Financial Stability Board and Committee on Payments and Market Infrastructures Roadmap

Foreword

The cross border payments ecosystem is undergoing a major period of transformation as new market mandatory standards, advancements in technology and shifting customer expectations are driving change across the commercial, operating and technical landscape.

These changes offer the potential to deliver meaningful economic progress around the world through enabling transactions that are widely accessible, instant, and frictionless.

This document adopts a practitioners perspective and synthesizes the work underway as part of the FSB's "Enhancing Cross Border Payments" roadmap. We provide our views against each of the 19 building blocks in this initiative along with examples of past and current payments industry initiatives that offer valuable lessons or guidance to shape this important work.

The delivery of this vision and the associated enhanced end-user experience depends upon the collaboration across all participants in the payments chain. To that end, we are very appreciative of the efforts being made by CPMI, FSB and other regulatory bodies in partnership with the Private Sector to advance this agenda. We encourage all Industry participants to engage in this dialogue with the collective aim of building an environment where we will be able to make payments instantaneously as if there are no borders, no currencies and no constraints.

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Introduction

Building on the work started by the Bank of England's leadership under Victoria Cleland, enhancing cross-border payments was a G20 priority during the Saudi Arabian Presidency and has become a main focus of the current Italian G20 Presidency. Faster, cheaper, more transparent and more inclusive cross-border payment services, including remittances, would have widespread benefits for citizens and economies worldwide, supporting economic growth, international trade, global development and financial inclusion.[1]

Enhancing cross-border payments requires addressing frictions in existing cross-border payment processes. At the G20 in February 2020 Finance Ministers and Central Bank Governors meeting (in addition to the creation of the CPMI Taskforce chaired by Bank of England which led to the stage 2 development) asked the Financial Stability Board (FSB) to coordinate a three- stage process to develop a roadmap to enhance cross-border payments which is outlined below:

Challenges with cross-border payments as highlighted by the FSB:

Cross border payments are at the heart of international commerce yet continue to be challenged by the following:

- High costs: individuals and small companies who deal in low value payments may incur high fees of the percentage of the amount spent
- Low speed
- Insufficient transparency
- Limited access for the unbanked and firms and individuals from fragile states may not be able to access payments at all

G20 and FSB Three Stage Road Map

The G20 and FSB's road map, designed to support strategic and long-range planning, is divided into three stages or tiers:

1. Assessment (Stage 1) – Conducting assessments of existing arrangements and challenges of existing practices of cross-border payment arrangements 2021
2. Building blocks (Stage 2) – Committee on Payments and Market Infrastructures (CPMI) creating building blocks of a response to improve the current global cross-border payment arrangements
   - Areas where the public sector can improve the cross-border payment system
   - Deadline 2022
3. Road map (Stage 3) – Coordination between the FSB, CPMI, other relevant international organizations and standard setting bodies to develop a road map
   - Practical steps and indicate a time frame
   - Deadline 2023

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[1] https://www.bis.org/cpmi/publ/d193.pdf

Frictions

The common types of frictions that arise in cross border payments include one or more of the following:

- **Complexities in meeting compliance requirements:** including for anti-money laundering and countering the financing of terrorism (AML/CFT), and data protection purposes
- **Funding Costs:** Requirement to preposition funding often across multiple currencies or to have efficient access to foreign currency markets
- **Limited operating hours:** Delays in clearing and settling cross-border payments particularly in corridors with broad time zone differences
- **Weak competition:** Significant barriers to entry for intermediaries
- **Long Transaction Chains:** Costly development of direct connections required to transmit cross-border payments in multiple currencies
- **Fragmented and truncated data formats:** Low rate of straight-through processing of payments and automated reconciliation
- **Outdated legacy technology platforms:** Reliance on batch processing a lack of real-time real time monitoring and low data processing capacity
- **Challenges with innovation:** Measures are needed to address risks and ensure consumer protection including:
    - Analysis of the operational soundness
    - Legal certainty and consistency
    - Additional regulation and oversight[1]

[1] https://www.bis.org/cpmi/publ/d193.pdf

Focus Areas

A. Public and Private Sector Commitment

This focus area will be foundational and provide overall direction, by establishing a shared understanding of the targeted improvements in users' experience with cross-border payments and acting as a commitment mechanism to drive change. It includes setting quantitative targets at the global level for addressing the challenges of cost, speed, transparency, and access, as well as a framework that stakeholders can use for establishing more granular service-level agreements. Common foundations will also be strengthened at the supervisory and regulatory level by identifying where it would be useful to achieve more consistent implementation of existing international standards and guidance.

B. Legal, Regulatory and Oversight Framework

This focus area will address several frictions that arise from the inherently multi-jurisdictional nature of the cross-border payments market. It will better align regulatory, supervisory and oversight frameworks across jurisdictions, where appropriate, on a "same business, same risk, same rules" basis. High-quality customer due diligence is essential, but relatively costly for cross-border transactions. The road map will aim to improve confidence between financial institutions and between jurisdictions by promoting more consistent application of AML/CFT standards, facilitating cross-border data flows and information sharing, fostering improved digital identity frameworks and shared customer due diligence infrastructures and, in specific cases, identifying low-risk "safe payment corridors."

C. Operational Improvement of Payment Infrastructures

Making operational improvements to existing payment infrastructures and arrangements can help to address the current frictions in cross-border payments. Current technical differences can add to costs and slow transactions. This focus area would seek to widen availability, strengthen links between payment systems and reduce settlement risk, through measures such as facilitating payment-versus-payment, improving access to systems, extending and aligning operating hours between systems, pursuing interlinking and exploring reciprocal liquidity arrangements.

D. Standardization of Data and Market Practice

Promoting the adoption of common data formats, including rules for conversion and mapping from legacy formats, as well as protocols for information exchange can reduce costs and improve the scope for straight-through data processing in existing payments systems and arrangements. This focus area aims to harmonize technical standards for common message formats (in particular a harmonized version of ISO 20022) and for application programming interfaces (APIs) for data exchange, as well as to examine the scope for a unique global identifier that links to the account information in payment transactions. These are also important building blocks to enable the development of efficient new payment infrastructures.

E. New Payment Infrastructures and Arrangements

Recent advances in technology and innovation have created the potential for new payment infrastructures and arrangements for cross-border payments. These could offer solutions to challenges that are not easy to address through adjustments to existing processes. So far, these innovations have not been implemented broadly; some are still in their design phase and others remain theoretical. This focus area will examine the scope for new multilateral platforms, global stablecoin arrangements and central bank digital currencies to address the challenges that cross-border payments face without compromising on minimum supervisory and regulatory standards to control risks to monetary and financial stability.

Focus areas A to D seek to enhance the existing payments ecosystem, while focus area E is more exploratory and covers emerging payment infrastructures and arrangements. While each of the building blocks in the first four focus areas individually has the ability to bring notable benefits to cross-border payments, they are interdependent and some are foundational, and therefore the most significant enhancements are likely to arise if over time they are all advanced and implemented in a coordinated manner. The potential benefit of the building blocks in focus area E will also be enhanced by progressing focus areas A to D, which, in addition to enhancing the existing payments ecosystem, will address barriers to the emergence of new cross-border payment infrastructures and arrangements.

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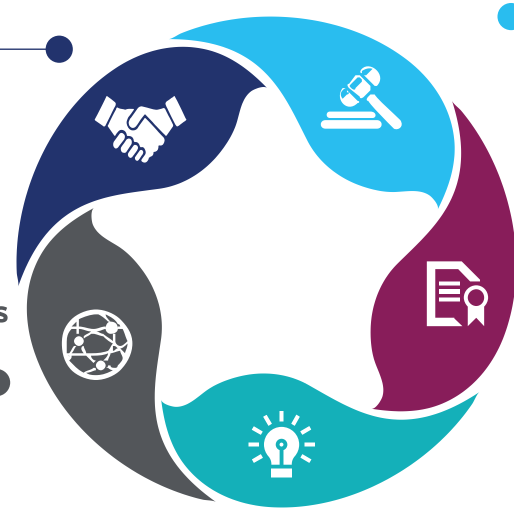
Building Blocks

A Public and Private Sector Commitment

1. Develop common cross border payments vision and targets
2. Implement international guidance and principles
3. Define common features of cross border payment service levels

B Regulatory, Supervisory and Oversight Frameworks

4. Align regulatory supervisory and oversight frameworks
5. Apply AML/CFT consistently and comprehensively
6. Review interaction between data frameworks and cross border payments
7. Promote safe payment corridors
8. Foster KYC and identity information sharing



C Existing Payments Infrastructures and Arrangements

9. Facilitate increased adoption of PVP
10. Improve direct access to payment systems
11. Explore reciprocal liquidity arrangements
12. Extend and align operating hours
13. Pursue interlinking payment systems

D Data and Market Practices

14. Adopt a harmonized version of ISO 20022 for message formats
15. Harmonize API protocols for data exchange
16. Establishing unique identifiers with proxy registries

E New Payment Infrastructures and Arrangements

17. Consider the feasibility of new multilateral platforms and arrangements for cross-border payments
18. Foster the soundness of global stablecoin arrangements
19. Factor an international dimension into CBDC

Overall View of Key Building Block Themes

A: The importance of industry collaboration – All of these changes will be best navigated by markets where there is a robust and open dialogue between banks, financial market infrastructures (FMIs) and regulatory bodies. Practitioner groups will be very important to help ensure that the architecture and structures being put in place to support these new paradigms are "fit for purpose" within the new model. The more collaborative the industry can be, the more likely that these changes will have the intended positive impact of reducing friction and supporting economic growth through more efficient payments. Further, industry working groups allow for an iterative approach creating a road map to build upon a community buy-in – thereby creating momentum.

