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Industry Segment: Technology Solution Provider/Processor

General

1. Are you in general agreement with the payment system gaps and opportunities identified in the "Payment System Improvement Public Consultation Paper"? Please explain, if desired.

Yes. We also encounter the identified gaps and opportunities in the US marketplace. As a result of our global presence, we also see similar gaps and opportunities in other regions around the world. In many cases these issues have been solved or are in the process of being addressed in other regions.

1i. What other gaps or opportunities not mentioned in the paper could be addressed to make improvements to the U.S. payment system?

While not a specific gap or opportunity, the ability to innovate is a critical component of a successful payment system. Currently, the US payment system is faced with the need to change to meet business needs, but cannot do so without a major shift in how the payment system is run. As we all approach this shift, we should keep in mind that the ability to innovate rather than optimise existing practices is critical for any future solution.

2. Are you in general agreement with the desired outcomes for payment system improvements over the next 10 years? Please explain, if desired.

Yes. We are in general agreement. Specifically, we would suggest that if the Federal Reserve is contemplating introducing a new standard for B2B remittance payments, that it should do so with the move towards "retiring" other standards. A standard is only as good as its adoption and use, and solely introducing another standard into the mix of B2B payments will not simplify the space by reducing cost and improving efficiency without retiring older standards.

2i. What other outcomes should be pursued?

We believe that the Federal Reserve should shorten the list of desired outcomes, focusing on the largest opportunities of improvement. The focus should be on providing greater revenue opportunities and/or reducing costs for constituents.

3. In what ways should the Federal Reserve Banks help improve the payment system as an operator, leader, and/or catalyst?

From our experience around the globe, the role of a central bank is paramount. The Federal Reserve should not underestimate its role in improving the US payments industry. For example, in Canada, the Canadian Payments Association in conjunction with the Bank of Canada is focusing on updating their payment system standards to ISO20022 in efforts to provide greater efficiency, enable transfer of

remittance data along with the payment, and minimize risk. Similarly, in Australia, the Reserve Bank of Australia (RBA) recognized that their own lack of innovation was threatening Australia's competitiveness and the ability of the country to embrace new forms of commerce. To this end the RBA conducted a series of consultations and eventually concluded that, among other things, a new centralized system of payment interchange should be developed. This centralized payment system would be used to facilitate the exchange of extended remittance information included with payments and the ability for payments to be exchanged in real time. The centralized clearing of payments would also make it easier for new participants outside of the four banks majors to participate.

Ubiquitous near-real-time payments

4. In discussions with industry participants, some have stated that implementing a system for near-real-time payments with the features described in the second desired outcome (ubiquitous participation; sender doesn't need to know the bank account number of the recipient; confirmation of good funds is made at the initiation of the payment; sender and receiver receive timely notification that the payment has been made; funds debited from the payer and made available in near real time to the payee) will require coordinated action by a public authority or industry group. Others have stated that current payment services are evolving toward this outcome and no special action by a public authority or industry group is required.

4i. Which of these perspectives is more accurate, and why?

Time and market forces will continue to move the payments marketplace in the direction of near real time payments for consumers and small businesses.. The reason why market forces can be relied upon with more confidence in this space as opposed to a space like check processing in the days of Check 21 is that there are many non-bank players in this space that are putting pressure on financial institutions themselves. Rather than just having competition between FI players to offer better services to customers, companies such as PayPal, Apple, and Google can pressure FIs to have to improve their services to compete and maintain control of the customer. It is important to note that this approach requires trust with the FIs that they will improve their services to compete and not just allow the non-bank payments to gain control over the customer's payment experience. Another thing to consider when comparing immediate payments to other global solutions, such as UK Faster Payments, is that the United States is starting from a stronger position. Today, money can be moved via the ACH network in a much more reasonable amount of time than that of the UK (3-4 days). This means that the business case and need is not as extreme, leading to a longer lead time to roll out the solution. We do see that the immediate payment trend around the world is more focused around "real-time" funds availability, and less so focused on the concern of sharing bank account data.

4ii. What other perspective(s) should be considered?

Please see answer above (Q4i)

5. The second desired outcome articulates features that are desirable for a near-real time payments system. They include:

- a) Ubiquitous participation
- b) Sender doesn't need to know the bank account number of the recipient
- c) Confirmation of good funds is made at the initiation of the payment
- d) Sender and receiver receive timely notification that the payment has been made
- e) Funds debited from the payer and made available in near real time to the payee

5i. Do you agree that these are important features of a U.S. near real-time system? Please explain, if desired.

