls.

EXECUTIVE SUMMARY OF THE PROPOSAL

■ Major strengths

– The Clearing House (TCH) is developing a solution designed to meet the desired outcomes of the Faster Payments initiative in the U.S. The solution—referred to as “RTP” in the proposal—is an interbank, real-time clearing and settlement solution based on established structures and internationally tested solutions. (TCH has almost completed the build of a real-time payment network with VocaLink.) RTP is built to foster innovation in the payment system marketplace while providing a core infrastructure for the industry.

– Any financial institution can connect directly to RTP, or it can connect indirectly through one of TCH's partners (FIS, Jack Henry, and D+H, with more to follow). Available 24 hours a day, seven days a week, year-round, the solution enables real-time, credit-push payments from prefunded accounts at participating FIs—along with accompanying, real-time, non-payment messages—directly to accounts at any participating FI.

– The RTP system is network-only—i.e., it provides a core infrastructure that allows for value-added services to be developed in the marketplace. Participating FIs are thus responsible for the end-user experience, while the RTP infrastructure ensures consistent processing.

– The solution includes a fully developed, real-time settlement system that leverages the safety and security provided by existing bank channels and risk management controls. The solution is fast: payments are cleared and settled immediately. (More specifically, settlement is expected to occur in less than two seconds, but the system’s technical specifications allow “up to 10 seconds” for the receiving, participating FI to conduct a secondary process related to safety and security.) Good funds are available to the payee within seconds, and visibility into payment status is provided to all parties in real time.

– RTP leverages the ISO 20022 messaging format, a global, open standard that supports innovation and the development of value-added overlays. Thanks in part to the use of ISO 20022, the solution is well-positioned to support international payments in the future.

– The solution can centrally monitor for network-level fraudulent activity and provide fraud alerts to FIs. This capability will augment and support FIs’ current fraud detection capabilities, which are typically automated but not necessarily real-time, with respect to transactions to and from the RTP system.
Areas for improvement and enhancement

The solution is directly available only to FIs. Payment service providers (PSPs) must have an account or relationship with an FI to participate.

The solution does not yet include cross-border capabilities, although TCH has a credible plan to implement these in close co-operation with comparable RTP systems worldwide. No timelines are provided in the proposal. The solution is not multi-currency, so it is limited initially to domestic transactions and cross-border transactions in USD.

Use cases addressed

The solution addresses all four major use cases (P2P, P2B, B2P, and B2B). It does not yet include cross-border capabilities.

Proposer’s overall ability to deliver proposed solution

TCH is a well-known and respected clearinghouse with a long history of launching industry endeavors (e.g., the creation of EPN). In conjunction with FIS’s history of successful payment platform installations, the proposers are well-positioned to effectively deliver the solution within the timelines outlined in the proposal.
ASSESSMENT

Ubiquity

U.1 Accessibility

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**Rationale:**

The solution is an open, available system that is expected to be accessible by all U.S. financial institutions—regardless of size or charter type—as long as they satisfy the technical specifications and other eligibility requirements set forth in the RTP rules. RTP enables connectivity directly with regulated depositories, indirectly with non-regulated providers, and with international networks.

Only FIs have direct access to the solution; PSPs must have an account/relationship with an FI to participate (U.1.1). But since non-bank account providers typically carry their accounts at depository institutions, an end-user does not need to own an account at a bank (U.1.4). However, non-bank account providers would need to access the RTP through a bank partner (as for ACH); sign-up requires bank status, and payments flow entirely through secure bank channels. This has the potential to constrain accessibility (and likely imposes additional delays/cost) for technology players and other providers with MTL licenses who want to deploy the platform directly. Once a directory service has been built and is offered, any payee with a valid email address or mobile phone enabled with SMS capability can be reached (U.1.2).

The solution was originally designed in USD, with no specific provisions for multi-currency (U.1.3). But the ability to make multi-currency and cross-border transactions is anticipated to be implemented as real-time systems in foreign countries achieve cross-border interoperability.

U.2 Usability

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**Rationale:**

The solution allows participants to initiate payments from multiple channels and devices (U.2.1) and enables a variety of authentication methods, including authorization with limited information (in the case of an implemented directory), but does require that all participating FIs use multi-factor authentication (U.2.2). Thanks to the solution’s modular architecture, FIs can use directory services (provided by TCH or other constituents in the payments ecosystem) that enable payment using an “alias.”

As soon as the payee’s FI accepts and settles an RTP payment, the payer’s and payee’s account balances are updated in real time, and funds are made available to the payee (U.2.3). Transaction confirmations (or rejections) are transmitted in real time to FIs. The solution then requires FIs to make this information available to their customers.

Participating FIs will develop the customer interface, so usability and functionality could vary somewhat from FI to FI. The proposal does not discuss how the solution is ADA-compliant (U.2.4) but it is the assessors’ interpretation that this will be the responsibility of participating FIs. The proposal also implies that participating FIs and their partners are responsible for providing APIs for various channels and types of devices.
U.3 Predictability

**Very Effective**

**Effective**

**Somewhat Effective**

**Not Effective**

**Rationale:**

The solution has a clear definition of performance. Well-defined core functions enable FIs to deliver performance beyond specified thresholds (U.3.1). FIs are responsible for packaging these core functions with other services (U.3.2). To ensure consumer protection, the proposal states that participating FIs must follow the obligations of Regulation E, including disclosure requirements (U.3.2). Although the end-user’s experience is managed by participating FIs, and therefore may differ from provider to provider, the overall payment process will be consistent for all transactions that leverage the RTP system, regardless of channel, provider, and form factors (U.3.3, U.3.4). Additionally, the solution fosters consistency by using the ISO 20022 standard for messaging and requiring standard formats and usage rules. The solution is branded as RTP (Real-Time Payments) (U.3.6).

Regarding error resolution (U.3.5), the proposal states that consumers will be covered by Regulation E requirements as well all users being covered via “additional controls that are established through system operating rules or are inherent to the system and the transaction types it supports” (page 45). These controls are delineated further on page 45 of the proposal. In cases of erroneously or fraudulently initiated payments, the payer FI can make a request for return of funds from the payee FI, but there is no right to a return of funds.

---

U.4 Contextual data capability

**Very Effective**

**Effective**

**Somewhat Effective**

**Not Effective**

**Rationale:**

The solution uses the ISO 20022 remittance advice structure to support inclusion of contextual data that travels with the transaction (U.4.1). It also enables the use of references to support the exchange of ad addenda records through the provision of a URL (U.4.2). While the solution does not explicitly discuss interfacing with business and personal finance systems, it is clear that participating FIs would develop and support these interfaces (U.4.2).

---

U.5 Cross-border functionality

**Very Effective**

**Effective**

**Somewhat Effective**

**Not Effective**

**Rationale:**

The solution does not yet include cross-border capabilities, but the proposer has a credible plan—though no timelines—to implement these in close co-operation with comparable RTP systems worldwide (U.5.1). RTP already uses international messaging standards (ISO 20022) (U.5.5), and TCH is part of the ISO 20022 Real-Time Payments Drafting Group, which will establish rules for global interoperability (U.5.2). The proposal does not specifically address the cost-effectiveness of
RTP relative to other networks (U.5.1). The proposal specifically states that participating banks must comply with regulations pertaining to disclosures (pages 15, 45) (U.5.3).

RTP is not multi-currency (U.5.4), so it is limited initially to domestic transactions and cross-border transactions in USD. The technology itself, though, does have the ability to support multiple currencies. The solution does enable the use of FX exchange tables. The Proposal can be strengthened by outlining a plan for multi-currency/foreign exchange support as part of the implementation plan.

### U.6 Applicability to multiple use cases

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**Rationale:**

The solution enables FIs to build overlay services for each use case (U.6.1). The RTP system is meant to address a variety of use cases, including B2P, P2P, P2B, and B2P. The proposal elaborates on each case (page 5). Additionally, the solution is based on a flexible architecture that supports the development and implementation of additional use cases to adapt to changing market needs.

### Efficiency

#### E.1 Enables competition

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**Rationale:**

The solution is accessible by all FIs that comply with publicly available requirements related to technical and data security (E.1.4). It places no limits on competition, and partners such as FIS, Jack Henry, and D+H are developing software solutions that will allow FIs to offer access to RTP real-time payments to their customers (E.1.1). Its flexible standards make it easy for FIs and end-users to switch among providers (E.1.2). Participating FIs will be expected to comply with applicable consumer protection laws, regulations, and regulatory guidance, including pricing disclosure requirements (E.1.3).

#### E.2 Capability to enable value-added services

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**Rationale:**

FIs are able to deploy value-added services (overlays) with minimal involvement from TCH. FIs can integrate additional services—both payment and non-payment—by leveraging the ISO 20022 standard, where applicable (E.2.1). TCH is not actively rolling out value-added services or supporting FIs in their development (E.2.1). The basic product, features, and core functionality of RTP will be clearly defined and distinguished from value-added services (E.2.1). The solution does
not specifically require disclosure that value-added services are optional, but participating FIs are expected to comply with applicable consumer protection laws, regulations, and regulatory guidance, including disclosure obligations under Regulation E (E.2.3). It should be noted, however, that Regulation E does not apply to non-banking account transactions.

E.3 Implementation timeline

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Rationale:
The proposal includes an adoption forecast. TCH has a clear plan based on examples of successful infrastructure implementations in other countries (VocaLink) and is engaged in active discussions with FIs and TPPs (third-party processors) to reach deadlines. (E.3.1). TCH is currently testing RTP and anticipates launching the solution in early 2017.

E.4 Payment format standards

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Rationale:
The solution leverages ISO 20022 and cross-border real-time payment standards (E.4.1-2). While the solution does not include a translation engine, participating banks are likely to manage any necessary translation of data formats.

The solution’s cost-effectiveness has yet to be determined, as changing from one standard to another tends to be costly for FIs (E.4.3). However, ISO 20022’s enablement of easily integrated value-added services offers revenue potential that could offset the cost of adoption and implementation. ISO 20022 is highly flexible and oriented toward future use (E.4.4). ISO standards are widely accepted and considered to be industry standards (E.4.5).

E.5 Comprehensiveness

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Rationale:
The proposal addresses all steps of the payment process, although the solution is focused on offering the four main steps: clearing, settlement, receipt, and reconciliation. In concert with participating FIs, which are responsible for payment initiation, authentication, and reconciliation, it is able to deliver an end-to-end payment process from initiation to reconciliation (E.5.1). The solution’s technical design supports all features and is proven in other markets (E.5.2). Individual providers will make upgrades to non-core components, as long as their updates are compatible with the core architecture.
E.6 Scalability and adaptability

Very Effective          Effective          Somewhat Effective      Not Effective

Rationale:
The solution’s architecture is flexible for scalability and adaptability to changing market needs and other developments (E.6.2-3). Leveraging TCH and FIS infrastructure could allow quick scale. Advantages over wire and ACH are likely to make it a compelling system for FIs to promote. As discussed in U.6., RTP supports all projected use cases (B2B, B2P, P2P, and P2B) (E.6.1). The proposal provides a comprehensive overview of each case starting on page 5. Cross-border capability is not initially supported, but plans are clear and concise for expanding into cross-border payments (E.6.1). While currently a conceptual system, RTPs’ anticipated throughput rates are 1000 transactions per second (TPS) in Release 1, increasing to 5000 TPS in Release 2. TCH expects the system to be horizontally scalable to accommodate future growth beyond 5000 TPS. The Proposer estimates that RTP will process 8 billion transactions per year in 2023 (E.6.2).