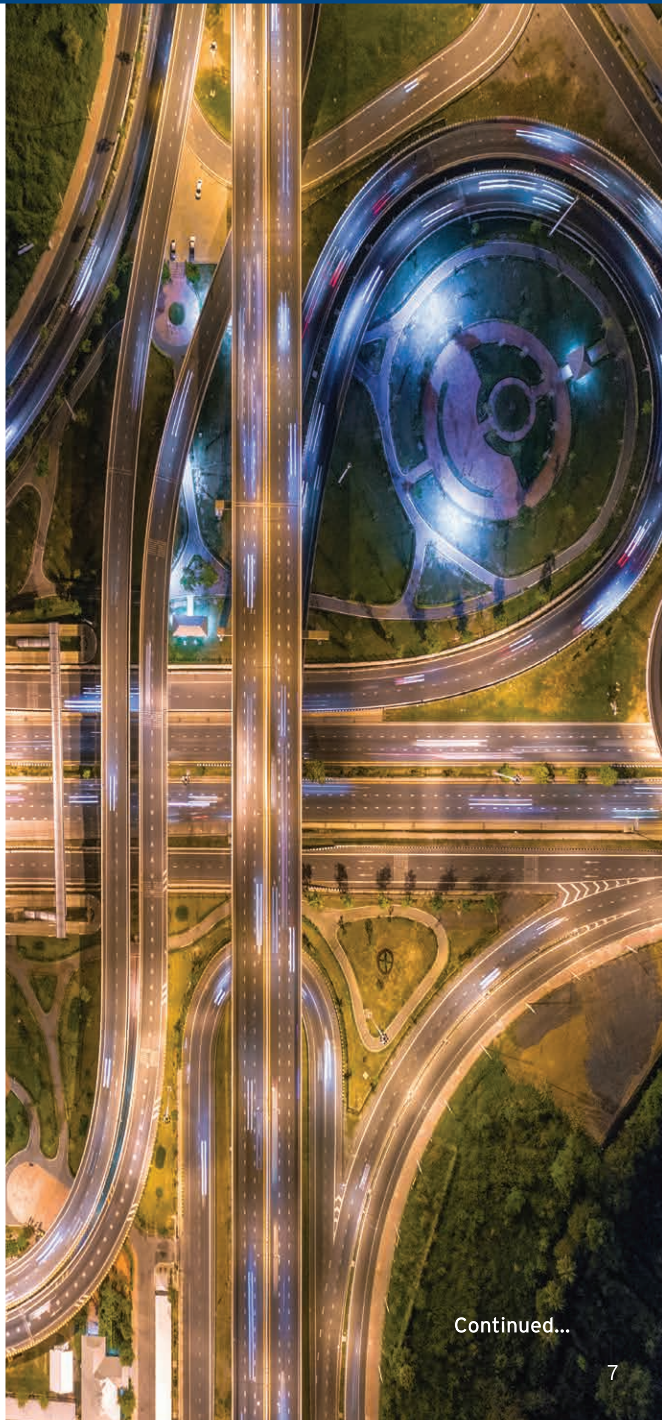
B: As a framework for enforcement, a joint collaborative and aligned approach across industry participants, market infrastructures and central banks provides a global forum to drive better market practice for standardization. Such industry joint efforts via working groups allow for an iterative approach with an established deep dive road map to build upon a community buy-in thereby creating momentum.

Further, organizations will not have a harmonized approach across the industry on their own due to the numerous parties/users involved (consumers, corporates, small and medium-sized enterprises (SMEs), financial infrastructures (FIs), banks, market infrastructures). This poses a challenge for implementation of the standards since the real benefits cannot be achieved unless all parties utilize the same formats which needs to be managed well across the ecosystem.

The conflict between regulatory/FMI perspective and the cross-border payments industry introduces trends emerging in the overall data framework space where there will be an obvious shift in how data is viewed and how payments should operate. Although the industry must ensure adherence and compliance to data privacy and consumer protection laws, the industry must also clearly lay out the concepts of the data model and the enhancements that have a positive impact.

Where a supranational organization, e.g., the European Union (EU) or Financial Action Task Force (FATF), creates a baseline to which FIs should comply, countries often move to gold plate additional requirements which, in the case of cross-border payments, can be overly onerous or resource intensive. Also, due to inconsistent implementation of the FATF and travel rules, there are no standard requirements around what data needs to be retained for funds "travel" rules in the Financial Crimes Enforcement Network (FinCEN) guidance. For example, there are market practices in place on what needs to be put in the address field whereby a consistent implementation of these market practices across jurisdictions will help reduce the compliance concerns and friction.

Additionally, there is inconsistency today in the regulatory requirements that pertain to various members of the payments ecosystem, which creates an uneven competitive landscape and does not instill equal accountability. There should be a broader global understanding of country-specific requirements and regulations, as there seems to be a large discrepancy in the level of understanding of requirements across various regions.



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C: The importance of interoperability across both domestic and cross-border payments systems – Acceleration of convergence across FMIs and payments types is only expected to increase in the coming years and the systems that will be most efficient in enabling cross-border trade/economic growth will be those that are built to be interoperable. Even domestic payments FMIs can benefit from looking to broader global or regional trends in capabilities rather than introducing functionality that is bespoke to the country. Common standards, interoperability and aligned operating models will provide the best path to creating a future-proofed, ubiquitous and harmonized payments experience.

D: Embracing change in data standards and models – payment standards will be undergoing major changes over the next few years with the global adoption of ISO 20022 and a new centralized data model that SWIFT is looking to introduce with their transaction management platform. FMIs should be considering the following:

- Looking to community groups and Cross-border Payments and Reporting Plus (CBPR+) +/ High Value Payments Plus (HVPS+) standards for agreement in the adoption of common standards across multiple parties to ensure payments systems are interoperable with these new standards
- Global trends and guidance regarding the movement toward fully-structured ISO fields
- How new data models like the SWIFT "gold copy" concept where the original payments message is kept within the SWIFT cloud and cannot be changed or truncated by banks along the chain could help ensure payments message quality and integrity

E: Changes in payments "flow" and interaction models – there will likely be a shift in cross-border payments over the next few years from the current linear "store and forward" model of interbank interaction to a more dynamic connectivity between banks leveraging API technology. They enable standardization of operations and functionality and are designed for immediate call and response based on a predefined set of protocols and operations. Therefore, APIs are better suited to facilitating an instant, real-time 24/7 payments experience than the current linear SWIFT message type (MT) messaging flow. This will help enable new services and capabilities like payments Pre-validation, micro services, PvP type payment schemes, dynamic inquiry handling and even payments orchestration and settlement. In addition, leveraging API technology as an enabler of micro services and PvP type payment schemes must be designed to help reduce friction and enhance operational efficiency.

Regulators and FMIs should keep an eye on the trends emerging in this space as it may naturally lead to some shifts in thinking regarding how the payments process should be regulated as these new models may challenge some of the current preconceived notions around data privacy and how payments "should" operate.

Although the industry must ensure adherence and compliance to data privacy and consumer protection laws, the industry must also clearly lay out the concepts of the data model and the enhancements that have a positive impact.

Actions and Working Groups:

Building Block 1 – Developing a common cross-border payments vision and targets

Action 1: Developing consensus on targets among relevant cross-border payments stakeholders (public and private sector)
• October 2020 – May 2021

Action 2: Establishing accountability
• August 2021 – October 2021

Action 3: Data collection and analysis to monitor progress against the targets
• October 2021 – June 2022 and yearly

Our view

The vision and overarching goal is to create best practices for cross-border payments by implementing a payments experience that is 100% certain, instant, frictionless and 24/7. The scale of change required will be extensive and will take time but with an approach focused on progressive "first movers" combined with a strategy encompassing broad ecosystem-wide improvements, it can be achieved.

Specific attributes within this vision includes:

Payments Processing and User Experience	Standards and Access	Post-Payments Processing
• Upfront transparency on service level and cost, including fees and FX spreads • Instant or near instant settlement 24x7 with full certainty of beneficiary credit • Real-time transparency on payment status throughout the transaction lifecycle	• Universal standards for performance: processing, service and transparency • Universal access – that includes encouraging access to cross-border payments for the unbanked (financial inclusion) • Ubiquity and commonality between global High Value Payment System (HVPS)	• Standards for query resolution • Standard procedures to recall a payment

Key learnings from previous industry-led initiatives regarding best practices in setting targets include:

• Targets must be clear and concise with a reason as to "why" the community has set that target. It is also critical that the target brings in the view of the end user

• Targets must be set and agreed upon by the community with a clear path to scale**.** There should be buy-in and agreement to move forward by enough entities that their adoption of the target will result in a significant baseline of overall transactions with a drive toward ubiquity. Close dialogue between the global and local authorities and (local) industry can help to (1) determine appropriate targets to take account of geographical specificities, and (2) achieve the buy-in of key stakeholders

• Targets can be set taking into account "first movers" and the "long tail" but consideration should be made for both

• Targets should give sufficient time for adoption and be communicated across the community

• Targets should take into account other developments and any overlap in initiatives

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A key cornerstone to the success of the global payment innovation (gpi) initiative has been in building the co-creation and collaborative ethos across audiences to address common issues and challenges with cross-border payments through the gpi working groups. The focus of the working groups has been to mutually agree on both business rules and on common service-level agreements (SLAs) and standards that would need to be adopted by all participants and enforced through key performance indicators (KPIs). The gpi KPIs measure the quality and SLA adherence of participants and help to enforce the gpi rules and framework that participants have agreed to commit to ,including traceability (confirming payment status) and speed (confirming same day value to creditor). This approach to adopting common standards, rules and SLAs has been extended into the post payments exception management and case resolution space with the launch of the gpi case resolution service. This service specifically adopts the ISO20022 data model to drive structured formats and industry standard codes to enforce greater automation in a business model that has historically relied on unstructured formats and inconsistent use of codes among participants. To supplement the automation, agreed upon SLAs help to ensure participants provide timely responses and status updates creating greater certainty.