Yes. With the exception of item (b), all of these features would be desirable in a near real-time payments system. Item (b) brings into question compliance with regulatory and compliance mandates from bodies such as FATF and other agencies focused on anti-money laundering, in addition to the fact that in the US it has been a cultural trend not to share bank account data; however, other countries have done so successfully.

5ii. What other characteristics or features are important for a U.S. near real-time system?

One of the absolute requirements should be the interbank settlement as this ensures good funds at both the ordering customer and the sending bank. We cannot rely on financial institutions to provide funds availability unless they themselves have settled as well (interbank).

6. Near-real-time payments with the features described in the second desired outcome could be provided several different ways, including but not limited to:

- a) Creating a separate wire transfer-like system for near-real-time payments that leverages the relevant processes, features, and infrastructure already established for existing wire transfer systems. This option may require a new front-end mechanism or new rules that would provide near-real-time confirmation of good funds and timely notification of payments to end users and their financial institutions.
- b) Linking together existing limited-participation networks so that a sender in one network could make a payment to a receiver in another network seamlessly. This option may require common standards and rules and a centralized directory for routing payments across networks.
- c) Modifying the ACH to speed up settlement. This option may require a new front-end mechanism or new network rules that would provide near-real-time confirmation of good funds and timely notification of payments to end users and their financial institutions. Payments would be settled periodically during the day.
- d) Enhancing the debit card networks to enable ubiquitous near-real-time payments.
- e) Implementing an entirely new payment system with the features described in the second desired outcome above.

6i. What would be the most effective way for the U.S. payment system to deliver ubiquitous near-real-time payments, including options that are not listed above?

Of the options listed above Option (e) would provide the best alternative. The current systems are antiquated, hard to maintain and resistant to change. Introducing a new near-real time system would allow for both a modern technical and functional design to be used. This option was used by the Reserve Bank of Australia (RBA).

6ii. What are the likely pros and cons or costs and benefits of each option? What rule or regulation changes are needed to implement faster payments within existing payment processing channels?

Option (a) would require a reengineering of the banks' current legacy applications, as well as a significant amount of regression testing. Some of these legacy applications have been in place for many years and are not easily upgradeable. We see tremendous cost here.

Option (b), the linking of limited partnership networks, would require the adoption of clearly defined messaging standards, formats and protocols as well as changes to a banks internal routing schemas. Here again, there would changes require to the current legacy applications and a significant amount of regression testing.

Option (c) would require enhancing the existing ACH network infrastructures, the adoption of new rules and regulations regarding payment clearing and settlement cycles as well as significant retooling of the banks legacy payment applications and infrastructure.

For Option (d), we do not view this a viable option as this would require retooling of both the existing debit card applications and networks as well the existing payment applications and infrastructure.

Option (e) would provide the least invasive option. As stated above current systems are antiquated, hard to maintain and resistant to change. Introducing a new near-real time system would allow for both a modern technical and functional design to be used.

6iia. What rule or regulation changes are needed to implement faster payments within existing payment processing channels?

Please see answer above (Q6ii)

6iii. Is it sufficient for a solution to be limited to near-real-time authorization and confirmation that good funds are on their way, or must end user funds availability and/or interbank settlement take place in near-real time as well?

Much will depend on the final definition and timing of near-real time. Clearly one of the absolute requirements should be the interbank settlement as this ensures good funds at both the ordering customer and the sending bank.

6iv. Which payment scenarios are most and least suitable for near real-time payments? (B2B, P2P, P2B, POS, etc.)

B2B, P2P, P2B would all be suitable near real-time payment scenarios. Near real-time payments would benefit consumers and businesses that rely on the payments system. We have seen this play out around the globe - from UK Faster Payments, Chile Online Payments, G3, etc. where this is now the adopted standard of common practice.

7. Some industry participants have said that efforts to make check payments easier to use, such as by enabling fully electronic payment orders and/or by speeding up electronic check return information, will incrementally benefit the payment system. Others argue the resources needed to implement these efforts will delay a shift to near-real-time payments, which will ultimately be more beneficial to the payment system. Which of these perspectives do you agree with, and why?

As you are all aware, the number of checks written nationally has been declining since the mid-1990s as the use of electronic payment instruments has continued to grow. That said, the rate of decline has stabilized and the use of paper checks will continue to be a viable payment mechanism for the foreseeable future. The industry should focus on initiatives that streamline and increase efficiency in the check sector of the payments ecosystem. Such initiatives should not delay near real time payment initiatives.