The Proposal can be enhanced by clearly defining specifically how transaction growth will be supported.

E.7 Exceptions and investigations process

Very Effective          Effective          Somewhat Effective      Not Effective

Rationale:
RTP provides tools (e.g., a transactional database available for credentialed users to query) to track errors inter-bank and imposes process steps designed to prevent errors (E.7.1). If an error does occur, RTP’s operating rules will provide for the payer to request a return of the erroneous payment, but the rules do not necessarily set forth a dispute resolution process per se. All incoming and outgoing messages are logged and stored in the above-mentioned transactional database, which can be queried by credentialed users at participating FIs. The payer’s and payee’s FIs are responsible for notifying or communicating with end-users about exceptions and errors, but TCH should ensure that RTP’s operating rules require notifications.

The solution contains a highly automated, centralized monitoring, reporting, and alerting function that analyzes network data to detect suspicious transaction patterns (E.7.2). The proposal can be strengthened further by providing details on how the solution records, stores, and destroys transaction-related data (E.7.2).

TCH is exploring the possibility of creating a centralized, anti-fraud decisioning system to which banks could subscribe. As an optional overlay service, the system would decision transactions in real time prior to the transaction’s being sent to the RTP system.
Safety and Security

S.1 Risk management

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**Rationale:**

As an established payment systems operator, TCH is experienced in the development of risk management frameworks. (S.1.1). Modifications to existing risk frameworks may be necessary to support the real-time environment.

The proposer’s settlement approach is based on a pre-funded settlement account with structured limits, enabling continuous, real-time settlement and reducing settlement risk (S.1.2). There is a set of operating rules in place for TCH's existing business, but rules for the real time system need to be developed (S.1.3). The RTP system includes a centralized utility that analyzes network-level data to identify and report suspicious transactions to FIs, and supports the real-time exchange of fraud-related information (page 23) (S.1.4). FIs’ compliance with risk management rules is a criterion for participation; the incentive for compliance, therefore, is permission to participate in the network (S.1.5). The offering includes financial, legal, and regulatory incentives to operators to encourage them to address and contain any risks they might pose to other participants.

The risk management framework establishes a foundation for the enterprise-wide risk identification, assessment, monitoring, and reporting processes that are required to successfully build an enterprise-wide view of TCH’s risk environment.

S.2 Payer authorization

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**Rationale:**

The solution requires participating FIs to agree to a standard set of requirements for payer authorization and customer authentication through the use of multi-factor authentication, passwords with minimum characteristics, etc. (S.2.1). TCH allows FIs to offer pre-authorized payments, but it will not recognize these preauthorized payments as such as they travel across the network. Under the system rules, the participating FI will be responsible for verifying that its customer has authorized a payment and for honoring a customer's revocation of a pre-authorized payment (S.2.3). The solution does not specifically impose minimum service conditions on FIs for revocation; instead, the Operating Rules will establish the legal basis for payment irrevocability at the time a transaction is submitted to the RTP system.

S.3 Payment finality

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**Rationale:**

Payment finality is defined in detail. Good funds are guaranteed by FIs through pre-funded inter-bank settlement accounts (S.3.1). The RTP system’s operating rules establish the legal basis for
payment irrevocability at the time the transaction is submitted to the core infrastructure (S.3.2). Payments will be final at the time the RTP system receives a message from the payee bank indicating that it has accepted the transaction (S.3.2). Processes and mechanisms for disputes should be embedded in RTP’s operating rules, which designate responsibility for payment authentication and liability for unauthorized transactions (S.3.3). The rules also outline an inter-FI messaging process for payers to request return of payments sent in error (S.3.3).

S.4 Settlement approach

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**Rationale:**

The solution’s settlement approach is completely elaborated. As discussed in S.1, it allows for continuous, real-time settlement, with no additional settlement risk (S.4.1). The RTP system is designed to eliminate settlement risk by pre-funding every transaction (S.4.2). Participants are unable to execute a transaction that would exceed their pre-funded balance. The solution’s plan is to settle in central bank money, although alternative arrangements are possible if needed (S.4.3).

S.5 Handling disputed payments

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**Rationale:**

According to the Proposer’s response to our questions, TCH has written Operating Rules and technical specifications that address, among other things, errors and unauthorized transactions (S.5.1). The Operating Rules require compliance with consumer protection laws (S.5.2, S.5.5). While the proposal does not detail the rules for payment disputes, it does describe a process to request the return of erroneous payments, though not as an automatic return capability (S.5.3). The proposal can be strengthened by outlining a minimum set of requirements for banks and end users to follow in handling disputed payments (S.5.1).

S.6 Fraud information sharing

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**Rationale:**

The solution does require providers to share fraud-related information, which will be aggregated, stored, and analyzed in a centralized database (S.6.1-2, S.6.4, and S.6.7). Transactions are scored in real time to determine whether they are potentially fraudulent, but they will not be decisioned by TCH or the RTP system. Alert messages for suspicious transactions will be sent to FIs along with a transaction-level score (e.g., a 1-10 scale in addition to standard reason codes). FIs may then choose to route the alerts to their existing fraud detection systems to augment their transaction decisioning capabilities.
The Proposal can be further strengthened by creating differential access to data in the system based on roles and responsibilities (S.6.5).

S.7 Security controls

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**Rationale:**

The RTP system incorporates security controls, including: (1) physical connectivity for messaging and (2) controls on access to information. The proposal indicates that physical connectivity is limited to the TCH MPLS network and the Secure VPN, while all data is encrypted under FIPS 140-2 standards. Access to the user interface is controlled by two layers of security: first, external users must log into the TCH VPN; then, once they are in the VPN, they must use a second ID-and-password set to sign into the RTP system.

Existing components and controls may need to be adapted to a real-time environment, as might managerial policies and oversight (S.7.1-3).

S.8 Resiliency

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**Rationale:**

The solution adheres to the highest standard of resilience—comparable to high-security sites in other payment systems. To enable redundancy, business continuity, and 100% availability, RTP is a distributed, multi-site, multi-node solution (S.8.1-2). To prevent systemic risk, there is no single point of failure, and penetration testing is conducted annually (S.8.3). If an incident should take place, various data centers will take over processing (S.8.4). Resiliency tests will be run quarterly. Additionally, the solution runs an Active-Active architecture (essentially, a network of independent processing nodes in which each node has access to a replicated database) in two geographically dispersed data centers.

S.9 End-user data protection

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**Rationale:**

To protect sensitive data throughout the payment process, operators and providers must meet minimum security requirements. Tokenization will be enabled at a later stage (S.9.1). It is left to participants to manage the protection of sensitive information during account set-up, transaction set-up, and problem resolution arising from unnecessary disclosure (S.9.2). RTP’s Operating Rules include provisions for the treatment of confidential information, require participating FIs to satisfy information security requirements, and set encryption standards for storing and transmitting RTP message data. Additionally, participating FIs will be subject to existing consumer privacy laws regarding the use of consumer data (e.g., Gramm-Leach-Bliley Act).
S.10 End-user/provider authentication

**Very Effective**  Effective  Somewhat Effective  Not Effective  Not Assessable

**Rationale:**

FIs that send payments will be required to have, at a minimum, a two factor authentication process that is consistent with FFIEC guidance. FIs may adopt different methodologies for authentication for particular channels, but they must be consistent with the standards that will be established once the operating rules are completed (S.10.1). The solution supports multiple levels of authentication and requires two factors (S.10.4). Providers’ and operators’ legal obligations are included in the rules as well (S.10.3). Participating FIs’ authentication standards must be FFIEC-compliant and updated regularly (S.10.4). To ensure that the payment reaches its intended payee, the payee’s service provider must acknowledge receipt and transmit the acknowledgement to the payer FI, which in turn, is required to make the receipt available to the payer (S.10.2).

S.11 Participation requirements

**Very Effective**  Effective  Somewhat Effective  Not Effective  Not Assessable

**Rationale:**

FIs will be held to rules depending on the functions that they play in the system (S.11.1). FIs connecting TPPs to the solution will have additional rules to follow; TPPs will have to apply to participate in RTP. TCH reviews and approves applications. Applicants must pledge adherence to participation requirements (S.11.1).

The Proposer indicates that requirements are in place to ensure that FIs and non-banks have the capacity to fulfill their legal obligations. The Proposal states that TCH intends to monitor payment and request for payment activity at a systemic level, which will allow for the identification and response to potential violations, but the Proposal can be improved by more clearly defining how they will monitor the system. (S.11.3).

**Speed (Fast)**

F.1 Fast approval

**Very Effective**  Effective  Somewhat Effective  Not Effective

**Rationale:**

The solution’s timeline for payment approval, including balance checking, pre-payment screening, and any other parameters should normally take less than a few seconds.
F.2 Fast clearing

Rationale:
The proposal states that clearing and settlement will take place in approximately five seconds, and typically in under two seconds (page 12).

F.3 Fast availability of good funds to payee

Rationale:
Funds will become available within seconds after payment acceptance. The RTP system is designed for acceptance/rejection of a payment to occur within 1-2 seconds of receipt of the payment message. It is worth noting though, that technical specifications allow a receiving participant up to 10 seconds to respond to the transaction so that the bank can execute secondary procedures related to safety, security, or sanctions processes.

F.4 Fast settlement among depository institutions and regulated non-bank account providers

Rationale:
The solution offers continuous, real-time settlement from pre-funded accounts (F.4.1-2). There is no capability for deferred settlement, as RTP is a real-time system (F.4.3).

F.5 Prompt visibility of payment status

Rationale:
The solution mandates payment status visibility to the payer and supports notifications to the payer and payee FIs. Payment status visibility will be available to all FIs in real time (page 12). The solution does not require that FIs notify end users as to payment status.


Legal

L.1 Legal framework

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**Rationale:**
The legal framework for TCH’s RTP system is robust and detailed. It addresses existing laws and regulations across a broad spectrum, including: (1) consumer electronic funds transfers, (2) commercial funds transfers, and (3) three categories of RTP-specific materials developed by TCH: RTP Participation Rules and Operating Rules, RTP Agreements, and RTP Schedules and Rules-Related Documents. The approach to the legal framework is consistent with approaches used for other payment systems, such as the ACH network.

Because participating FIs hold the accounts, they are responsible for compliance with banking and payments laws that apply to RTP transactions to and from those accounts.