Gpi provides a good blueprint to follow in how to monitor and assess progress of these initiatives. For gpi, SWIFT publishes a public document monthly of progress which includes:

- Number of live institutions
- Number of institutions who have agreed to sign up for gpi
- Gpi payments metrics (total payments, % of all payments across the SWIFT network, number of countries, currencies and corridors covered)
- Speed of gpi payments

A similar type of approach should be taken for monitoring progress across broader initiatives seeking to improve cross-border payments. It should be focused on tracking metrics of adoption and improvements.

Due to the amount of change already underway across the ecosystem, any target dates for assessment and implementation should seek to align with those already set for the ISO migration and the SWIFT platform to avoid disruption to these key technological and market infrastructure developments.

2021-2022: Assess and Develop	2022-2025: Delivery Across First Movers and Baseline Integration Broadly Across Community	2025 and Beyond
a. Agree on vision/scope of deliverables	d. First movers launch new model	Long tail adoption, Ubiquity and integration of future technologies
b. Determine path for architecture and tech build	e. Monitoring/tracking of usage and adoption	
c. Develop and build	f. Refine model/technology	
	g. Identify and implement areas to deliver baseline improvements across "long tail"	

Building Block 2 – Implementing international guidance and principles

Action 1: Identifying areas where enhanced implementation monitoring of existing international standards and guidance would encourage improved cross-border payments systems and processes.
• October 2020 – October 2021

Action 2: Conducting improved monitoring of implementation and follow-up of progress
• November 2021 – June 2023

Our view

There are improvements to be made from an international standard perspective both in global harmonization of requirements and more collaborative harmonization from a regulatory perspective. Additionally, more can be done to monitor the quality and adherence to standards.

We believe it is very important to drive the payments community towards harmonization and adoption of international standards. Standard setting bodies like SWIFT have a strong role to play in this space and we would also advise Super-national regulatory bodies and FMIs to look to harmonize and standardize the data points, structure and/or fields that must be captured to enable the one-time collection of identity information from clients. These bodies could also play a role in monitoring adherence to these standards through quality indexes. A similar approach to the gpi quality index could be taken where institutions' adherence to standards and data quality is make known to the broader community, both to track overall adherence and push individual institutions to adopt stronger data quality and payment structure practices.

Having different formats across different jurisdictions requires intermediaries to transform and map data to various formats. This introduces a risk of data truncation and loss in the quality of data, which then can impact the compliance and sanctions checks, causing payments to fail or resulting in additional operational work in reporting and fixing the data. Implementing international guidance and principles (like the ISO 20022 migration) and API protocols **will help improve and solve the friction points with the following in mind:**

- **Ecosystem-wide agreement:** Organizations will not be able to implement uniform or common message formats on their own due to the parties/users involved (consumers, corporates, SMEs, FIs, banks, market infrastructures). This poses a challenge for implementation of the standards since the real benefits cannot be achieved unless all parties use the same formats which needs to be managed across the entire ecosystem. For example, if an ISO message is translated into different formats by banks or payment service providers (PSPs) and then converted back to ISO, it can lead to loss of data and incorrect mapping. In addition, there needs to be an agreement for uniform standards implementation across SWIFT and market infrastructures (High Value, ACH, IP etc.) to ensure uniformity of standards. One must ensure that market infrastructures (MIs) do not diverge from what has been set up as part of CBPR+ and HVPS+ guidelines especially because MIs are not controlled by a common institution and the ISO formats are very flexible.
- **Implementation of new technology & operating models on legacy platforms:** Another obstacle is adoption of standards on legacy platforms with historic formats. Different players within the ecosystem will have different levels of cost, impact and appetite to upgrade systems and implement new technology and operating models. For example, in moving to full ISO 20022 standards, institutions will need to budget and invest in a multiyear, long-term program to implement such changes and allow for its maintenance, which in the long run would not only be cost effective but result in an efficient operating model.

Significant engagement with industry: Extensive engagement (including consultation and outreach at the domestic level) with relevant private and public sector stakeholders will be critically important to set these targets across the industry. Additionally, extensive alignment across the payments ecosystem from a regulatory, standards, technology, and operating models perspective will be key to ensuring success. Similarly, an area to watch will be the mandating of fields for ISO messages and ensuring that the guidelines there are based on a global approach rather than each market deciding on their own standards.

Building Block 3 – Defining common features of cross-border payment service levels

Action 1: Identification of elements of (particular) relevance for cross-border payments in existing multilateral service level agreements/schemes
• November 2020 – August 2021

Action 2: Publication of a framework to support cross-border payment service level agreements/schemes self-assessments
• September 2021 – August 2022

Action 3 Development of a template service level agreement covering the common elements identified and promote its use
• August 2022 – March 2023

Our view

As a framework for enforcement, a joint collaborative and aligned approach across industry participants, market infrastructures and central banks provides a global forum to drive better market practices for standardization. Such industry joint efforts via working groups (e.g., PMPG, CBPR+, gpi Working Group, SWIFT National Groups, Platform Advisory group, National Financial Market Infrastructure Working Groups, Wolfsberg Group, etc.) allow for an iterative approach with an established deep dive road map to build upon a community buy-in, with the goal of creating momentum. One must ensure that agreements do not diverge from what has been setup as part of CBPR+ and HVPS+ guidelines especially because if they are not controlled by a common institution and the ISO formats are very flexible.

Certain elements have already been established as having particular relevance to cross-border payments and have developed a plan to create a framework some examples of these working groups which have previously been successfully or are already in-flight are below:

Sanctions: Such collaborative efforts have led to the creation of the Sanctions Journey Plan by SWIFT which focuses on the following four workstreams that will help in achieving near frictionless cross-border payments:

- **Data Quality** – addressing transaction data quality issues that create sanctions friction
- **Screening Practices** – improving sanctions screening through sharing of market practice
- **RFI Process Improvement** – enhancing RFIs and improving communication and data sharing
- **Centralized Screening** – resolving technical and operational challenges with a new centralized screening model (Note, this workstream is currently in a "Proof of Value" phase.)

SWIFT gpi: In terms of agreed and established service levels, a cornerstone of the gpi initiative has been in building the co-creation and collaborative ethos across participants to address common challenges with cross border payments via gpi working groups. The focus of these working groups was to mutually agree on business rules, common SLAs and standards for adoption across all participants and enforce them through KPI's. The gpi KPIs measure the quality and SLA adherence of participants, they help enforce the gpi rules and framework that participants have agreed to commit to. A similar approach to agreeing common standards, rules and SLAs has now been extended into the post payments exception management and case resolution space with the launch of the gpi case resolution service.

TCH/EBA Clearing "Immediate Cross Boarder Payments Taskforce"

- January 2021, TCH and The Euro Banking Association (EBA) Clearing launched their joint "Immediate Cross-Border Payments" taskforce. The goal of this taskforce is to improve payments across the USD/EUR corridor and create a path to an immediate, frictionless cross border payment model
- Citi has been one of the key participants in this initiative. As a member of the task force, we have been strongly advocating for the creation of a 24/7, instant payments model with more dynamic interaction across the network
- The taskforce has highlighted the importance of leveraging ecosystem-wide industry initiatives as core solution components. These initiatives include SWIFT gpi and Platform functionality for prevalidation of payments and instant/synchronized settlement across infrastructures. It has also doubled-down on supporting fully harmonized ISO 20022 standards. Additionally, it has touched on the creation of "one-leg-out" payments in Real Time payment systems.
- Overall, we are supportive of this initiative. We believe it will form the basis of a more sustainable cross border model and can be implemented with strong partnership across US and European banks.

Single euro payments area (SEPA): When considering the development of a template service level agreement, we can be guided by the development of SEPA in establishing a framework for schemes and creating SLAs. This began with a regulatory push and close monitoring by both the European Commission and European Central Bank which led to industry collaboration via the European Payments Council and publication of the SEPA Scheme Rulebooks and associated implementation guidelines (rules and technical/messaging standards). The SEPA Scheme adherence process provided the underlying contractual arrangement whereby the intervention by the European regulators was deemed necessary to facilitate full migration of domestic euro payments to the SEPA schemes.