8. How will near-real-time payments affect fraud issues that exist with today's payment systems, if at all?

Financial institutions are accustomed to performing fraud checks on card transactions quickly, either in-process (while the transaction is being authorized) or immediately afterwards to prevent further fraud. All card transactions are validated, and those that are more likely to be suspicious because they are higher value or unusual activity are subjected to even more stringent analysis before a payment is authorized. However, online banking or phone transactions have not required such speed because of the inherent delay in back-end processing of the payment/settlement. This means that when near real time payment projects go live, financial institutions can suddenly find that they have a fraud system that may not be able to keep up. Coupled with the increase in online banking, and the threat of phishing or man-in-the-middle attacks that can send fraudulent payments from a customer's account, financial institutions are at an increased risk of fraud losses.

8i. Will near-real-time payments create new fraud risks? If yes, please elaborate on those risks.

Yes. Yes, see above. However, fraud risks should not discourage innovation. Cash and checks are the most fraud open payment products and as such innovation might also mean a decrease.

9. To what extent would a ubiquitous near-real-time system bring about pivotal change to mobile payments?

In our opinion, the adoption of a near real time system would not bring about pivotal change to mobile payments. The rate of adoption for mobile payments is driven by other factors such as ease of use, cost, and consumer confidence in the security of the payments. The fact that the payment will clear in real time or near real time is not typically a significant factor in the mobile payment decision

process. An example of this is the proliferation of mobile payment offerings and usage in Africa. Companies such as M-Pesa (and many others like it) offer mobile payment services, using other "rails", rather than payment rails per se.

10. What would be the implication if the industry and/or the Federal Reserve Banks do not take any action to implement faster payments?

Currently financial institution customers in the United States commonly can wait days to receive payments depending on the method of payment. Not implementing a faster payments option will result in the continued proliferation of alternative payment providers such as PayPal and other payment options via mobile devices. Devices such as those provide by Square offer a low cost POS option for small merchants to provide the same payment options as much larger merchants with the same payment confirmation and finality. The lack of a real time faster payment option for FI customers will drive them to seek alternative channels to provide this service (and further closed loop systems). Over time these alternative payment channels could provide other banking services for these customers resulting in a loss of business and fees for the financial institutions. The main risk we see is the disintermediation of financial institutions for retail payments.

10i. What is the cost, including the opportunity cost, of not implementing faster payments in the United States?

Please see the answer above (Q10)

11. To what extent will the industry need to modernize core processing and other backend systems to support near-real-time payments?

Some Financial Institutions have already begun to introduce payment services hubs and component based architectures and applications into their existing infrastructures. This will allow those FIs to respond more quickly and efficiently to new industry mandates be they new payment options such as near real time payments or regulatory and compliance rules and regulations. Other Financial Institutions must begin to assess their payment systems now. Industry efforts such as the adoption of new near real-time payment options will require a bank to reevaluate their payments infrastructure in order to meet the requirements for new payment options and clearing and settlement cycles. Any new near real-time payments offering must come with clearly defined formats, settlements and an absolute end date for implementation. This end date should give the bank a window for implementing this new payment type. One suggested window from a timing perspective would be three to five years. An example of this would be UK Faster Payments, which was first announced in late 2005 and took until late spring of 2008 to go live with just limited availability. Some 15 months later, the utilization was still not near expected levels. Now five years after the initial implementation, the service has become the default payment mechanism for UK online banking portals.

11i. What is the likely timeframe for any such modernization?

Please see the answer above (Q11)

12. Some industry participants suggest that a new, centralized directory containing account numbers and routing information for businesses and/or consumers, to which every bank and other service providers are linked, will enable more electronic payments. A sender using this directory would not need to know the account or routing information of the receiver.

12i. What are the merits and drawbacks of this suggestion?

We see both merits and drawbacks to this suggestion. Regarding the positives, we see that this could result in a reduction of routing errors as there is a central repository of data, in addition to reduced return rates and enables the movement towards increased use of electronic payments. However, on the drawback side, we see security/ fraud concerns (or perceived security concerns), difficulty in the update/change process, difficulty to identify similarly name entities, uncertainly as to who manages the data and where it is stored, and accountability for mis-routed payments due to database errors.

12ii. What is the feasibility of this suggestion?

We feel that this would be a low feasibility option as both businesses and consumers are very suspicious in giving out their confidential banking information, especially if stored in one central location. One security incident would cause significant industry concern. In addition, this would require a large adoption from the market to be effective; partial adoption would not be useful to the industry.

13. Some industry participants say that check use is an enduring part of the U.S. payment system and that moving away from checks more aggressively would be too disruptive for certain end users.

13i. Is accelerated migration from checks to electronic payment methods a high-priority desired outcome for the U.S. payment system? (Accelerated means faster than the current trend of gradual migration.) Please explain, if desired.