L.2 Payment system rules

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**Rationale:**
The Proposer has developed a robust, comprehensive set of Participation Rules and Operating Rules.

The Participation Rules specifically address eligibility, outline how to become a participant in the RTP system, establish various categories of participants (e.g., funding, non-funding), and detail the requirements for using third-party service providers or funding agents for settlement.

The Operating Rules are equally robust and include requirements for using the system to send/receive RTP payments and messages. Additionally, they lay out participating FIs’ obligations and responsibilities in 14 areas, ranging from eligible payments to rules enforcement.

L.3 Consumer protections

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**Rationale:**
As discussed in L.1 and L.2, TCH is developing comprehensive operating rules and participant agreements that will establish the rights and obligations of participants in the RTP system and will incorporate existing law where applicable (L.3.1). The specifics on RTP’s consumer protections are still under development, but FIs are bound by existing consumer protection rules and regulations (L.3.2). Resolution of errors related to consumer claims will be the responsibility of participating FIs (L.3.2). The solution allows service providers to strengthen consumer protection provisions, and TCH can do so as well through its operating rules (L.3.3).
L.4 Data privacy

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Rationale:
The solution’s Participation Rules and Operating Rules include rules for data privacy. The Rules establish the rights and obligations of participants in the RTP system, including the designation of responsibility for payment authentication/customer verification, messaging, acceptance/rejection, funds availability, etc.

The solution relies on the fact that participating FIs are bound by strong compliance requirements. The proposal describes multiple protection tools but can be strengthened by providing details on data security processes and a list of the end-user data required for security, compliance, and authentication (L.4.3). It can be further improved by describing how end-users will have visibility into the collection and sharing of their data and how end-users will be able to change their privacy preferences (L.4.4). The solution’s approach to data breaches is based on avoidance, not prevention (L.4.5).

L.5 Intellectual property

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Rationale:
As mentioned above, TCH is developing comprehensive operating rules and participant agreements that will establish the rights and obligations of participants in the RTP system and will incorporate existing law where applicable. The can be strengthened by including a detailed analysis of the intellectual property approach or a detailed legal review, but does give a high-level outline of IP rights across the solution (L.5.1). RTP employs a solution that is already used under license in other major geographies.

Governance

G.1 Effective governance

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Rationale:
The solution’s governance approach provides “clear lines of responsibility and provides for oversight by TCH’s member financial institutions (G.1.1).” The governance model also includes a process for public disclosure of the system’s governance (G.1.2), a process for interested parties to provide input for system rules, and a process for due process regarding RTP rules decisions (G.1.3). While rated as “Very Effective”, the Proposal can be strengthened by detailing how other stakeholders can be included under the governance model.
**G.2 Inclusive governance**

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<tr>
<th>Very Effective</th>
<th><strong>Effective</strong></th>
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**Rationale:**

TCH’s business committee charter maintains that the business committee will take the relevant, appropriate public interest into consideration when making decisions about the RTP system’s strategic direction, safety, and soundness (G.2.1). The governance model is setup to have working groups and committees that fairly represent their stakeholders’ interest and risk while providing the opportunity to proportionately influence outcomes (G.2.3 and G.2.4).

The proposal can be made more robust by detailing the processes of collecting input from non-banks (G.2.2) and managing actual, perceived, or potential conflicts (G.2.5).
# APPENDIX A: ASSESSMENT SUMMARY

- **QIAT Assessment**
- **Proposer Self-Assessment**

## UBIQUITY

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<tr>
<td>U.1: Accessibility</td>
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<td>U.2: Usability</td>
<td>✓</td>
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<td>U.3: Predictability</td>
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<td>U.4: Contextual data capability</td>
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<td>U.5: Cross-border functionality</td>
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<td>U.6: Multiple use case applicability</td>
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## EFFICIENCY

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<tbody>
<tr>
<td>E.1: Enables competition</td>
<td>✓</td>
<td>○</td>
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<tr>
<td>E.2: Capability to add value-added services</td>
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<td>E.3: Implementation timeline</td>
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<td>E.4: Payment format standards</td>
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<td>E.5: Comprehensive</td>
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<td>E.6: Scalability and adaptability</td>
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<td>E.7: Exceptions and investigations process</td>
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## SAFETY AND SECURITY

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<tr>
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<td>S.2: Payer authorization</td>
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<td>S.3: Payment finality</td>
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<td>S.4: Settlement approach</td>
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<td>S.5: Handling disputed payments</td>
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<td>S.6: Fraud information sharing</td>
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<td>S.7: Security controls</td>
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<td>S.8: Resiliency</td>
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<td>S.9: End-user data protection</td>
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<td>S.10: End-user/provider authentication</td>
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<td>S.11: Participation requirements</td>
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<tr>
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<td>F.2: Fast clearing</td>
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<tr>
<td>F.3: Fast availability of good funds to payee</td>
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<td>F.4: Fast settlement</td>
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<td>F.5: Prompt visibility of payment status</td>
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<td>L.1: Legal framework</td>
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<td>L.2: Payment system rules</td>
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<td>L.3: Consumer protections</td>
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<td>L.4: Data privacy</td>
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<tr>
<td>L.5: Intellectual property</td>
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<thead>
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<th>Effective</th>
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<tbody>
<tr>
<td>G.1: Effective governance</td>
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<td>G.2: Inclusive governance</td>
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APPENDIX B: PROPOSER RESPONSE TO QIAT ASSESSMENT

Overall, we believe that the QIAT Assessment is a thorough and accurate evaluation of our Proposal and the end-to-end design of the RTP system that TCH will be deploying. In support of that work, we would like to further clarify two important points noted in the Assessment (S.1 and F.5) as well as our rationale for the Very Effective ratings in our self-assessment for Handling Disputed Payments (S.5) and Participation Requirements (S.11).

S.1 Risk Management – “There is a set of operating rules in place for TCH's existing business, but rules for the real time system need to be developed (S.1.3).”

Comment: Subsequent to the initial submission of our Proposal, TCH finalized a set of Operating Rules for the RTP system. The Operating Rules set out requirements relating to use of the system to send and receive RTP payments and messages, and will require Participants to comply with risk management obligations, including with respect to customer authentication, fraud monitoring, and information security. In addition, TCH will apply a robust risk management framework to the operation of the system. This framework exists outside of the RTP Operating Rules, and includes significant resources devoted to system reliability and resiliency, security (e.g., physical, operational, network security), incident response, overall risk management, and comprehensive business continuity plans.

S.5. Handling disputed payments – “While the proposal does not detail the rules for payment disputes, it does describe a process to request the return of erroneous payments, though not as an automatic return capability (S.5.3).”

Comment: We believe it is important to emphasize that the RTP system has been designed to support only credit push payments and, thus, cannot be used by third parties to initiate unauthorized debits to accounts. Such unauthorized debits are the primary source of disputed transactions in existing payment systems. In contrast with a debit transaction, in a credit push payment the responsibility for authenticating the payer and payment are placed on the payer’s financial institution, which is in the best position to perform these tasks. Further, the RTP Operating Rules incorporate existing law (i.e., Regulation E and UCC 4A) that sets forth a well-established framework regarding banks’ liability for unauthorized transactions from their customers’ accounts, as well as specific requirements regarding the resolution of errors from consumer accounts. This structure, and the inherent incentives it creates, will simplify the account-holding financial institution’s dispute investigation processes and minimize the need for a detailed set of interbank dispute resolution rules.

S.11. Participation requirements – “The Proposal states that TCH intends to monitor payment and request for payment activity at a systemic level, which will allow for the identification and response to potential violations, but the Proposal can be improved by more clearly defining how they will monitor the system. (S.11.3).”

Comment: TCH has developed detailed processes to monitor and ensure Participant and PSP compliance with the RTP Operating Rules. Specifically, the RTP Operating Rules require Participating FIs to conduct a self-audit for compliance with the Operating Rules on an annual basis, and to report its findings to TCH. The Operating Rules also provide TCH comprehensive authority to audit, monitor, inspect, and investigate any Participant or PSP for rules compliance, and to limit, condition, suspend, or terminate a Participant for non-compliance. The system’s centralized fraud-monitoring capability will be used to monitor payment and request for payment activity at the systemic level, which will allow TCH to identify and respond to potential violations of the RTP Operating Rules.
F.5 Prompt visibility of payment status - “The solution does not require that FIs notify end users as to payment status.”

Comment: The RTP Operating Rules do require FIs to promptly notify end users of payment status. Specifically, Operating Rule II.G.1. which states that “Sending Participants and Receiving Participants must immediately make available information regarding the status of an RTPS Payment to the Sender and Receiver, respectively ...”

We would like to commend and thank the QIAT for their work, the thorough and thoughtful questions that we received as a result of their initial review, and this final assessment of our Proposal.
THE CLEARING HOUSE-FIS PROPOSAL

TASK FORCE ASSESSMENT COMMENTS

Please share your concerns about this proposal’s assessment against the Effectiveness Criteria.

While the proposal adequately addresses many of the items in the effectiveness criteria it is severely deficient on competition and governance which the ratings by the QIAT do not reflect appropriately. The current proposal just expands the large issuer’s dominance and ability to collaborate behind The Clearing House. By only allowing regulated FI to participate in the scheme competition is stifled.

The proposal also outlines a governance process by which The Clearing House will set the rules in which all the participants will be beholden. While they mentioned a business review committee, this committee does not seem to have any real power and just can suggest changes. This structure is similar to that of PCI and EMVco which does not allow for all stakeholders to participate in the setting of rules. Under this scenario the owners of The Clearing House, which is the largest issuer institutions will be able to dictate the rules to the rest of the payment stakeholders.

U.1.4. Underbanked should be "not effective." The approach will only serve end-users with bank accounts. This is a lost opportunity. Other solutions allow for non-banked entities to create accounts within a non-bank (i.e. WingCash or Kalypton).

S.1 and S.3 should both be "somewhat effective." There is not adequate discussion of how to reverse unauthorized payments. Additionally, the solution leaves open the continued presence of overdraft.

E.7. Should be "somewhat effective." Currently, Reg E requires funds to be returned to the payee during the period of time of investigation. True, the approach will record details of payments, but it does not account for situations where there is an unauthorized payment due to fraud.

S. 5 Handling disputed payments: This should be rated “somewhat effective,” as there is inadequate detail on treatment of push-credit fraud, very few obligations on the part of the receiving FI, and no detail on how fraud allegations are resolved. Some solutions acknowledge that off-line entities can send requests for payments—this is a common fraud technique in the current payments arena.

L.3. Consumer protections: “effective,” not “very effective,” because of the lack of protections for victim-assisted fraud; uncertainty around overdrafts; and unclear rules on requests for returns.

G.2 Inclusive governance: This factor should only be “somewhat effective” rather than “effective” due primarily to the inadequate process for ensuring adequate consideration of consumer viewpoints in the developing the rules. The proposal relies on TCH to act in the public interest and take input, without details on how to collect input or avoid conflicts of interest. There is no requirement for consumer or other public participation on the business committee.