Building Block 4 – Aligning regulatory, supervisory and oversight frameworks for cross-border payments

Action 1: Identifying, in existing international standards and guidance for regulation, supervision and oversight of cross-border payments systems and processes, gaps or areas for alignment
• October 2020 – October 2021

Action 2: Addressing gaps or areas for alignment in existing international regulatory, supervisory and oversight standards and guidance for cross-border payments
• October 2021 – September 2023

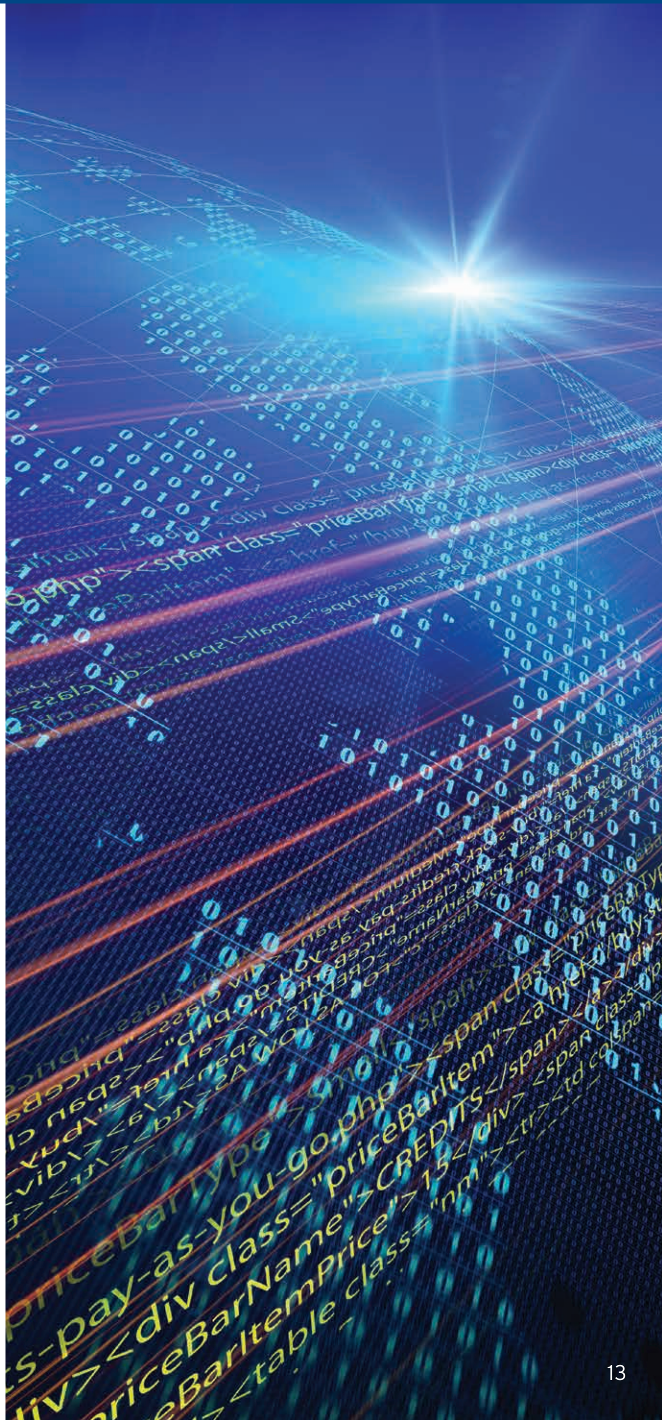
Our view

Areas that need alignment to achieve harmonization include:

- Full alignment in messaging standards (i.e. ISO 20022 CBPR+/HVPS+ alignment)
- Addressing differences in regulatory approaches by jurisdiction (i.e., application of regulatory requirements including sanctions)
- Regulatory supervision and enforcement of authorities' expectations. i.e.—the United States and non-U.S. regulators are increasing their focus on examining screening systems' logic, parameters and list contents. Where possible and without compromising financial crime and policy objectives, there should be alignment in the expectations and guidelines from these regulators so as to not create uneven approaches globally
- Differences in terms and definitions across jurisdictions (e.g., purpose of payment, LEI, etc.)
- Differences in operating hours
- Need for transaction status, transaction limits and processing speed in addition to pushing for credit confirmation across all schemes instead of just some of them, especially as relates to domestic schemes
- Differences in approach standards around "add-on" payments services, such as request-to-pay, directory services and quick response (QR) codes
- Need for an early problem deduction and business monitoring infrastructure and approach across systems along with clear, prompt communications from payment systems to PSPs and vice versa

A degree of harmonization across market infrastructures already exists from a messaging perspective with the SWIFT network and current MT standards. The industry should be looking to the ISO migration and the future publication of API messaging standards. They may also wish to seek opportunities to further ensure harmonization in messaging infrastructure — even looking to leverage these "high value" payments standards across domestic instant payments and low value schemes (as is already the case with SEPA).

As there are significant costs associated with updating existing schemes, any new scheme must include the prospect of cross-border payments from the very beginning with a clear road map of key principles and specifications providing sufficient timelines for all its participants. We believe that in the future there will be convergence in usage across these payments schemes. Markets that will be best positioned to have cross-border payments to encourage economic growth will be those that have systems that are interoperable across the "high value"/"low value" spectrum.



Building Block 5 – Applying AML/CFT rules consistently and comprehensively

Action 1: Further harmonization of AML/CFT and know your customer (KYC) requirements among countries
- October 2020 – October 2021

Action 2: Review evaluation program for national customer due diligence (CDD) measures and supervision
- October 2020 – October 2021

Action 3: Enhanced cooperation in AML/CFT supervisory matters
- October 2021 – June 2022

Action 4: Development and implementation of technologically innovative solutions for AML/CFT
- October 2021 – June 2022

Our view

The growth in volume and variety of country regulatory reporting requirements causes operational compliance difficulties for multi-jurisdictional financial institutions. For example, the types of AML-related regulatory transaction reports, required information, thresholds, frequency of reporting and aggregation criteria have recently increased in volume and variation by country. This lowers the margin for error in terms of establishing processes to support the accuracy and completeness of required AML regulatory transaction reports.

Also, compliance with national beneficial ownership requirements is becoming increasingly complex due to the lack of standardization across country regulations. Under the Fifth AML Directive (AMLD5), countries are required to have centralized beneficial ownership registries. Financial institutions must report or make available beneficial owner data to a central agency and report discrepancies between beneficial ownership information collected through normal KYC processes against those details recorded in the local national beneficial ownership registry. Challenges include countries requiring different data points be collected (e.g., some countries require city of origin, rather than country of origin). Additionally, national beneficial ownership legislation was passed for the first time in the U.S. on January 1, 2021 as a core component of the AML Act of 2020 and financial institutions will be obliged to comply with relevant regulations once they become effective.

Key points and outcomes of this legislation address the need to:

- Review evaluation program for national customer due diligence (CDD) measures and supervision
- Enhance cooperation in AML/CFT supervisory matters

  Strong information sharing frameworks (for public-private partnerships and the sharing of information among financial institutions) are critical to the development of an effective AML/CFT regime. The sharing of financial crime information is important for financial institutions to provide law enforcement with better and more targeted reports, and also for financial institutions to more easily identify illicit activity. Private sector efforts related to terrorism financing and proliferation financing are particularly enhanced through information sharing, as the complete network or end-to-end transaction flow is not always visible to a single financial institution in order to recognize relevant red flags.

- Develop and implement technologically innovative solutions for AML/CFT

  Governments should promote the adoption of technology to increase the efficiency and effectiveness of AML compliance. Regulations pertaining to innovation and technology should be drafted in consultation with the private sector to avoid unintended consequences, which may ultimately lead to financial exclusion or deter innovation. Some industry players believe that application of Model Risk Management guidance to AML programs may impede the ability for financial institutions to remain agile, and have curtailed innovation, specifically to the adoption of tools such as machine learning and artificial intelligence. The guidance focuses on capital and other financial modeling, yet examiners have mandated that banks apply it to a wide range of processes, including significant components of the AML compliance program, and have it treated as a binding regulation.

Building Block 6 – Reviewing the interaction between data frameworks and cross-border payments

Action 1: Analysis of constraints on cross-border data flows imposed by existing national/regional data frameworks
• October 2020 – December 2021

Action 2: Adaptation of regulatory, supervisory and oversight frameworks to facilitate improved cross-border data flows and information sharing
• December 2021 – December 2024

Action 3: Adaptation of system/scheme rules and their technical implementation
• 2025

Our view

The emergence of new payments concepts has led to a debate around new data models, data governance (data privacy and consumer data protection) and technological changes leading to a new payments data framework. This introduces trends emerging in the overall data framework space where there will be an obvious shift in how data is viewed and how payments should operate. The cross-border payments industry must clearly communicate and promote the adoption of rich data formats and promote a harmonized approach to data management globally.

Data modeling and data governance strategies can be built on principles or practices that advocate for the following:

- **Global adaptability to various data formats:** If there are different formats across different jurisdictions, intermediaries will have to transform and map data to various formats. This introduces a risk of data truncation and loss in the quality of data which then can impact the compliance and sanctions checks, causing payments to fail or resulting in additional operational work, such as fixing reporting errors and correcting data.
- **Alignment of implementation standards for local and global regulatory lists:** Based on global and local regulatory lists, there are different implementation standards for AML and sanctions screening, which results in multiple transaction checks and reporting. While standard payment processing is about moving funds from one account to another, a lot of effort has gone into payment processing from transforming the data to implementing local data regulations and/or implementing local screening regulations.
- **Standards for implementation of market practices:** Due to inconsistent implementation of the FATF and travel rules, there are no standard requirements around what data needs to be retained for funds "travel" rules in the FinCEN guidance. For example, there are market practices in place on what needs to be put in the address field. A consistent implementation of these market practices across jurisdictions will help reduce the compliance concerns and friction.
- **Consistent approach toward data across jurisdictions:** There also needs to be a consistent approach toward data collection, protection, retention and transfer requirements across jurisdictions that will help organizations to implement a consistent solution across regions, which in turn can reduce the costs.

Building Block 7 – Promoting safe payment corridors

Action 1: Development of a framework for the corridor risk assessments
- October 2020 – July 2021

Action 2: Pilot voluntary safe corridor projects for lower risk corridors (by regulators and other relevant authorities at both ends of affected corridors) and dissemination of the findings
- August 2021 – December 2022

Our view

Across global corridors, differences in global and regulatory lists result in different implementation standards for compliance, i.e., AML and sanctions screening, which can result in multiple transaction checks and reporting. To develop an industry framework keeping these associated risks in mind, it would be preferable to have a collaborative industry view as opposed to a single institution standalone view on safe payment corridors and the risk assessments.

Across global corridors, differences in global and regulatory lists result in different implementation standards for compliance...