Yes, moving checks to electronic payment methods enables the industry to move towards the unification of regulatory standards as well as reduced fraud across the payments industry.

13ii. Should the Federal Reserve Banks establish a target for the percent of noncash payments to be initiated via electronic means, by a specific date? For example: "By the year 2018, 95% of all noncash payments will be made via electronic means." If Yes, what is the appropriate target lever and date?

No, we do not feel that the Federal Reserve Banks should establish a target. We foresee that accelerated electronification will happen if a major industry body (or governmental agency) forces the move towards electronic payment (e.g., Social Security payments, etc.)

13iii. What is the appropriate target level and date?

If the Federal Reserve chooses to establish a target level, we would propose the following: 2020 -70%, 2025 - 90%, 2028 - 99%. This is not an aggressive recommendation as we believe that natural market forces will continue to migrate to electronic payments.

14. Business-to-business payments have remained largely paper-based due to difficulties with handling remittance information. Consumer bill payments also are heavily paper-based due to the lack of comfort some consumers have with electronic alternatives. In addition, many small businesses have not adopted ACH for recurring payments due to technical challenges and/or cost constraints. The payment industry has multiple efforts underway to address these issues.

14i. To what extent are these efforts resulting in migration from checks to other payment types?

We see that the current efforts has had minimal results in the migration from checks to electronic payment methods. In general, electronic payments are more expensive than paper-based (wires vs. checks as an example).

14ii. What other barriers need to be addressed to accelerate migration of these payments?

There are a few barriers that we see to accelerate migration of these payments. Firstly, pricing is always a barrier. Today, checks are cheap and will continue to be so until a shift occurs. Secondly, ease of use is critical. For example, is it really "easy" for a small business to adopt ACH considering approval processes financial institutions require? Lastly, we feel that user friendliness for consumers will need to be a focus. Today, it is very easy to get paid via check, rather than getting paid electronically.

14iii. What other tactics, including incentives, will effectively persuade businesses and consumers to migrate to electronic payments?

We feel that the following tactics could be effective in overcoming the barriers: Price incentives, faster access to deposited funds, and payment (funds) guarantee.

14iv. Which industry bodies should be responsible for developing and/or implementing these tactics?

While we are not in the position to suggest which industry bodies should be responsible for these tactics, we do believe they need to be assigned to certain participants in order for a movement to occur. In other regions around the globe, different industry bodies have taken charge with different tactics - from a federal government to a central bank or other regulatory body.

Cross-border Payments

15. To what extent would the broader adoption of the XML-based ISO 20022 payment message standards in the United States facilitate electronification of business payments and/or cross-border payments?

Standardization utilizing an XML-based ISO20022 format will enable the consolidation of payment types within one format. Furthermore, standardization will also assist in consistencies in formats cross border and require less overhead and costs to kick-start a cross-border payments program.

16. What strategies and tactics do you think will help move the industry toward desired outcome four - consumers and businesses have greater choice in making convenient, cost-effective, and timely cross-border payments?

We believe there are two main strategies to enable this move. Firstly, end to end visibility into the lifecycle of the payment is critical to both consumers and businesses in cross-border payments. Secondly, enabling consumers/businesses to focus more on the characteristics of a payment, rather than the payment network itself will promote broader adoption of ISO20022 payment standards. Consumers and businesses alike should focus on providing input based on urgency, cost, and delivery date, rather than network.

Safety

17. Payment security encompasses a broad range of issues including authentication of the parties involved in the transaction, the security of payment databases, the security of software and devices used by end users to access payment systems, and security of the infrastructure carrying payment messages.

17i. Among the issues listed above, or others, what are the key threats to payment system security today and in the future?

Most prominent among the threats to retail payments continues to be the authentication of the participants in the process and the underlying security of the devices and platforms from which payments are made. This can be largely attributed to the proliferation of available initiation channels and devices such as mobile and internet based applications, as well as the broad range of tools and methods available to fraudsters in order to exploit such channels. There is a somewhat different reality in the wholesale payments arena, where the focus is on the security of data at rest as well as fraud and money laundering techniques and the liability that they create. The sheer volume of payments and the associated volume of funds moved in wholesale schemes create a threat vector somewhat unique to the wholesale space. Complex participant payments systems, bulk payments messages in flight within networks and internal payments data stores within financial institutions all create opportunities for large scale internal fraud and therefore creates challenges for participants, institutions and regulators alike.

17ii. Which of these threats are not adequately being addressed?