The proposal is not in conformance with the requirements of a full solution proposal. The requirements were designed to ensure that McKinsey and Task Force time and resources are focused on end-to-end
solution proposals that can be thoroughly and credibly assessed against the criteria. This proposal does not meet the requirements. Proposal has answered all sections of the template but in many cases the response does not provide information that would allow the QIAT to evaluate the proposal. The Proposal Template included instructions for Part C: Self-Assessment against Effectiveness Criteria that asked proposers to include a "detailed discussion of why the rating is justified and how the solution meets each criterion" (page 22 of template). It does not include specific information in Part C as to how or why the proposed solution meets each of the criteria. As a result, the QIAT is unable to evaluate the solution with the information provided. Altering the existing process defined to offer an opportunity for the proposer to include more explicit information in its submission to make the proposal “assessable” would be unfair to proposers who provided complete proposals before the submission deadline. A few of the reasons why the proposal did not meet the requirements are as follows: The solution does not include B2B, B2P, P2B, and P2P, and the associated cross-border payments. The solution applies only to FIs. The solution does not include multi-currency. The solution has no payment return rights.

Please submit any comments about this proposal’s assessment against the Effectiveness Criteria.

U.1 Accessibility should be rated as Effective as the only providers that can offer the solution are FIs, which does not include the unbanked. Solution is also limited to only US currency.

E.5 Cross-border functionality should be rated as Somewhat Effective as the solution does not include cross-border capability and there is no defined plan as to when this option would be available.

E.1 Enables Competition should be rated as Effective as the solution is still only limited to FIs so competition for third party processors and non-FIs are not included.

E.7 Exceptions and investigation process should be Effective as there is a gap in the dispute resolution process needed to be considered as Very Effective.

Well conceived solution that has the ability to bring a significant number of users to the process from the start. Thank you for this submission.

In my opinion the TCH/FIS proposal is the MOST well thought-out and holistic domestic proposal I reviewed. It will be interesting to see what the OFAC reply is to their question around OFAC requirements for RTP and what the "true" speed of RTP is once any U.S. regulatory requirements are met at the transactional level. I think the most success will come from this solution!

While system is for all FIs, plans to achieve ubiquity are not defined. A more inclusive governance model is desirable and could help achieve ubiquity.

A very strong proposal. I believe the costs of implementation and inclusion are greatly underestimated.

The proposal was fairly assessed when taken at face value.
The use case example for B2P payment is inadequate and does not accurately portray how most Property and Casualty Insurance payments are disbursed.

Accessibility seems more highly rated than other solutions described in comparable ways. Predictability seems to be comparatively rated too highly vs. other proposals, as the end-user interface will be highly variable as delivered by each individual FI. Rules criteria seem too highly rated, as the topics are called out but not the specifics of the rules such that their impacts on all participants cannot be assessed or understood.

The proposal was well-received by the QIAT, and this was a fair assessment. This is one of the most complete proposals received, if not the most complete.

I have a concern over the Accessibility of the solution, specifically that only FIs can connect to the RTP network. PSPs can only connect through a bank partner. This will restrict accessibility to the solution. In light of this issue, I would suggest that Criteria U.1 Accessibility should have been rated "Effective" rather than "Very Effective."

The ratings are generally fair. I have concerns, however, that the S-criteria received almost entirely "very effective" ratings. The proposal seems to rely too much on credit push to prevent fraud.

Overall, I thought OK but confused by S.7 results. The payer verification seems to be dependent upon the FI. It mentions multi-factor authentication but seems to also allow passwords only. The implementation doesn't seem to mandate strong identity management. The solution security is dependent upon the FI to self-attest and decide what is acceptable identity management. Confusing to me how that rates very effective S.7?

(1) Will be built on ISO 20022 messaging standards (2) transactions completed in seconds (3) no need for businesses & consumers to enroll (4) ability to add value-added services (5) partnering with FIS, D+H & JHA to achieve ubiquity (6) supports entire payment cycle (7) partnering with Vocalink for technology & they are core technology in other countries (8) enables all types of push payments (9) fast – less than 10 seconds (10) solution centrally monitors for network level fraudulent activity and provide fraud alerts to FIs to supplement their fraud detection capabilities (11) can initiate payments from multiple channels and devices (12) different types of authentication available (12) any FI can be included, payment service providers can work through FIs to provide prepaid accounts, etc., which will help unbanked accessibility. FI’s technology providers will have to work through ADA but they are encouraging this.

The proposal was very comprehensive and addressed all categories within the criteria. Moreover, the proposer's self-assessment was very consistent with the McKinsey assessment. My reservation would be in the areas of Safety and Security and also the Legal and Governance categories within the criteria. Given the seemingly conceptual and yet to be proven status of the proposal, I would submit the consistent assignment of very effective with an occasional effective seems somewhat optimistic or at least in the benefit of the doubt category. It is a very impressive proposal with the prospect of scale and adoption and that was captured within McKinsey's assessment.
Proposal met most criteria, as noted by the QIAT.

The proposal itself was at a very high level and opted not to deal with the effectiveness criteria in detail. For example, there was very limited treatment of the important safety and security section with a total of three pages to address 11 effectiveness criteria. The “U.S. Real-Time Payments Business Playbook,” pages 60-105 of the solution proposal, did not seem to fit well into the solution proposal template.

Proven scalable end-to-end solution with 24X7 availability. Entirely new rail and governance. Only reusing telecom infrastructure. Banks would have to add new payment modules to their existing hubs. MasterCard acquisition of VocaLink is irrelevant. Platform for innovation. Existing governance organization. Limited to FIs. No cross-border. UX is dependent on FI.

Solid solution. Already has many leading industry (FIS, D+H, Jack Henry and others) who have contributed to the design and delivery of the solution components. Supports the full end-to-end payment cycle and has effective ways to address fraud, compliance, KYC, AML, etc. Like the fact that it will be built on ISO 200022 standards.

Note that our small disagree would be with Competition rating as Very Effective. The solution is designed for financial institutions only therefore not meeting need or value of competition for merchants or service providers.

TCH is an experienced and well-respected market infrastructure operator. They have been actively engaged in the faster payments task force initiative since Day 1. In addition to contributing to the work of the task force, they have considered industry input, as reflected in the effectiveness criteria, and incorporated key aspects into their solution proposal. As a result, the highly rated QIAT assessment is not a surprise.

Agree as assessed—overall, the solution is very effective at meeting most of the criteria.

Rating for Cross-Border is Effective. This seems like a stretch, since the solution does not address cross-border currently.

The QIAT completed a comprehensive review of The Clearing House and FIS proposal. Both the QIAT and the Proposer’s assessments are very consistent indicating the proposer has a firm understanding of the effectiveness criteria. As an established provider of existing U.S. payment settlement solutions The Clearing House has existing capabilities and expertise in payment settlement. Their proposal for a new payment system for faster payments addresses the broad set of effectiveness criteria published by The Task Force and indicated by the QIAT.

As a Central Infrastructure technology for faster payments, this solution will still rely on the FI providers, either FIs connected directly or FIs via Third Party Service Providers connecting FIs, to successfully integrate businesses and persons to securely leverage a faster payment service.

The QIAT has delivered very high scores in assessing ubiquity for The Clearing House and FIS solution. Where ubiquity is a set of effectiveness criteria that will be critical for broad adoption.
Nailed it. This was a very strong, realistic proposal and the assessment reflected the time, care and attention that went into the submission.

The Clearing House proposal relies on their proven strength, stability and reputation. Modeled after CHIPS the proposal puts forth a safe, sound and reliable solution.

The concern would be the need for the FED to be open in order to provide the ability to have sufficient funds available in a bank’s prefunded account 7X24X365. The question is: what would happen if the amount was not sufficient after normal Fed operating hours—weekends and holidays?

I agree in general with the appropriateness of the assessment, however the "very effective" rating on "enables competition" could be challenged given the fact the solution is directly available only to financial institutions. Also, cross-border functionality was rated "effective" although the solution doesn't have this capability.

TCH offers a good model of their already existing infrastructure, but continuously being improved to meet both domestic and international faster payments needs. Their current relationships and market share of FIs is impressive, which add value to their model’s current and future state. I believe this solution has a potential for Faster Payments. The solution is only available to FIs based on the model; any other participants would have to have a bank account with a participant FI.

The Clearing House (TCH) currently owned by the largest 24 commercial banks with “61% of all US deposits.” TCH RTP with incorporate domestic and international selected group of bank tech partners (e.g., domestic -FIS, D+H, and Jack Henry & Associates/international Vocal Link) to be able to provide an RTP for all FIs who will be able to: send real-time & non-payment messages, settled immediate and leverage existing security from their current power banking channels platform, integrate immediate settlement with rich capabilities and banks & technology firms will be able to build applications and products on top of the RTP platform, ISO 20022 standards and Clearing house RTP with current and proposed seven (7) unique features: 1) Fast-Payments are completed immediately, 2) Seamless, 3) Multi-purpose, 4) Safe, 5) Compliant, 6) Ubiquitous, & 7) Global-ready.

This is the strongest proposal that has been submitted. The transaction model proposed is well known and proven. The technology is known and proven and the firm that has been hired to build it has done this before. The Clearing House has a built-in constituency that will give the scheme immediate acceptance and volume. Although the proposal leaves the details of any universal directory open, in conversations held with the Interoperability SWG the proposers have shown that they fully understand the directory issue. There is a drawback that is either a matter of fact or of perception and that is that the proposer is seen as the big elephant in the room and institutions smaller than the proposer's current membership and users have expressed discomfort and in some cases opposition to the proposal simply on this ad hominem basis. Pairing this proposal with one of the ones that focuses on smaller institutions would both enable this proposer's solution to get built and deal with the concerns that have been voiced.
TASK FORCE SOLUTION-ENRICHING COMMENTS

Ubiquity

Thank you for this submission. I felt it was well conceived and very functional and that you could bring a meaningful number of users into the proposed system.

TCH along with FIS is well positioned to quickly achieve critical mass in the marketplace.

Currently, a few core service providers control a lot of what products small and medium financial institutions are able to provide. In order to be successful, TCH will need to connect with many of these providers, they have already signed up a couple. I would like to see a road map for how TCH will be able to work with these core providers in rolling the solution and thus have a cost-effective solution available to small and medium-sized financial institutions.

The solution could be enriched by incorporating a plan that provides for regulated non-bank service providers to utilize the RTP system. The proposal suggests that ubiquity is obtained through partnerships with Processors (FIS, Fiserv, Jack Henry, etc.), who have a relationship with a financial institution.

The solution could be enriched to detail how cross-border payments will be achieved based on the financial institution requirement within the proposed solution.

The solution does not address the unbanked/underbanked directly. Instead the responsibility is placed on other technology service providers to create adequate products around RTP.