Building Block 8 – Fostering KYC and identity information sharing

Action 1: Fostering better alignment and cross-border recognition of identity requirements, customer due diligence requirements and the digital identity assurance frameworks and technical standards
• October 2020 – June 2023 but tbd – dependent on issuing of ID standards by ISO

Action 2: Improving the coverage, access, quality, and digital capabilities of the official ID databases for individuals and legal entities
• October 2020 – December 2022

Action 3: Implementing shared or interoperable CDD infrastructure to allow financial institutions to access digital identity databases to meet their CDD obligations in a cost-effective way, domestically and on a cross-border basis.
• October 2020 – September 2024

Our view

Regulatory and market pressures have highlighted the need for businesses to rethink how they manage their identity. By applying good identity management practices, businesses can streamline and align processes, reduce time and costs, increase trust, and introduce new business models while enhancing user experiences. The process of forming trusted counterparty relationships is a slow and expensive process. There is duplication of effort and procedural redundancy required to substantiate even basic identity claims. Furthermore, manual, error prone operations can not take advantage of opportunities to improve process automation.

Trends shaping the digital identity space, highlighting the need for innovation on a larger scale include:

- Demand for a tailored, seamless experience both internally and externally is driving organizations to evaluate their approaches to identity management.
- Streamlined verification of identity against developing DLT standards removes the back-office processing, cuts costs and helps solve for regulatory challenges.
- The key is to promote the value of leveraging digital identify across corporates, governments, individuals, and ecosystems. An effective corporate identity network would ensure speed and efficiency when verifying counterparty validity across a range of corporate interactions – including links to individual identity networks.
- The true value of digital identity is realized at scale via: expansion of scope, finding value within a single anchor organization, Good identity management calls for a well-documented process with a clearly defined vision, governance model, trusted framework/standards, and a wider engagement with other ecosystem participants for commonality or alignment. Overall, collaboration is key to overcoming the challenges of digital identity, ranking just as important as cost and efficiency.
- From a KYC perspective collaboration will help. However, each individual bank is still responsible for its own KYC legal liability. Both federal and decentralized approaches could be used to support collaboration.

Another tool for Improving the coverage and digital capabilities of the official ID databases for individuals and legal entities are the development of LEIs. The Legal Entity Identifier (LEI) is a 20-character, alpha-numeric code based on a global standard to uniquely identify any legally distinct entity that is party to a financial transaction. It contains a rich source of contextual information about a legal entity such as name, address, company numbers, and information on the ownership structure. LEIs can aid in a range of areas including making efficiency and productivity improvements in the areas of compliance and fraud screening, risk reporting and payments processing. Each LEI contains information about an entity's ownership structure and thus answers the questions of "who is who" and "who owns whom."[2]

[2] https://www.europeanpaymentscouncil.eu/news-insights/insight/opportunity-lei-2021

Building Block 9 – Facilitating increased adoption of PvP

Action 1: Encourage observance of existing international guidance on use of PvP and ways to identify, measure, monitor, and control remaining FX settlement risk.
- December 2020 (joint letter); encouraging adoption from December 2020 onwards.

Action 2: Stocktaking and analysis to develop options that could increase adoption of PvP
- November 2020 – April 2022

Action 3 Identification of the most feasible option(s) and development of an implementation plan
- May 2022 – December 2023

Our view

PvP payments are a cost-effective method for large FX participants to remove settlement risk. However, they rely on a trusted central counterparty to manage the matching and release of settlements. Continuous linked settlement (CLS) currently offers this for eligible currencies and FX trades via traditional CLS Settlement, and to a more limited extent, same-day FX settlement in limited currencies through their currency settlement service, CLSNow. CLS is expanding PvP Settlement for over 120 currencies through a DLT solution, CLSNet. This requires FX trades to be submitted through CLS rather than bilaterally, which incurs additional implementation and usage costs. There is the ability for third parties to access CLS via major CLS Settlement Members, however, this is not necessarily an attractive commercial or risk model for these members. The best way to expand the coverage of PvP is to bring more currencies into CLS. This means working with the countries that are not already in the scheme to upgrade their legislation in critical areas like finality of settlement.

Expanding PvP to a larger range of transactions using reference matching within parallel currency real-time gross settlement (RTGS) systems currently exists in the Clearing House Automated Transfer System (CHATS) in Hong Kong, which maintains local clearing capability in USD, EUR, CNH and HKD. To use CHATS, participants must maintain foreign currency yield (FCY) accounts, or access them through intermediaries, in Hong Kong. To expand this model without a central counterparty like CLS, independent RTGS systems would need to simultaneously match settlements with trade reference numbers (or hold for release until matched) in different markets/currencies. This would allow greater utilization of PvP without needing to maintain accounts in a single market and reduce risk of settlement failure and loss. However, participants would still need to maintain a local currency account in the jurisdiction of the currency they are trading to allow the settlements to occur. PvP can also be facilitated by next generation RTGS systems providing “synchronization” functionality as envisioned by the Bank of England. This will enable orchestrators to arrange PvP between two different venues.

Building Block 10 – Improving (direct) access to payment systems by banks, nonbanks and payment infrastructures

Action 1: Assessment of direct access objectives, benefits and barriers to support national authorities and operators in evaluating their own frameworks CPMI, building on existing analysis, to assess objectives, benefits and current barriers to improve direct access to relevant payment systems and central bank money for cross-border payment providers.
• November 2020 – April 2021

Action 2: Development of best practices on (direct) access to payment systems for authorities and operators
• April 2021 – December 2021

Action 3: Self-assessment/evaluation of selected current frameworks against best practices
• January 2022 – December 2022

Action 4: Technical assistance for assessment to improve direct access and implementation of action plans
• From January 2022 onwards

Our view

Citi is fully supportive of the Federal Reserve's objective of promoting a safe, efficient, inclusive, and innovative payment system. Given Citi's role as a global systemically important bank and a leading provider of critical payment services to millions of our institutional and retail clients around the world, we take our financial and operational responsibilities very seriously. Such resiliency not only supports our own firm's safety and soundness but more importantly also promotes financial stability. In essence, our resiliency allows us to be a source of strength for our clients and the communities we serve in both bad times and in good.

As such, as the Federal Reserve explores expanding access to its financial services to "novel" institutions, we believe it will be essential to create a framework that retains the current level of resiliency, safety and soundness of the overall system.

Overall, the principles laid out in the Proposed Guidelines for Evaluating Account and Service Requests are robust and cover the key areas of operational, settlement, cyber, liquidity and credit risk. They also cover the importance of ensuring that illicit activity such as fraud, money laundering, terrorism financing, cybercrime, etc. is not introduced into the system with this expansion of access.

While the guidelines read as comprehensive, proper execution and the ability to transpose them into objective criteria will be key in ensuring their effectiveness.

As the Federal Reserve expands access to its financial services, including accounts and payment systems, Citi trusts that the Federal Reserve will, as it always has, ensure tailored supervision and regulation of financial institutions gaining such access.

We believe that effective supervision and regulation should be commensurate with, tailored to, and supported by a deep understanding of financial institutions' unique and evolving risk characteristics.

This framework should appropriately cover critical activities whose complexity and riskiness are not always best captured through traditional measures such as asset size but perhaps are better analyzed through more relevant indicators such as transaction volume/value, geography, substitutability, client segments, and purpose.

The framework should align to existing regulations, requirements and guidelines for traditional participants to the greatest extent possible so as not to introduce unintended consequences or risks into the system. These include, where applicable, BSA/AML/KYC/OFAC compliance, capital and liquidity stress testing, governance and controls, and recovery/resolution planning.

Specific considerations for expanding access to nonbanks include:

• The need to ensure there is a level playing field of regulations and commercials between existing and new entrants

• All participants should abide by the highest cyber and financial crime standards.

• New entrants need adequate KYC processes in place to reduce violations of AML/CTF or Sanctions.

• Adequate liquidity and capital is needed to sustain the clearing system and the flows added from the new entrants

• Where loss sharing schemes are part of the clearing system, all participants should be required to bear the appropriate loss to ensure established players are not subsidizing new entrants

Lastly, there should be a rationalization of cost to players participating in these systems that pertain to systems maintenance and cost of network. There should be a harmonized approach from banks/new entrants. All entrants who have direct access should also contribute to the costs including new developments associated with the FMI.

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Some specific areas for consideration to include:

- **Risk mitigation:** Combine the benefits of promoting more competition and innovation through the opening of access with appropriate prudential controls and oversight arrangements. A careful configuration of access criteria to mitigate any potential financial, operational or reputational risks to other direct participants is necessary and protecting users' trust in payments is imperative.

- **Systems access rules:** Domestic clearing systems should have specified rules around access to the system by nonresident entities. There are cases where nonresident accounts are opened at local banks for the purpose of accessing domestic clearing systems. These accounts are then used by the foreign entity to make payments on behalf of overseas parties, including payments on behalf of other foreign banks and PSPs. This creates long payment chains and information about the parties in the transaction are not carried from end to end.

- **Accommodate both direct and indirect participation:** There needs to be recognition that for some providers direct participation may not be the ideal solution. They may prefer to participate indirectly. Therefore, support for such arrangements should continue. To accommodate both direct and indirect participants domestic schemes need to cater for longer payment chains and carry the information required to meet FATF standards, i.e., the Travel Rule. For example, a domestic bank may hold an account for a nonresident PSP. That nonresident PSP may offer cross-border services to other banks/ PSPs. The ultimate originator of the transaction should be reported to the beneficiary bank, but they are far down the payment chain. The domestic clearing system needs to be able to track the parties in the payment chain.