Retail payment networks continue to struggle with the balance of ease of use versus strength of security to address the broader issue of participant authentication. The ongoing debate on the effectiveness of adopting EMV standards is a case in point. For financial institutions and retailers, the protection of customer data simply does not keep up with new techniques available to hackers to exploit vulnerable systems and gain access to mass consumer data. Continuous pressure to monetize the value of consumer data such as geo-location and buyer behavior create the spread of sensitive information throughout an organization and thus create more opportunities for compromise. In wholesale payments, the slow adoption of layered security for payments initiation and management

and standardized mechanisms for securing data are critical gaps. Unique wholesale considerations such as bulk payments management, ERP integration and complex remittance data in the payments value chain present barriers to adoption that don't factor as prominently in the retail world.

17iii. What operational or technology changes could be implemented to further mitigate cyber threats?

Technology investments focused on payments security continue to grow at historic levels among banks and providers alike, indicating broad awareness of the importance of the topic. Emerging standards on payments formats, faster payments schemes and data security can all combine to provide an inherently more secure payments ecosystem. What hinders progress today is a combination of cost to replace or upgrade legacy payments infrastructure and the lack of practical solutions to apply effective standards for data security. As previously indicated, a "carrot and stick" approach to payments security is in order, focused on clear compliance terms, support for standards adoption, application of modern technologies to fill critical gaps in the security of payments processes and growing awareness amongst payments participants on the importance of practical end to end data security approaches.

18. What type of information on threat awareness and incident response activities would be useful for the industry?

Existing forums for exchange of information on threats are still in large measure disjointed, closed-loop and participant driven. The level of detail on emerging threats varies and thus creates confusion when the industry participants consider how to apply appropriate safeguards across various affected payments systems. While private sector and industry sources are critical in defining better methods for sharing information on threats because of their practical experience, regulators and government participants are key to establishing standardized and central mechanisms for better responding to emerging threats. The type of information provided should focus on channel specific detection methods, possible remediation steps, best practices recognized in dealing with the threat and directing affected parties to established forums for ongoing engagement in managing the threat.

18i. How should this information be made available?

Payments industry participants have several examples to draw from to help identify the types of forums and notification schemes best suited to deal with payments security. A close study of the merits and challenges of peer groups in existence today will reveal best practices and better enable standards bodies to support practical ways to make threat information widely available and actionable.

19. What future payment standards would materially improve payment security?

PCI DSS is a practical example of a foundational standard for the security of payments data, but can be considered a starting point. More complex techniques exist in the implementation of SWIFT, NACHA and FedWire payments workflow processes for both retail and wholesale payments. They serve as references for how to further implement meaningful additional measures to bolster security. Future

data standards should focus on exposing contextual payments information in more transparent and standard ways so that historical information can be used to better analyze behavioral trends and better predict fraudulent activity based on patterns. This level of visibility into payments context becomes even more important as payments schemes become more real-time in nature and thus afford less opportunity for interdiction prior to clearing and settlement. Avoidance of more costly post-settlement remediation to payments fraud such as chargebacks and reversals should be at the center of future payments standards development.

19i. What are the obstacles to the adoption of security-related payment standards?

Broad payments security standards adoption suffers from a combination of legacy system complexity and cost, constant change in the payments initiation channels landscape and lack of clarity across the industry on best practices for management of payments fraud risk. Further complicating matters is the emerging global nature of payments which forcing payments processors to manage the shorter term siloed needs, such as IAT compliance in the ACH space, as opposed to more comprehensive approaches to payments standards adoption.

20. What collaborative actions should the Federal Reserve Banks take with the industry to promote the security of the payment system from end to end?

The Federal Reserve Banks have a unique platform from which to create comprehensive forums that are dedicated to address challenges that demand a broader view, which does not focus on any one payment type, participant or threat. It is important that the Federal Reserve Banks provide objective and non-competitive forums to truly foster collaboration.

21. Please share any additional perspectives on U.S. payment system improvements.

At Clear2Pay, we have been a part of all major payment system shifts around the world (SEPA, UK Faster Payments, G3, Australian payments innovation, etc.) We feel that while market forces and competition will continue to force the United States payment system to evolve, improving the timeliness of change and accelerating adoption of faster payments can come from a combination of regulatory events and incentives. Other regions such as Europe with SEPA have seen more successful adoption of new standards through a "carrot and stick" approach. A regulatory event such as requiring the support of a new standard by a certain adoption date forces financial institutions and non-financial institutions alike to schedule the technology upgrades required to support the change. Careful consideration should be made as to where this is appropriate, as well as the cost/benefit to all players involved. Once the business cases are made, though, setting a target date in stone for adoption would vastly improve the speed at which new schemes are established.