Clarify how all account holders are enabled without enrollment (i.e., without the account holder authorizing their bank to allow a specific phone or email to be designated as their alias in the system). More information should be given regarding how to enroll and authenticate first-time end-users who use an FI that is not yet part of the solution.

This is hands down the strongest proposal. My only concern is that TCH is owned by the large FIs. How do we ensure ubiquity and inclusion on smaller FIs in a timely fashion to achieve ubiquity? And will the pricing for non-owner FIs be affordable enough to encourage participation?

My concern is with the accessibility of the solution, specifically the restriction of direct network participation to Financial Institutions only.

The RTP network is open to Payment Service Providers, but only with respect to their processing on behalf of an FI. This will restrict the use and growth of this significant new payment offering to the existing participants in the financial system.

Other countries around the world have recognized the benefits (in simple accessibility and in innovation) of opening traditional payment networks to new, non-financial participants. As long ago as the mid-1990s, Canada's regulator forced the Interac debit network (then a closed network of FIs only) to open
to non-FIs. It swiftly added several new processors—including not just FI processors but large merchant acquirers as well. In the UK today, the regulator is forcing open faster payments to non-FIs, Money Transfer businesses and even FinTechs. The Clearing House should consider opening RTP participation to non-Financial institutions in a similar manner—large retailers, 3rd party processors in their own name, FinTech application providers, even large billers. (The first and last would be excellent examples for the Request for Payment use case.) I completely understand that there are issues of settlement and liquidity (and others) to be managed. These should be solvable problems. I’m sure The Clearing House considered this matter seriously in the creation of its offering and did not make this decision lightly. Perhaps this is under consideration for a future enhancement of the network.

I was a bit unsure of how non-bank FIs could connect to the system. The details seemed a bit scarce and that is most likely because that would be a service offered by the FI and not an overt part of the solution. As accessibility goes, that is an important piece that could be provided in more detail. As a governmental end-user it is important that the underbanked and unbanked have access to this solution as well.

(1) Participating FIs responsible for end-user experience (2) cross-border not included yet (3) not multi-currency yet (4) no timeline provided (5) merchant community concerns about FI-owned consortiums not linked to other countries initially.

By partnering with core providers, adoption could be faster.

The proposal does not define the end-user experience, like other proposals, but seems to receive above average scores for Ubiquity (e.g., Accessibility, Usability, and Predictability).

The proposal defines “Ubiquity” as, “Built for all US financial institutions.” The proposal outright achieves the first half of the TF-approved definition of Ubiquity through its partnerships with core providers, but implies the second half: (“1) A Payment System that can reach all Accounts 2) to ensure that a Payer has the ability to pay any Entity.”). To claim Ubiquity and bolster market confidence in the solution, the proposal should share more details on how and which processes and solutions would be needed to facilitate end-user engagement with the system. For example, 1) how an end-user associates his/her email/SMS number with his/her account at a DI, 2) how a payer or payee sends or requests funds with a non-participating FI or an unregistered individual recipient, or 3) how an FI uses said emails/SMS numbers to identify and capture a payee’s routing and banking information to proceed with payment to the Operator.

The Directory is not discussed in great detail. To bolster market confidence in its feasibility and further contribute to the TF, the proposers could elaborate on their perceived workings, capabilities, and operational requirements of a directory.

The proposal’s claim that “There is no need for individuals or businesses to ‘enroll’” may be misleading, as additional action is still required by an end-user to associate a unique destination ID (i.e., email or SMS number) with his or her individual account at a participating DI. Suggest clarifying this point.
The Clearing House joins a handful of other forward-thinking proposals (e.g., Dwolla, Ripple, etc.) in acknowledging and incorporating the value and potential utilization of APIs to facilitate third-party access (via a sponsoring FI). The FI landscape and TF would benefit from further information on how TCH sees APIs developing and existing in its solution (e.g. standardization, authentication requirements, revocation of permissions, etc.) and what special considerations (outside of its operating rules) it’s monitoring or looking for input on.

Pre-authorizations greatly increase the value of a faster payment system. To help conceptualize the value provided by pre-authorization to the market, the proposal could demonstrate the convenience offered to an end-user (e.g., a scenario in which pre-authorization for a recurring payment is collected, stored, and continuously used by a payee).

Ease of use—existing product from FIS. Proven, established provider.

Of all solutions proposed, this solution appears to address and fit the needs better than any of the others.

I would commend TCH and FIS for reaching out to companies like D&H and Jack Henry to increase the reach of their solution.

Speaking for the ATM channel, ATMIA has some concerns about the potential ubiquity of this solution, because it still relies on banks to initiate the payment process. Consumers do have some ability to do so today, but this option does not seem to lend itself to true ubiquity. Unbanked and underbanked consumers, who currently rely heavily on the ATM channel, may encounter considerable obstacles when trying to take advantage of an ACH-based process.

Need some clarity on how unbanked users could access this. Need some additional thought on cross-border to make it more compelling for that use case.

Multiple options to connect, direct integration or through a 3rd Party vendor helps build the case for ubiquity.

Their solution that does not requiring enrolling should help increase adoption.

Concerns about the solution applying ONLY to FIs and everyone wanting to access the system having to have an account or relationship with an FI.

U.1 Accessibility – We would like direct access vs. having to enroll through an FI.

U.4 contextual data – Additional messaging held in an external source or URL seems inefficient if messaging is separate from transaction.

(Please see comments in the earlier section of this survey re: the Clearing House's built-in ubiquity.)

Efficiency
The cleanness of design is simplicity in itself. It appears to be well-thought out to provide a FI opportunities to add value-add enhancements.

If there was a defined criteria for participants which was based on preventing risk within the system the solution would generate more competition allowing it greater efficiency. By limiting participation to member banks it by nature prevents competition.

It would be helpful to describe what contextual data needs to be supported by all parties in order to consistently understand and be ready to both send and receive the data that flows with the payment itself.

The Clearing House’s use of existing messaging paradigms, the experience of its partners (i.e., Vocalink and service providers), and its proven commitment to helping evolve/shape future ISO iterations offers a matter-of-fact, pragmatic, and well-articulated approach to settlement, clearing, and reconciliation. The result is one of the more technically developed messaging solutions of all proposals.

Continuous settlement through pre-funded accounts at the Federal Reserve offers a workable concept from a funds flow perspective, but may create unforeseen regulatory, financial, or business burdens/requirements on participating FIs. The proposer may advance its agenda and solve for known risks or concerns, by sharing them with and pulling solutions from TF. For example, by wisely acknowledging that confirmation from the Federal Reserve to create a “for benefit of” account at the Fed is required, the proposal is able to garner support for such a relationship from the TF.

More details regarding pre-funding of accounts are understandably vague at this point, but more information (e.g., proposed ratios, cash reserve status, etc.) would be helpful in base-lining the potential requirements of a bank and third-party service provider (as applied by its sponsoring FI).

To promote access, The Clearing House wisely calls for tiered requirements from stakeholders and participants directly or indirectly accessing the system. These are based on their role, usage, and risk level. In theory, this approach paves the way for a thoughtful extension of access to other participants, maybe even direct access to a PSP. Applying these requirements to a next-gen business model (e.g., ride sharing service use case) may help the industry better conceptualize this level of access and comment on expected requirements (e.g., compliance reqs are too strong vs. not strong enough).

The proposal does not dictate end-user interfaces, only the messaging between participating DFIs and pieces of infrastructure. This gives providers the flexibility to render their services in potentially more appropriate languages (e.g., JSON) that may be more modern and easier to build with than ISO’s XML.

More information is needed to assess interoperability with as a multi-operator system.

The Business, Operations and Technology Playbooks are an excellent addition to the proposal as they reduce the barrier to entry for FIs to discuss and plan Faster Payments at their bank or credit union.

Relying on some existing as well as new procedures/solutions, this proposal appears to provide for an efficient, safe solution.
Page 111 e7.3 – TCH will have a fraud system that banks can subscribe to – how will that affect overall throughput and fraud reporting?

Page 113 s6.4 fraud is scored in real time—how does that affect overall throughout and fraud reporting?

The Clearing House has an excellent record for efficiency. FIS is less of an absolute on the matter but seems to do well enough.

**Safety and Security**

Clearly define how the payment system will be monitored by TCH.

TCH/FIS’s proposal appears to be very strong in terms of payment security, particularly user authentication. Unlike many other solutions this one clearly requires, at a minimum, two-factor authentication. It also clearly explains the various data protection protocols the system and its member FIs will be held to.

Great inclusion of fraud monitoring and processes behind it. Plus that tokenization is core of solution.

Error resolution puts the onus on the originating FI. Additional rules would be helpful as there are always exceptions. Pushing too much of the risk on the ODFI could make banks reluctant to join. Allowing participating FIs to identify fraudulent accounts centrally would help.

Credit-only model and pre-funding helps minimize risk exposure.

Page 55 what is your duplicate payment detection process?

Page 102 as banks can use their own token schemes—will RTP enforce token standards?

Page 114 s.8 quarterly contingency tests—what are the participants’ responsibilities?

S. 4 Settlement – Pre-funded accounts – this will require weighing the financial impact versus the operational benefit of maintaining pre-funded accounts. We would need to understand associated costs of having to have intraday lines to cover this.

S. 5 Handling disputes – Even though the transactions are final, would still like more clarity around what the process would be to resolve a dispute for a misrouted transaction.

The safety and security of the Clearing House as an is unimpeachable and they have assured in their proposal that this remains the case. They have invested heavily in safety and securing and, given the size of the typical transaction and the weight of their member customers, they have every incentive to continue to be safe and secure. (I am not knowledgeable about the security of the FIS piece.)

**Speed (Fast)**
True speed of the payment will be driven by our success in convincing OFAC that we ONLY need scan international traffic so OFAC would not apply to what today is a domestic ONLY solution.

Focus more on same day, expand presentment windows in the NACHA rules and near-real-time would be achieved without the expense of real-time.

Initiative in place by working with other providers – JHA and more cores – minimizing risk and end-users satisfied with immediate receipt.

Appears to be a safe and fast solution allowing for the users’ needs to be met.

For applications in the ATM channel, the potential for a "15-second round trip" for initiation, approval, and settlement, could be problematic. This be further exacerbated by delays in approvals.

Page 26 - The fifth bullet I believe settlement parties are reversed.

Page 26 - participant pre-funding must be enough to cover non fedwire hours - what happens if a bank does not have sufficient monies in their pre-funded account during non fed systems’ working hours?

Page 27 - when are the reconciliation Windows - how many are there?

Their proposal, and the example of other systems built by Vocalink, indicate that the necessary speed will be there.

Legal

The proposal could be enriched by providing the payment system rules developed for the RTP network which includes participating requirements/agreements, error resolution/dispute handling, and data privacy.

Provide details on rules so that all participants can understand impact on their roles and responsibilities. Describe rules more fully.