Building Block 11 – Exploring reciprocal liquidity arrangements across central banks (liquidity bridges)

Action 1: Exploration, experimentation, and piloting by pioneering central banks
- November 2020 – November 2021

Action 2: Analysis of concrete practical experience to identify the benefits and risks of liquidity bridges and development of a framework on how to establish them
- July 2021 – July 2022

Action 3: Technical assistance for implementation of liquidity bridges
- From August 2021 onwards

Our view

When moving ahead with analysis to identify the benefits and risks of liquidity bridges it is important to consider the following:

- **Liquidity management at the central bank:** One of the challenges that banks face in enabling true 24x7 instant cross-border payments is liquidity management at the central bank. Regulatory constraints and market-specific liquidity requirements may result in the need for incremental liquidity buffers to facilitate 24x7 settlement and clearing needs. The cost of incremental liquidity held can materially add to the cost of liquidity reserves for a bank. This is further exacerbated by illiquid markets during off hours, holidays, and weekends as well as varying capacity of schemes and central banks to produce high quality, accurate and real-time data.
- **Infrastructure to support transparency of balances at central banks:** Some markets have started to move toward APIs that provide real-time balance information at the central bank and this needs to be considered as a best practice and made more available while thinking of a future market infrastructure.
- **Central liquidity pool:** Consider a central pool of liquidity held at one central bank which then can be utilized via the follow-the-sun model (e.g., after Asia hours, it is available to Europe and so on). This could potentially result in an efficient usage of liquidity resources and on a broader level, such as a pledged collateral/liquidity pool, could be used across high value payment (HVP) and low value payment (LVP) systems making it a more fungible and universal pool.
- **Collateral "flight to quality":** There is a chance that liquidity bridges between central banks could lead to a flight to quality for collateral. Today, commercial banks hold collateral pools (cash or instruments) to support daily clearing activity, which in nature is an acceptable instrument for specific jurisdictions (i.e., EU eligible securities in Europe). If commercial banks can generate liquidity in a jurisdiction using collateral placement elsewhere, there will be an incentive to create larger singular collateral pools in the most applicable jurisdiction for that bank, potentially eroding these in other locations. This may have a downstream impact on smaller economies if not equally offset by banks generating liquidity in reverse.
- **Centralization risk:** If the central bank in one jurisdiction has an operating issue, it could potentially have an impact across commercial banks in other jurisdictions if a reciprocal large-value payment system (LVPS) arrangement is being used. Therefore, there would need to be a broader view of operational risk and systematic dependencies across FMIs.
- **FX considerations:** Management of intraday by introducing and withdrawing liquidity through the day will in some form be impacted with FX fluctuations. One must consider whether commercial banks will still maintain a FCY account as a subaccount of the central bank, or of a commercial bank with liquidity provided by the central bank.

Building Block 12 – Extending and aligning operating hours of key payment systems to allow overlapping

Action 1: Identification of payment systems relevant for (global) cross-border payments and stocktaking of their operating hours
• November 2020 – Jan 2021

Action 2: Setting out of potential future operating hour "end states" to support enhanced cross-border payments, analysis of risks and policy considerations, and potential solutions to address them
• February 2021 – September 2021

Action 3: Development of technical and operational approaches on how to address key challenges
• October 2021 – March 2023

Our view

The ability to extend operating hours to 24/7 will be very dependent on local market infrastructures and will likely vary by region/country. Furthermore, making sure that central bank money is always available for settlement should be a policy objective. Recent developments mean that many market participants are moving in the direction of readiness. For example, in the U.S. larger FIs will typically have more extensive hours covering today's 22/5 hours so the change to 24/7 would not be significant, whether operations are covered in one location or with a follow the sun model. 24/7 will require additional considerations to determine requirements based on volumes with the change to seven days per week. Volume will also drive cost/benefit considerations as FIs look at incremental operating costs against incremental volumes and revenues from extended hours and days of service. In addition, countries that have already implemented 24/7 instant payments schemes have already required those banks in market to develop a 24/7 model. However, there still may be considerations and changes that need to happen to bring cross-border payments into that model, which likely only covers domestic payments at present.

In addition, in early 2020, the PRC (chaired by Citi) sponsored a working group to explore key operational, risk, and policy considerations to be taken into account in an expanded hours environment. In April 2021, the PRC published an expanded hours white paper summarizing key considerations identified by the working group including Reserve Bank intraday credit provisions, definition of "business day" and "value date" conventions, adoption approaches, participant directory information requirements, staffing models, technology support, liquidity risk management, and FMI innovation.[3]

Regulators also need to start preparing now for 24*7*365 RTGS as these systems come up to end of life or renewal. While the industry may not be able to work on that basis immediately, the switch needs to support that mode of operation.

For example, the Bank of England has recently looked at the "lack of overlapping operating hours between central bank payment systems." The Bank also states that with RTGS renewal the service "will have the capability to settle payments during an extended operating window." Building on one of the Bank's observations, "Extending the operating hours so there is greater alignment of key payment systems in different jurisdictions and time zones" would be a logical first step.

[3] https://www.newyorkfed.org/medialibrary/microsites/prc/files/2021/prc-fedwire-expanded-hours-considerations-white-paper

Building Block 13 – Pursuing interlinking of payment systems for cross-border payments

Action 1: Stock take and analysis of existing and potential interlinking models and evaluation of the risks and benefits of each model
• November 2020 – May 2021

Action 2: Development and publication of a framework for interlinking
• June 2021 – July 2022

Action 3: Establishment of links between payment systems based on the framework
• From August 2022 onwards

Our view

Interlinking of payment infrastructures across jurisdictions: The interlinking of payment infrastructures across jurisdictions can play a role in improving the overall cross-border payments experience. We see this as the first step and building block to achieving 24x7 instant cross-border payments. Standardization and harmonization of SLAs, technology, messaging standards and approaches across jurisdictions will result in a more efficient payments process with less chance of errors and non-STP. However, there should be real consideration around the structure of interlinking and what it should encompass. Central banks should not be looking to play the role of correspondent banks in this space as this would bring about a host of requirements for central banks regarding compliance adherence, liquidity/credit considerations and operational resiliency that are managed by correspondents today. We also do not see the current correspondent banking model as being a barrier to payment efficiency.

Moving away from proprietary linkages toward a broader approach: Rather than focusing exclusively on interlinking of infrastructure between specific countries creating "proprietary" linkages, a broader view should be adopted. Interlinking of payment systems should focus on harmonization of payment formatting/ approaches to cross-border payments which can be achieved through existing or planned initiatives including:

- standardization of data and formatting (ISO),
- standardized connection between HVPS and standardized validation, and
- storage/transmission of messages (SWIFT Platform).

The example of SEPA[4] and engagement with stakeholders such as the European Payments Council and EBA Clearing might offer some learnings in terms of their experience in facilitating clearing and settlement across different jurisdictions, while accommodating a range of business and operating models.

The interlinking of payment infrastructures across jurisdictions can play a role in improving the overall cross-border payments experience.

[4] https://www.europeanpaymentscouncil.eu/what-we-do/sepa-payment-scheme-management/clearing-and-settlement-mechanisms

Building Block 14 – Adopting a Harmonized ISO 20022 version for message formats (including rules for conversion/mapping)

Action 1: Tech sprint to identify new applications of ISO 20022 and APIs for data exchange to enhance cross-border payments
• November 2020 – June 2021

Action 2: Develop standard global ISO formats for cross-border payments
• December 2020 –June 2022

Action 3: Development of country-level plans for adoption of global ISO 20022 standard for cross-border payments
• June 2021 – June 2022

Action 4: Development of an implementation guide and policy measures to ensure adoption
• January 2022 – December 2022

Our view

With the adoption of ISO20022 for standardization and harmonization, messaging standards and approaches across jurisdictions will result in more efficient payments across global payment infrastructures. The November 2022 ISO 200222 go-live date for the SWIFT Network is fast approaching and the expectation is that 85% of all Market Infrastructures (by payments value) will migrate by 2025. Embracing transformation in new data and payment standards will affect many different systems within the banks' infrastructure with complex changes to data, processes and applications. This will require developing rigorous migration plans by considering internal systems' readiness to support the move to this new standard. This new set of challenges can be solved for and overcome by applying certain rules and principles:

- **Ecosystem-wide agreement required**: Organizations will not be able to implement uniform or common message formats on their own due to the parties/users involved (consumers, corporates, SMEs, FIs, banks, market infrastructures). This poses a challenge for implementation of the standards since the real benefits cannot be achieved unless all parties use the same formats, which needs to be managed across the ecosystem. For example, if an ISO message is translated into different formats by banks or PSPs and then converted back to ISO, it can lead to loss of data and incorrect mapping. In addition, there needs to be an agreement for uniform standards implementation across SWIFT and market infrastructures (High Value, ACH, IP, etc.) to ensure uniformity of standards. One must ensure that MIs do not diverge from what has been set up as part of CBPR+ and HVPS+ guidelines especially because MIs are not controlled by a common institution and the ISO formats are very flexible.
- **Implementing new technology & operating models on legacy platforms**: Another obstacle is adoption of standards on legacy platforms with historic formats. Different players within the ecosystem will have different levels of cost, impact and appetite to upgrade systems and implement new technology and operating models. For example, in moving to full ISO 20022 standards, institutions will need to budget and invest in a multiyear, long-term program to implement such changes and allow for its maintenance, which in the long run would not only be cost effective, but result in an efficient operating model.
- **Maintaining Data Integrity:** With the introduction of a new data model and interoperability across payment infrastructures, comes the need to maintain data integrity end to end across the payments chain. This could be achieved through SWIFT's platform by keeping the original payments message within the SWIFT cloud, with no changes or truncation by the next bank in the chain, to ensure payments message quality and integrity. With the alignment of the ISO migration date and implementation of the platform technology, with SWIFT the main platform architecture, banks could choose to start interacting in API or MX or MT from day one, which will allow for maintaining not only compatibility but will ensure that one gold source is leveraged across these various formats.
- **Dynamic connectivity between banks and SWIFT based on API interaction:** Application programming interfaces (APIs) have been key to enabling some of the most successful startups in the world to scale their businesses and allow different pieces of software to interact. They enable standardization of operations and functionality and are designed for immediate call and response based on a predefined set of protocols and operations. Therefore, APIs are better suited to facilitating an instant, real-time, 24/7 payments experience than the current linear MT messaging flow.