The proposal acknowledges the need for end-users to revoke payment authorization, but does not discuss what requirements are borne by third-parties or FIs, or how an end-user would revoke them.

Pages 46 and 55 – how does a bank notify TCH of possible fraudulent activity? How does TCH advise members about possible fraudulent activities?

No apparent issues.

L13. Are account holders beneficiaries of the RTP Participation and Operating Rules?

Governance
Could the NACHA organization assume the role of providing governance for RTP as well? The experience and structure that exists today for ACH could provide a basis/ground work for building the RTP governance and do so likely in a quicker time horizon than building from ground up. The RPAs could also then continue to be an education arm for RTP as they are for ACH. I do not see the FED being interested in supporting this role nor would I feel it appropriate for them.

I would also view the TCH as having a role in governance working with NACHA through the development of an RTP TCH business committee.

While the proposed solution details the overall governance will be The Clearing House member banks, the solution could be enriched to allow additional non-owner Financial Institutions to have both a seat and a vote in governance and rule making processes in order to be more inclusive. The solution notes a business committee charter but falls short in how the collecting of input from non-owner banks will be obtained and managed.

This proposal would be much stronger if it allowed all stakeholders voting rights on payment rules and regulations.

Describe more fully how inclusive governance is achieved.

As a government end-user I was underwhelmed by the details presented in governance. Details on how end-users will be included in governance decisions moving forward would be helpful. This piece is particularly concerning seeing as how the Clearing House is owned by FIs. Ensuring this solution meets the needs of everyone, FIs, end-users, and customers, necessitates involving all of these groups in meaningful ways to address the growth and issues that will arise with the solution. A detailed outline of how this will work is needed.

Our organization would like to see more inclusive financial institution input for rules, regulation, operations, and administration. If this truly is to be a national payment system, we need to foster competitiveness on a level playing field. This scheme can be improved, and can be more successfully ubiquitous through said inclusiveness and full industry transparency.

Excluding potential FRB involvement, which our segment will continue to request, we also want more oversight/control over each institution’s reserve/settlement accounts. This is more than a settlement conversation and presents new risks that do not necessarily exist in our industry today. Joint custody accounts with interest being earned/paid can help address some of these specific shortfalls.

The governance of the TCH/FIS systems is lacking because it includes only member financial institutions. This means that other stakeholders, e.g., consumers and merchants are prevented from truly participating in the governance of the system.

Closed systems of governance are inappropriate in a payments system that must balance the needs of a large number of stakeholders with disparate priorities. While the TCH/FIS proposal includes a process for these stakeholders to provide input, there is no mechanism to ensure that such input is considered
appropriately or given the same amount of weight that would be given to inputs from member financial institutions.

Just need to shore up rules/governance. Should not be complicated keeping with existing Reg E, OFAC, KYC, AML.

Not sure this was fully addressed.

Their governance proposal seems to follow a similar approach for what they have set up with the Electronic Payments Network which has been successful.

G.1 Effective governance & G.2 Inclusive governance – EFFECTIVE, overall I believe is an effective proposal for the governance structure.

Effective Governance – RTP Operating Rules “include provisions that authorize TCH to investigate any Participant FI or PSP for rules, compliance, and upon determination or a rules violation by the RTP rules ...” “The Clearing House has established governance arrangements for the RTP system that are designed to ensure its success...” “RTP business committee charter states that the business committee will take relevant and appropriate public interest into consideration when making decision with respect to the strategic direction, safety and soundness of the RTP system.”

Inclusive Governance – “RTP business committee charter” – same as above.

G.2 Inclusive governance – If direct access is allowed, we would like to have a vote on rules changes.

The governance of TCH itself is clear and seems acceptable. I am not sure how the addition of FIS will affect governance and didn’t see that it was spelled out. This should be clarified. The larger governance issue is the question of how much weight other participants outside the owners of TCH would have. My feeling from knowing the organization is that they will meet the non-owner participant’s requirement for a fair governance structure and role out of self-interest in seeing that they gain membership by these smaller players.

Is there sufficient consumer voice?
The Clearing House and FIS response to Task Force Solution Enriching Comments
We sincerely appreciate the time and attention that the Task Force members have given to our Proposal and would like to thank all of those who have taken the time to submit comments. We have found all of the Solution Enriching Comments to be very thoughtful and feel that they will be extremely helpful to us both as we deploy our solution to the U.S. market in 2017 and as we expand it in the years ahead. There were two areas noted in the comments, related to underbanked/unbanked and direct access, where we feel some additional clarification is warranted and so have provided that below;

- Direct access - the system and system rules were designed to allow nonbank Payment Service Providers (PSPs) to utilize the system. In particular, the RTP Rules include specific provisions and requirements that would allow PSPs to send and receive RTP payments to support faster payment services for their own clients. PSPs will be able to provide payment services that rely on the RTP system pursuant to a well-defined framework. We feel that this approach allows us to balance the safety and security of the system, with the broader need for access by third parties. By providing explicit guidance and a standard set of rules regarding utilization of the system, PSPs will have clarity and certainty across this payment ecosystem, which are crucial to the development of new and innovative products.

- Support for underbanked and unbanked - we feel our solution design incorporates a number of components that will be very favorable to consumers and addresses a number of deficiencies cited with current banking products. By adding more core value to these products we feel that it will help increase both adoption and use of account based services by the general population. We also feel that the access model for PSPs (above) will enhance their ability to innovate and to reach the underbanked communities in ways that they may have historically been unable to do.

In closing we would like to thank the Task Force members for their comments, as well as the Federal Reserve Banks for their leadership and McKinsey for their management of the Proposal process. We feel it has been an extremely well run effort from beginning to end and look forward to seeing the final reports.
Faster Payments QIAT

FINAL ASSESSMENT

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Faster Payments QIAT

FINAL ASSESSMENT

Proposer: The Clearing House and FIS

Summary Description of Solution:
The TCH-FIS solution is a new, comprehensive, real-time payment (RTP) system for all financial institutions (FIs). Based on internationally tested solutions and established structures, the system will enable real-time credit-push payments from any account at a U.S. financial institution, as well as non-payment messages directly from bank accounts to accounts at any participating FI. Providers can also connect indirectly through one of TCH's partners. The system operates 24x7x365 and leverages the safety and security of existing bank channels and risk management controls.

EXECUTIVE SUMMARY OF THE PROPOSAL

Major strengths

- The Clearing House (TCH) is developing a solution designed to meet the desired outcomes of the Faster Payments initiative in the U.S. The solution—referred to as “RTP” in the proposal—is an interbank, real-time clearing and settlement solution based on established structures and internationally tested solutions. (TCH has almost completed the build of a real-time payment network with VocaLink.) RTP is built to foster innovation in the payment system marketplace while providing a core infrastructure for the industry.

- Any financial institution can connect directly to RTP, or it can connect indirectly through one of TCH’s partners (FIS, Jack Henry, and D+H, with more to follow). Available 24 hours a day, seven days a week, year-round, the solution enables real-time, credit-push payments from prefunded accounts at participating FIs—along with accompanying, real-time, non-payment messages—directly to accounts at any participating FI.

- The RTP system is a network only—i.e., it provides a core infrastructure that enables the development of value-added services in the marketplace. Participating FIs are thus responsible for the end-user experience, while the RTP infrastructure ensures consistent processing.

- The solution includes a fully developed, real-time settlement system that leverages the safety and security provided by existing bank channels and risk management controls. The solution is fast: payments are cleared and settled immediately. (More specifically, settlement is expected to occur in less than two seconds, but the system’s technical specifications allow “up to ten seconds” for the receiving, participating FI to conduct a secondary process related to safety and security.) Good funds are available to the payee within seconds, and visibility into payment status is provided to all parties in real time.

- RTP leverages the ISO 20022 messaging format, a global, open standard that supports innovation and the development of value-added overlays. Thanks in part to the use of ISO 20022, the solution is well-positioned to support international payments in the future.

- The solution can centrally monitor for network-level fraudulent activity and provide fraud alerts to FIs. This capability will augment and support FIs’ current fraud detection capabilities, which are typically automated but not necessarily real-time with respect to transactions to and from the RTP system.
Areas for improvement and enhancement

- The solution is directly available only to FIs. Payment service providers (PSPs) must have an account or relationship with an FI to participate.

- The solution does not yet include cross-border capabilities, although TCH has a credible plan to implement these in close co-operation with comparable RTP systems worldwide. No timelines are provided in the proposal. The solution is not multi-currency, so it is limited initially to domestic transactions and cross-border transactions in USD.

Use cases addressed

- The solution addresses all four major use cases (P2P, P2B, B2P, and B2B). It does not yet include cross-border capabilities.

Proposer’s overall ability to deliver proposed solution

- TCH is a well-known and respected clearinghouse with a long history of launching industry endeavors (e.g., the creation of EPN). In conjunction with FIS’s history of successful payment platform installations, the proposers are well-positioned to effectively deliver the solution within the timelines outlined in the proposal.
ASSESSMENT

Ubiquity

U.1 Accessibility

Very Effective      Effective      Somewhat Effective      Not Effective

Rationale:

The solution is an open, available system that is expected to be accessible by all U.S. financial institutions—regardless of size or charter type—as long as they satisfy the technical specifications and other eligibility requirements set forth in the RTP rules. RTP enables connectivity directly with regulated depositories, indirectly with non-regulated providers, and with international networks.

Only FIs have direct access to the solution; PSPs must have an account/relationship with an FI to participate (U.1.1). But since non-bank account providers typically carry their accounts at depository institutions, an end-user does not need to own an account at a bank (U.1.4). However, non-bank account providers would need to access the RTP through a bank partner (as they do for ACH); sign-up requires bank status, and payments flow entirely through secure bank channels. This has the potential to constrain accessibility (and likely imposes additional delays or cost) for technology players and other providers with MTL licenses who want to deploy the platform directly. Once a directory service has been built and is offered, any payee with a valid email address or SMS-enabled mobile phone can be reached (U.1.2).

The solution was originally designed in USD, with no specific provisions for multi-currency (U.1.3). But the ability to make multi-currency and cross-border transactions is anticipated to be implemented as real-time systems in foreign countries achieve cross-border interoperability.

U.2 Usability

Very Effective      Effective      Somewhat Effective      Not Effective

Rationale:

The solution allows participants to initiate payments from multiple channels and devices (U.2.1) and enables a variety of authentication methods, including authorization with limited information (in the case of an implemented directory). It does require all participating FIs to use multi-factor authentication (U.2.2). Thanks to the solution’s modular architecture, FIs can use directory services (provided by TCH or other constituents in the payments system) that enable payment using an “alias.”

As soon as the payee’s FI accepts and settles an RTP payment, the payer’s and payee’s account balances are updated in real time, and funds are made available to the payee (U.2.3). Transaction confirmations (or rejections) are transmitted in real time to FIs. The solution then requires FIs to make this information available to their customers.

Participating FIs will develop the customer interface, so usability and functionality could vary somewhat from FI to FI. The proposal does not discuss how the solution is ADA-compliant (U.2.4) but it is the assessors’ interpretation that this will be the responsibility of participating FIs. The proposal also implies that participating FIs and their partners are responsible for providing APIs (account programming interfaces) for various channels and types of devices.
U.3 Predictability

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**Rationale:**

The solution has a clear definition of performance. Well-defined core functions enable FIs to deliver performance beyond specified thresholds (U.3.1). FIs are responsible for packaging these core functions with other services (U.3.2). To ensure consumer protection, the proposal states that participating FIs must follow the obligations of Regulation E, including disclosure requirements (U.3.2). Although the end-user’s experience is managed by participating FIs and therefore may differ from provider to provider, the overall payment process will be consistent for all transactions that leverage the RTP system, regardless of channel, provider, and form factors (U.3.3, U.3.4). Additionally, the solution fosters consistency by using the ISO 20022 standard for messaging and requiring standard formats and usage rules. The solution is branded as RTP (Real-Time Payments) (U.3.6).

Regarding error resolution (U.3.5), the proposal states that consumers will be covered by Regulation E requirements; additionally, all users will be covered via “additional controls that are established through system operating rules or are inherent to the system and the transaction types it supports” (p. 45). These controls are delineated further on page 45 of the proposal. In cases of erroneously or fraudulently initiated payments, the payer FI request a return of funds from the payee FI, but there is no right to a return of funds.

U.4 Contextual data capability

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**Rationale:**

The solution uses the ISO 20022 remittance advice structure to support inclusion of contextual data that travels with the transaction (U.4.1). It also enables the use of references to support the exchange of ad addenda records through the provision of a URL (U.4.2). While the solution does not explicitly discuss interfacing with business and personal finance systems, it is clear that participating FIs would develop and support these interfaces (U.4.2).

U.5 Cross-border functionality

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**Rationale:**

The solution does not yet include cross-border capabilities, but the proposer has a credible plan—though no timelines—to implement these in close co-operation with comparable RTP systems worldwide (U.5.1). RTP already uses international messaging standards (ISO 20022) (U.5.5), and TCH is part of the ISO 20022 Real-Time Payments Drafting Group, which will establish rules for global interoperability (U.5.2). The proposal does not specifically address the cost-effectiveness of
RTP relative to other networks (U.5.1). The proposal specifically states that participating banks must comply with regulations pertaining to disclosures (pp. 15, 45) (U.5.3).

RTP is not multi-currency (U.5.4), so it is limited initially to domestic transactions and cross-border transactions in USD. The technology itself, though, can support multiple currencies. The solution does enable the use of FX exchange tables. The proposal can be strengthened by outlining a plan for multi-currency/foreign exchange support as part of the implementation plan.

U.6 Applicability to multiple use cases

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<td><strong>Rationale:</strong></td>
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<tr>
<td>The solution enables FIs to build overlay services for each use case (U.6.1). The RTP system is meant to address a variety of use cases, including B2P, P2P, P2B, and B2P. The proposal elaborates on each case (p. 5). Additionally, the solution is based on a flexible architecture that supports the development and implementation of additional use cases to adapt to changing market needs.</td>
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Efficiency

E.1 Enables competition

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<td><strong>Rationale:</strong></td>
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<td>The solution is accessible by all FIs that comply with publicly available requirements related to technical and data security (E.1.4). It places no limits on competition and partners such as FIS, Jack Henry, and D+H are developing software solutions that will allow FIs to offer access to RTP real-time payments to their customers (E.1.1). Its flexible standards make it easy for FIs and end-users to switch among providers (E.1.2). Participating FIs will be expected to comply with applicable consumer protection laws, regulations, and regulatory guidance, including pricing disclosure requirements (E.1.3).</td>
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E.2 Capability to enable value-added services

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<td><strong>Rationale:</strong></td>
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<td>FIs are able to deploy value-added services (overlays) with minimal involvement from TCH. FIs can integrate additional services—both payment and non-payment—by leveraging the ISO 20022 standard where applicable (E.2.1). TCH is not actively rolling out value-added services or supporting FIs in their development (E.2.1). RTP’s basic product, features, and core functionality will be clearly defined and distinguished from value-added services (E.2.1). The solution does not specifically require disclosure that value-added services are optional, but participating FIs are</td>
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expected to comply with applicable consumer protection laws, regulations, and regulatory
guidance, including disclosure obligations under Regulation E (E.2.3). It should be noted, however,
that Regulation E does not apply to non-banking account transactions.

E.3 Implementation timeline

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**Rationale:**
The proposal includes an adoption forecast. TCH has a clear plan based on examples of successful
infrastructure implementations in other countries (VocaLink) and is engaged in active discussions
with FIs and TPPs (third-party processors) to reach deadlines (E.3.1). TCH is currently testing RTP
and anticipates launching the solution in early 2017.

E.4 Payment format standards

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**Rationale:**
The solution leverages ISO 20022 and cross-border real-time payment standards (E.4.1-2). While
the solution does not include a translation engine, participating banks are likely to manage any
necessary translation of data formats.

The solution’s cost-effectiveness has yet to be determined, as changing from one standard to
another tends to be costly for FIs (E.4.3). However, ISO 20022’s enablement of easily integrated
value-added services offers revenue potential that could offset the cost of adoption and
implementation. ISO 20022 is highly flexible and oriented toward future use (E.4.4). ISO standards
are widely accepted and considered to be industry standards (E.4.5).

E.5 Comprehensiveness

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**Rationale:**
The proposal addresses all steps of the payment process, although the solution is focused on
offering the four main steps: clearing, settlement, receipt, and reconciliation. In concert with
participating FIs, which are responsible for payment initiation, authentication, and reconciliation, it
is able to deliver an end-to-end payment process from initiation to reconciliation (E.5.1). The
solution’s technical design supports all features and is proven in other markets (E.5.2). Individual
providers will make upgrades to non-core components, as long as their updates are compatible with
the core architecture.
E.6 Scalability and adaptability

*Very Effective* | Effective | Somewhat Effective | Not Effective

**Rationale:**

The solution’s architecture is flexible for scalability and adaptability to changing market needs and other developments (E.6.2-3). Leveraging TCH and FIS infrastructure could enable quick scale. RTP’s advantages over wire transfers and ACH are likely to make it a compelling system for FIs to promote.

As discussed in U.6., RTP supports all projected use cases (B2B, B2P, P2P, and P2B) (E.6.1). The proposal provides a comprehensive overview of each case starting on page 5. Cross-border capability is not initially supported, but plans are clear and concise for expanding into cross-border payments (E.6.1). While currently a conceptual system, RTPs’ anticipated throughput rates are 1000 transactions per second (TPS) in Release 1, increasing to 5000 TPS in Release 2. TCH expects the system to be horizontally scalable to accommodate future growth beyond 5000 TPS. The proposer estimates that RTP will process 8 billion transactions per year in 2023 (E.6.2).

The proposal can be enhanced by specifically describing how transaction growth will be supported.

E.7 Exceptions and investigations process

*Very Effective* | Effective | Somewhat Effective | Not Effective

**Rationale:**

RTP provides tools (e.g., a transactional database available for credentialed users to query) to track errors inter-bank and imposes process steps designed to prevent errors (E.7.1). If an error does occur, RTP’s operating rules will provide for the payer to request a return of the erroneous payment, but the rules do not necessarily set forth a dispute resolution process per se. All incoming and outgoing messages are logged and stored in the above-mentioned transactional database, which can be queried by credentialed users at participating FIs. The payer’s and payee’s FIs are responsible for notifying or communicating with end-users about exceptions and errors, but TCH should ensure that RTP’s operating rules require notifications.

The solution contains a highly automated, centralized monitoring, reporting, and alerting function that analyzes network data to detect suspicious transaction patterns (E.7.2). The proposal can be strengthened further by providing details on how the solution records, stores, and destroys transaction-related data (E.7.2).

TCH is exploring the possibility of creating a centralized, anti-fraud decisioning system to which banks could subscribe. As an optional overlay service, the system would decision transactions in real time prior to the transaction’s being sent to the RTP system.
Safety and Security

S.1 Risk management

Rationale:

As an established payment systems operator, TCH is experienced in the development of risk management frameworks (S.1.1). Modifications to existing risk frameworks may be necessary to support the real-time environment and the TCH-finalized operating rules specified for the RTP solution.

The proposer’s settlement approach is based on a pre-funded settlement account with structured limits, enabling continuous, real-time settlement and reducing settlement risk (S.1.2). TCH finalized a set of operating rules for the RTP system that set out requirements related to use of the system to send and receive RTP payments and messages. RTP Participants will be required to comply with risk management obligations related to customer authentication, fraud monitoring, and information security. Additionally, TCH will apply a robust risk management framework to the operation of the system that addresses system reliability and resiliency, security (e.g., physical, operational, and network security), incident response, overall risk management, and comprehensive business continuity plans (S.1.3). The RTP system includes a centralized utility that analyzes network-level data to identify and report suspicious transactions to FIs, and it supports the real-time exchange of fraud-related information (p. 23) (S.1.4). FIs’ compliance with risk management rules is a criterion for participation; the incentive for compliance, therefore, is permission to participate in the network (S.1.5). The offering includes financial, legal, and regulatory incentives to operators to encourage them to address and contain any risks they might pose to other participants.

The risk management framework establishes a foundation for the enterprise-wide risk identification, assessment, monitoring, and reporting processes that are required to successfully build an enterprise-wide view of TCH’s risk environment.

S.2 Payer authorization

Rationale:

The solution requires participating FIs to agree to a standard set of requirements for payer authorization and customer authentication through the use of multi-factor authentication, passwords with minimum characteristics, etc. (S.2.1). TCH allows FIs to offer pre-authorized payments, but it will not recognize these pre-authorized payments as such as they travel across the network. Under the system rules, the participating FI will be responsible for verifying that its customer has authorized a payment and for honoring a customer's revocation of a pre-authorized payment (S.2.3). The solution does not specifically impose minimum service conditions on FIs for revocation; instead, the operating rules will establish the legal basis for payment irrevocability at the time a transaction is submitted to the RTP system.
S.3 Payment finality

Very Effective        Effective        Somewhat Effective       Not Effective

Rationale:
Payment finality is defined in detail. FIs guarantee good funds through pre-funded inter-bank settlement accounts (S.3.1). The RTP system’s operating rules establish the legal basis for payment irrevocability at the time the transaction is submitted to the core infrastructure (S.3.2). Payments will be final at the time the RTP system receives a message from the payee bank indicating that it has accepted the transaction (S.3.2). Processes and mechanisms for disputes should be embedded in RTP’s operating rules, which designate responsibility for payment authentication and liability for unauthorized transactions (S.3.3). The rules also outline an inter-FI messaging process for payers to request return of payments sent in error (S.3.3).