A degree of harmonization across market infrastructures already exists from a messaging perspective with the SWIFT network and current MT standards. The

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industry should be looking to the ISO migration and the future publication of API messaging standards and an opportunity to further ensure harmonization in messaging infrastructure – even looking to leverage these "high value" payments standards across domestic instant payments and low value schemes (as is already the case with SEPA).

- **Orchestrated Settlement and payments coordination:** Leveraging the dynamic interaction model facilitated by APIs, SWIFT will be able to line up a payment across multiple banks and then orchestrate instant or near-instant settlement across the chain. Additionally, the functionality of orchestration and the APIs that will be developed to facilitate it have the potential to enable more complex and action-oriented instruments such as payment versus payment (PVP) and delivery versus payment (DVP). For many years, SWIFT has facilitated PVP and DVP but the need for greater automation, efficiency and immediacy for such settlements is increasing. Standardized API connectivity, dynamic calls between institutions and a structured data model will provide the foundations and technologies for related schemes to continue to evolve in future.

Leveraging the dynamic interaction model facilitated by APIs, SWIFT will be able to line up a payment across multiple banks and then orchestrate instant or near-instant settlement across the chain.

Building Block 15 – Harmonizing API protocols for data exchange

Action 1: Tech sprint to identify new applications of ISO20022 and APIs for data exchange to enhance cross-border payments
• November 2020 – June 2021

Action 2: Stock take and analysis of existing message standards and protocols for data exchange supporting cross-border payments
• November 2020 – October 2021

Action 3: Call for proposals for a set of harmonized APIs/API standards using (existing) API protocols for cross-border payments
• November 2021 – June 2022

Action 4: Proof-of-concept implementation of API standards
• April 2022 – June 2023

Our view

Delivering a cross-border instant payments experience will require interactions between players to be dynamic, structured and allow for 24/7 availability of payments. These interactions must be able to facilitate functionality like pre-validation, executing rule-based payments actions and real-time query resolution. The current MT store and forward messaging is unable to offer this dynamic, real-time functionality. Application programming interfaces (APIs) have been key to enabling some of the most successful startups in the world to scale their businesses and allow different pieces of software to interact. They enable standardization of operations and functionality and are designed for immediate call and response based on a predefined set of protocols and operations. Therefore, APIs are better suited to facilitating an instant, real-time, 24/7 payments experience than the current linear MT messaging flow.

A degree of harmonization across market infrastructures already exists from a messaging perspective with the SWIFT network and current MT standards. The industry should be looking to the ISO migration and the future publication of API messaging standards and an opportunity to further ensure harmonization in messaging infrastructure — even looking to leverage these "high value" payments standards across domestic instant payments and low value schemes (as is already the case with SEPA).

While APIs are not new to banking or payments, their adoption by banks for core payments processing and messaging has not been widespread. Embracing changes in common message formats (like the ISO 20022 migration) and API protocols will bring a set of challenges: API technology that must be designed to help reduce friction and enhance operational efficiency. APIs are still a relatively new technology in the cross-border payments space and unlike SWIFT MT messages there is still a lack of universal standards and protocols to their usage, which is where SWIFT can play an important role in setting API standards.

Incorporation of a new technology without centralized standards — APIs: This also ties into the changing linear "store and forward" model of interbank interaction toward more dynamic connectivity between banks leveraging API technology that must be designed to help reduce friction and enhance operational efficiency. And, as mentioned, APIs are still a relatively new technology without universal standards and protocols.

- **API authentication and authorization:** From an API protocol view, being able to support API authentication and authorization cross border among multiple partners, for both data going out to and coming back from zero-trusted environments, poses high risks. The challenge here is the ability to identify, authenticate and authorize the "what and who," the use cases and the services rendered. To overcome these challenges, institutions and users must implement strong regulations and compliance, to have the ability to support a mix of federated and distributed digital identity and consider having an interoperable cryptographic key with collaborative public key infrastructures (PKIs).
- **Effective expansion of product lines and channels:** Institutions will need to ensure that existing product lines and channels will need a new data-format-enabled proxy to communicate with the new common standards and message format. Also, APIs will require a real-time 24/7 signaling to speed up the existing product lines and channels in a real time with the new system.

Building Block 16 – Establishing unique identifiers with proxy registries

Action 1: Review the scope, technical and operational requirements of existing and proposed global digital Identifiers for both legal entities and natural persons and analyze the need for a decentralized proxy registry.
• October 2020 – December 2021

Action 2: Determine the next steps to promote the use of a (global) digital user interface framework and decentralized proxy registry in jurisdictions
• June 2021 – October 2022

Action 3 If necessary: Implementation and progress monitoring.
• December 2021 – October 2024

Our view

Overview
Making electronic payments might be more inclusive if we did not have to enter complicated information when making them. Entering credit card or account information at checkout is tedious and a friction point. The need to know the banking details of someone you want to send money to is not only inconvenient, it is a security risk. This is where proxies play an important role. Proxies make payments simpler by doing away with the need to know beneficiary bank details – all you need is their mobile number or email address. Quick response (QR) codes for paying businesses are another example of proxies – you don't need to know bank details, just scan the code and the payment will reach its destination. This is a clear benefit of the fintech revolution that has sharpened its focus on user experience. The risk of handling bank account information or sending a payment to the wrong beneficiary has led to the development of proxies, which have the potential to lead to a much better payment experience, but only if regulators and market participants go about it in the right way.

Over the years, fintechs have sought to do away with legacy banking frictions and this has been a feature of several electronic money payment systems for many years. As new instant payment schemes have started to replace traditional automated clearinghouse (ACH) systems, the latest development is the attempt to make "pay by proxy" a ubiquitous feature of national payment schemes. Pay by proxy is a feature of national ACH systems in some places but not others. For example, the QR code has enabled several Asian fintechs to create vast alternative payments networks. What is clear is that a concerted effort is needed across regulators, banks, fintechs and merchants to make "pay by proxy" the norm, so that payments can adopt their true form – invisibility.

Use case for proxies: Proxies provide significant improvements in convenience by removing the layer of complicated banking details and making payments familiar, easy, and simple via short addresses. While electronic payments may be exclusionary when they are complex, "pay by proxy" makes them simpler and easier for a wider section of society due to its inclusivity. Furthermore, proxy registries provide data management benefits as proxies tend to be more static and managing data remains in the hands of the beneficiary when bank details change and records need updates. Also, they are a critical component in being able to make a payment to a beneficiary in any of their payment methods of their choice (payment ubiquity). Meeting the beneficiaries' preferred payment method is increasingly being seen as a differentiator, especially for technology platforms and the digital economy. Payment ubiquity also brings with it the need to operate at scale and failed payments need to be serviced. In summary, having numerous proxies available, which have some form of validation process that includes the beneficiary, will improve both payment ubiquity, reduce risk of fraud as well as improve payment completion rates before the payment is even made.

Challenges with proxies – Payment ubiquity:
Most organizations have already chosen the identifier that supports their business model for executing payments, which can be either a bank account or a card number. That is the identifier they collect, store, and validate to ensure execution of transactions to and from their consumers. However, for a payment to be truly ubiquitous, organizations need to be able to make a payment through whatever their beneficiary prefers. For this, they need to add to their existing identifiers and take steps to manage, collect and validate controls associated with these other proxies within their treasury systems and processes.

Adoption of proxies: Adoption today is often challenged by inability to validate information accuracy. This is compounded by situations where an internal account is linked to numerous proxies and the proxy owner then is responsible for capturing and updating proxy information. Further adoption may be more complex in different jurisdictions. For example, in locations like the U.S. there are still over 4,500 registered banks, so there's a benefit in only needing to know one identifying piece of information. Whereas, the UK has a far more consolidated banking industry and also one of the highest card penetration rates in the world so fintechs can easily provide services attached to a card to drive the frictionless services that consumers want.

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Implementing/monitoring and managing proxies: As different proxy models emerge, proxy management strategies to improve the collection information will help organizations move closer to payment ubiquity provided institutions:

- **Create processes and validation steps now:** If institutions are to envision payments ubiquity in their future road map, then the sooner they collect the information needed to create validation steps, the sooner they can benefit from offering consumers multiple/alternative payment methods.
- **Offer a benefit to sharing more proxies or migrating:** Institutions benefitting from the ease and convenience of proxies could consider a change in their fee structure to motivate beneficiaries or customers to make the switch and provide a new proxy that enables more efficient payment or collection methods.
- **Manage the proxy at point of payment failure:** If a collection fails or stops, access should be removed at the point of payment failure since this is where the risk of substitution is lower and the delivery of product/service is digital. If payment data needs to be updated, getting the proxy holder to update the relevant details is the only way to operate at scale.
- **Schemes that do pre-validation:** Schemes for a pre-validation step performed ahead of payment execution is also important to consider. Some schemes based proxy-IDs (like PayNow in Singapore) are pre-validated and access data points like account nickname or account holder name, before the payment is executed, which helps to improve completion rates and reduce failed payments.