S.4 Settlement approach

Very Effective        Effective        Somewhat Effective       Not Effective

Rationale:
The solution’s settlement approach is thoroughly elaborated. As discussed in S.1, it allows for continuous, real-time settlement, with no additional settlement risk (S.4.1). The RTP system is designed to eliminate settlement risk by pre-funding every transaction (S.4.2). Participants cannot execute a transaction that would exceed their pre-funded balance. The solution’s plan is to settle in central bank money, although alternative arrangements are possible if needed (S.4.3).

S.5 Handling disputed payments

Very Effective        Effective        Somewhat Effective       Not Effective

Rationale:
The RTP system has been designed to support only credit-push payments. It is not possible to initiate unauthorized debits to accounts.

In a credit-push payment, the responsibility for authenticating the payer and payment belongs to the payer’s financial institution, which is best positioned to perform these tasks (S.5.1). The RTP operating rules incorporate existing law (i.e., Regulation E and UCC 4A) that sets forth a well-established framework regarding banks’ liability for unauthorized transactions from their customers’ accounts, as well as specific requirements regarding the resolution of errors from consumer accounts (S.5.2-3,S.5.5). This structure—and the inherent incentives it creates—will simplify the account-holding financial institution’s dispute investigation processes and minimize the need for a detailed set of interbank dispute resolution rules.
S.6 Fraud information-sharing

**Very Effective**

**Effective**

**Somewhat Effective**

**Not Effective**

**Rationale:**

The solution requires providers to share fraud-related information, which will be aggregated, stored, and analyzed in a centralized database (S.6.1-2, S.6.4, and S.6.7).

Transactions are scored in real time to determine whether they are potentially fraudulent, but they will not be decisioned by TCH or the RTP system. Alert messages for suspicious transactions will be sent to FIs, along with a transaction-level score (e.g., a 1-10 scale in addition to standard reason codes). FIs may then choose to route the alerts to their existing fraud detection systems to augment their transaction decisioning capabilities.

The proposal can be further strengthened by creating differential access to data in the system based on roles and responsibilities (S.6.5).

S.7 Security controls

**Very Effective**

**Effective**

**Somewhat Effective**

**Not Effective**

**Rationale:**

The RTP system incorporates security controls, including: (1) physical connectivity for messaging and (2) controls on access to information. The proposal indicates that physical connectivity is limited to the TCH MPLS network and the Secure VPN, while all data is encrypted under FIPS 140-2 standards. Access to the user interface is controlled by two layers of security: first, external users must log into the TCH VPN; once they are in the VPN, they must use a second ID-and-password set to sign into the RTP system.

Existing components and controls may need to be adapted to a real-time environment, as might managerial policies and oversight (S.7.1-3).

S.8 Resiliency

**Very Effective**

**Effective**

**Somewhat Effective**

**Not Effective**

**Rationale:**

The solution adheres to the highest standard of resilience—comparable to high-security sites in other payment systems. To enable redundancy, business continuity, and 100% availability, RTP is a distributed, multi-site, multi-node solution (S.8.1-2). To prevent systemic risk, there is no single point of failure, and penetration testing is conducted annually (S.8.3). If an incident should take place, various data centers will take over processing (S.8.4). Resiliency tests will be run quarterly. Additionally, the solution runs an Active-Active architecture (essentially, a network of independent processing nodes in which each node has access to a replicated database) in two geographically dispersed data centers.
S.9 End-user data protection

**Very Effective**        Effective        Somewhat Effective        Not Effective

**Rationale:**
To protect sensitive data throughout the payment process, operators and providers must meet minimum security requirements. Tokenization will be enabled at a later stage (S.9.1). It is left to participants to manage the protection of sensitive information during account set-up, transaction set-up, and problem resolution arising from unnecessary disclosure (S.9.2). RTP’s operating rules include provisions for the treatment of confidential information, require participating FIs to satisfy information security requirements, and set encryption standards for storing and transmitting RTP message data. Additionally, participating FIs will be subject to existing consumer privacy laws regarding the use of consumer data (e.g., the Gramm-Leach-Bliley Act).

S.10 End-user/provider authentication

**Very Effective**        Effective        Somewhat Effective        Not Effective

**Rationale:**
FIs that send payments will be required to have, at a minimum, a two-factor authentication process that is consistent with FFIEC guidance. FIs may adopt different methodologies for authentication for particular channels, but they must be consistent with the standards that will be established once the operating rules are completed (S.10.1). The solution supports multiple levels of authentication and requires two factors (S.10.4). Providers’ and operators’ legal obligations are included in the rules as well (S.10.3). Participating FIs’ authentication standards must be FFIEC-compliant and updated regularly (S.10.4). To ensure that the payment reaches its intended payee, the payee’s service provider must acknowledge receipt and transmit the acknowledgement to the payer FI, which in turn is required to make the receipt available to the payer (S.10.2).

S.11 Participation requirements

**Very Effective**        Effective        Somewhat Effective        Not Effective

**Rationale:**
TCH has developed detailed processes to monitor and ensure participant and PSP compliance with the RTP operating rules. Specifically, the RTP operating rules require participating FIs to conduct annual self-audits for compliance with the operating rules and to report their findings to TCH (S.11.1).

The RTP operating rules provide TCH with comprehensive authority to audit, monitor, inspect, and investigate any participant or PSP for rules compliance and to limit, condition, suspend, or terminate a participant for non-compliance. The system’s centralized fraud-monitoring capability will be used to monitor payments and requests for payment activity at the systemic level, which will allow TCH to identify and respond to potential violations of the RTP operating rules (S.11.3).
**Speed (Fast)**

**F.1 Fast approval**

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**Rationale:**
The solution’s timeline for payment approval—including balance checking, pre-payment screening, and any other parameters—should normally take less than a few seconds.

**F.2 Fast clearing**

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**Rationale:**
The proposal states that clearing and settlement will take place in approximately five seconds, and typically in under two seconds (page 12).

**F.3 Fast availability of good funds to payee**

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**Rationale:**
Funds will become available within seconds after payment acceptance. The RTP system is designed for acceptance/rejection of a payment to occur within one to two seconds of receipt of the payment message. It is worth noting, though, that technical specifications allow a receiving participant up to ten seconds to respond to the transaction so that the bank can execute secondary procedures related to safety, security, or sanctions processes.

**F.4 Fast settlement among depository institutions and regulated non-bank account providers**

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**Rationale:**
The solution offers continuous, real-time settlement from pre-funded accounts (F.4.1-2). There is no capability for deferred settlement, as RTP is a real-time system (F.4.3).
F.5 Prompt visibility of payment status

**Very Effective**        Effective        Somewhat Effective       Not Effective

**Rationale:**
The solution mandates payment status visibility to the payer and supports notifications to the payer and payee FIs. Payment status visibility will be available to all FIs in real time. The RTP operating rules require FIs to promptly notify end-users of payment status.

Legal

L.1 Legal framework

**Very Effective**        Effective        Somewhat Effective       Not Effective

**Rationale:**
The legal framework for TCH’s RTP system is robust and detailed. It addresses existing laws and regulations across a broad spectrum, including: (1) consumer electronic funds transfers, (2) commercial funds transfers, and (3) three categories of RTP-specific materials developed by TCH: RTP participation rules and operating rules, RTP agreements, and RTP Schedules and rules-related documents. The approach to the legal framework is consistent with approaches used for other payment systems, such as the ACH network.

Because participating FIs hold the accounts, they are responsible for compliance with banking and payments laws that apply to RTP transactions to and from those accounts.

L.2 Payment system rules

**Very Effective**        Effective        Somewhat Effective       Not Effective

**Rationale:**
The Proposer has developed a robust, comprehensive set of participation rules and operating rules. The participation rules specifically address eligibility, outline how to become a participant in the RTP system, establish various categories of participants (e.g., funding, non-funding), and detail the requirements for using third-party service providers or funding agents for settlement.

The operating rules are equally robust and include requirements for using the system to send/receive RTP payments and messages. Additionally, they lay out participating FIs’ obligations and responsibilities in 14 areas, ranging from eligible payments to rules enforcement.
L.3 Consumer protections

**Very Effective**  Effective  Somewhat Effective  Not Effective

**Rationale:**
As discussed in L.1 and L.2, TCH is developing comprehensive operating rules and participant agreements that will establish participants’ rights and obligations in the RTP system and will incorporate existing law where applicable (L.3.1). The specifics on RTP’s consumer protections are still under development, but FIs are bound by existing consumer protection rules and regulations (L.3.2). Participating FIs will be responsible for resolving errors related to consumer claims (L.3.2). The solution allows service providers to strengthen consumer protection provisions, and TCH can do so as well through its operating rules (L.3.3).

L.4 Data privacy

**Effective**  Somewhat Effective  Not Effective

**Rationale:**
The solution’s participation rules and operating rules include rules for data privacy. The rules establish the rights and obligations of participants in the RTP system, including the designation of responsibility for payment authentication/customer verification, messaging, acceptance/rejection, funds availability, etc.

The solution relies on the fact that participating FIs are bound by strong compliance requirements. The proposal describes multiple protection tools but can be strengthened by providing details on data security processes and a list of the end-user data required for security, compliance, and authentication (L.4.3). It can be further improved by describing how end-users will have visibility into the collection and sharing of their data and how end-users will be able to change their privacy preferences (L.4.4). The solution’s approach to data breaches is based on avoidance, not prevention (L.4.5).

L.5 Intellectual property

**Very Effective**  Effective  Somewhat Effective  Not Effective

**Rationale:**
As mentioned above, TCH is developing comprehensive operating rules and participant agreements that will establish the rights and obligations of participants in the RTP system and will incorporate existing law where applicable. The proposal can be strengthened by including a detailed analysis of the intellectual property approach or a detailed legal review, but it does give a high-level outline of IP rights across the solution (L.5.1). RTP employs a solution that is already used under license in other major geographies.
Governance

G.1 Effective governance

Very Effective        Effective        Somewhat Effective       Not Effective

Rationale:

The solution’s governance approach provides “clear lines of responsibility and provides for oversight by TCH’s member financial institutions” (G.1.1). The governance model also includes a process for public disclosure of the system’s governance (G.1.2), a process for interested parties to provide input into system rules, and a process for due process regarding RTP rules decisions (G.1.3). While rated as “Very Effective,” the proposal can be strengthened by detailing how other stakeholders can be included under the governance model.

G.2 Inclusive governance

Very Effective        Effective        Somewhat Effective       Not Effective

Rationale:

TCH’s business committee charter maintains that the business committee will take the relevant, appropriate public interest into consideration when making decisions about the RTP system’s strategic direction, safety, and soundness (G.2.1). The governance model is set up to have working groups and committees that fairly represent their stakeholders’ interest and risk while providing the opportunity to proportionately influence outcomes (G.2.3, G.2.4).

The proposal can be made more robust by detailing the processes of collecting input from non-banks (G.2.2) and managing actual, perceived, or potential conflicts (G.2.5).