Building Block 17 – Considering the feasibility of new multilateral platforms and arrangements for cross-border payments

Action 1: Stock take of existing and potential multilateral platforms and evaluation of the risks and benefits
• November 2020 – July 2021

Action 2: Cost/benefit and feasibility analysis of one or more new multilateral platforms
• July 2021 – June 2022

Our view

With new multilateral platforms, infrastructures and arrangements coming up in the cross-border payments space, the following technical, legal/regulatory and/or business considerations should be taken into account:

- **Financial crime** – schemes built on digital bearer instruments may have elevated financial crime risk
- **Competition law** – new infrastructures running on dominant networks may raise competition issues, e.g., if networks decide that only one form of token can be used on their platform
- **Business model** – consideration should be given to the incentives built into the scheme
- **Economic impact** – novel payment infrastructures may have significant impact on the economy, e.g., the mass adoption of central bank money as a means of digital payment
- **Legal framework** – infrastructures involving new instruments like stablecoins must not operate in regulatory gray spaces
    - **Data privacy** – cross-border infrastructures need to consider local data privacy legislation, e.g., General Data Protection Regulation (GDPR)
    - **Governance** – Principles for Financial Market Infrastructures (PFMI) standards should apply to all significant new payments infrastructures

Data sharing: Along with the benefits of new payment infrastructures, risks can arise associated with regulatory gray areas and data privacy. While the sharing of bank-held, customer-permissioned data with third parties has been taking place for many years, increased use of digital devices and rapidly advancing data aggregation techniques are transforming retail banking services across the globe. This sharing of customer-permissioned data by banks with third parties is leveraged to build applications and services that provide faster and easier payments, greater financial transparency options for account holders, new and improved account services, and marketing and cross-selling opportunities.

Open banking: Authorities have taken a range of actions related to open banking in their respective jurisdictions (and several are turning their attention to "Open Finance",e.g., the EU and the UK). Some jurisdictions require banks to share customer-permissioned data and require third parties to register with a particular regulatory or supervisory authority. Other jurisdictions have issued guidance and recommended standards and published open API standards and technical specifications. Remaining jurisdictions follow a market-driven approach and currently have no explicit rules or guidance that either require or prohibit the sharing of customer-permissioned data by banks with third parties.

While the sharing of bank-held, customer-permissioned data with third parties has been taking place for many years, increased use of digital devices and rapidly advancing data aggregation techniques are transforming retail banking services across the globe.

Building Block 18 – Fostering the soundness of global stablecoin arrangements for cross-border payments

Action 1: Completion of international standard-setting work, by reviewing existing standards and principles, and assessing the need for further guidance in accordance with the FSB recommendations
- October 2020 – December 2021

Action 2: Implementation of international standards in national jurisdictions, including effective cooperation, coordination and information sharing arrangements to support the comprehensive regulation, supervision and oversight of GSC arrangements across borders and sectors, in accordance with the FSB Report
- October 2020 – July 2022, and as needed depending on the emergence of cross-border GSC arrangements

Action 3: Review of the implementation and assess the need to refine or adapt international standards
- January 2022 – July 2023

Our view

Adherence to existing regulations: Private sector innovations like stablecoins will add to the competition and should be welcomed if they can comply with all relevant laws and regulations on a technologically neutral playing field. In the case of stablecoins, new instruments need to comply with existing laws and regulations. It is not desirable for novel instruments to fall between the cracks of regulations.

Avoidance of conversion of business models: If stablecoins are provided with a bespoke regulatory framework that allows them to enjoy benefits that are not available with securities, deposits or electronic money, then regulators should expect "inversions" to occur, meaning existing players converting their business models to base themselves on stablecoins. For example, an e-money issuer may encourage users to convert existing balances to tokens at par value. Furthermore, the e-money issuer that has inverted to a stablecoin model may be able to convert what were client money balances into windfall profits.

Private sector innovations like stablecoins will add to the competition and should be welcomed if they can comply with all relevant laws and regulations on a technologically neutral playing field.

Building Block 19 – Factoring an international dimension into CBDC design

Action 1: Stock taking and analysis of different CBDC designs
• November 2020 – July 2021

Action 2: Development of options for access and/or interlinking
• August 2021 – July 2022

Action 3 Design study and dissemination
• January 2022 – December 2022

Our view

The debate around CBDC positively frames a wider discussion around the future of money. As the battle between digital and physical forms of money seems to be going in one direction, there will be increased competition among the different forms of digital money. Private sector innovations like stablecoins will add to the competition and should be welcomed if they can comply with all relevant laws and regulations on a technologically neutral playing field.

A great deal of work has already been put in by Central Banks and Regulators as they pursue exploring CBDCs. Efforts by BoE and FRB (amongst others) to consult the industry in this area will ensure that the design has the maximum benefit for the industry and limits any second order unintended consequences. As central banks develop policy and technology standards around CBDC, they may want to consider:

- **Adoption into a goldilocks zone:** Adoption of CBDC will need to be pitched into a goldilocks zone –large enough to be relevant but not so large as to dominate the market for payments and savings. Payment acceptance levels will be of critical importance, and this will depend on how the scheme is proposed to interface with merchants, e.g., through near field communication (NFC)or QR codes. Building a trusted brand and scheme, developing ubiquitous acceptance and operating such an infrastructure is likely to require a very significant financial outlay. Consideration should also be given to the cost of integration with the new CBDC infrastructure. The development of faster payments requires massive investments from the financial sector.
- **Relevance of a digital ID to deployment of CBDC:** CBDC should be considered as a potential component of digital infrastructure, as a larger stack of capabilities. There may be other elements of the stack that would deliver some of the purported benefits of CBDC. For example, the experience of other countries has shown that the digital economy (as well as the payments market) benefits from the development of either centralized or federated digital ID schemes. Indeed, digital ID will be of central importance to any CBDC deployment.
- **Impact on broader financial market:** A central question is the impact of CBDC on broader financial markets. A broadly available digital instrument without counterparty risk is attractive in isolation, but the reason why there is counterparty risk against commercial banks is because they perform lending. The counterparty risk of bank deposits is not a bug of the system, it is a feature that is controlled through measures like capital requirements and deposit guarantee schemes. Narrowly optimizing one component of a larger system may lead to unintended consequences.
- **Potential implications of CBDC:** Modernizing payment systems need to be pursued judiciously by policy makers charged with the safety and soundness of the financial system. Unintended consequences lurk behind different policy decisions and design decisions. Particular care needs to be exercised when contemplating the extension of 24/7 central bank money to the retail market, so called "retail" or "'general purpose" CBDC, a scheme that may upend the financial sector as we know it.
- Central banks should carefully consider the potential adoption path of CBDC. As these are risk-free instruments, they may become the dominant form of electronic payment. Big Tech players may offer risk-free wallets for CBDC and become the dominant client facing players. They may cross subsidize the provision of CBDC wallets and payment services as their business model is built on information harvesting and advertising. The combination of CBDC and Big Tech may significantly impact the ability for fintechs and banks to compete in the digital payments space.

Appendix

CPMI Next Steps

Introduction

Extensive engagement with all relevant private and public sector stakeholders will be needed to make progress in enhancing cross-border payments.

Further consultation and outreach are required as we move to implementation. The CPMI will continue stakeholder engagement, including via the Task Force. This could, for example, help identify the steps that would be necessary, and potential obstacles to overcome, in advancing and implementing the building blocks. As part of the road map, it will be important that other expert bodies also undertake outreach in their specialist areas.

Domestically, jurisdictions may wish to conduct their own consultation and engagement according to their individual processes and in line with their priorities. The road map could frame the way forward at the global level, while allowing sufficient flexibility to be factored in for jurisdictions with different priorities and whose financial systems are at different levels of development.

For some building blocks early incremental benefits seem feasible, while the benefits from other building blocks will be realized in the longer term.

Early realization of some benefits can be expected. In particular, where action is building on, or supported by, existing international initiatives or market practices, it should be encouraged in the near term. Operational actions to deliver interoperability require time, and could first be encouraged at a regional level before seeking wider application.

A comprehensive set of delivery milestones involving both the public and the private sector, together with monitoring, is essential to ensure success.

Measuring progress against targets can help coordinate progress and sustain buy-in across the wide-ranging change advocated in this report. The Stage 1 report noted that comprehensive and comparable data on cross-border payments are not currently available. Leveraging and potentially complementing current initiatives on data collection should be further considered in Stage 3 to help monitor progress. In that process, the transformative impact of these enhancements can drive meaningful change for all users of cross-border payments —reducing costs, reducing the time taken for a transaction, and increasing the transparency of, and access to, those services.[5]

[5] https://www.fsb.org/wp-content/uploads/P131020-1.pdf

2021 Milestones

	Q1	Q2	Q3	Q4
Focus area A: Public and private sector commitments				
BB1: Developing a common cross-border payments vision and targets [FSB]				
Task force proposes targets for public consultation.				
G20 Leaders' endorsement of targets.				
FSB CPC provides first report against key performance indicators for the agreed targets.				
BB2: Implementing international guidance and principles [FSB]				
FSB to coordinate with SSBs the identification of areas for enhancing implementation monitoring.				
FSB/SSBs work on enhanced implementation monitoring and priorities.				
BB3: Defining common features of cross-border payment service levels [CPMI]				
CPMI, in consultation with public/private sectors, conducts an analysis of multilateral service level agreements, maps out common elements and identifies segments for incorporating common features.				
CPMI, in consultation with public/private sectors, issues a self-assessment framework to help providers identify and analyze common elements in cross-border payment service level agreements.				
Focus area B: Coordinate regulatory, supervisory and oversight frameworks				
BB4: Aligning regulatory, supervisory and oversight frameworks [FSB]				
FSB to coordinate with SSBs the identification of gaps or areas for further alignment (if any) across jurisdictions.				
FSB/SSBs launch work on gaps, alignment.				
BB5: Applying AML/CFT rules consistently and comprehensively [FATF]				
FATF, BCBS proposals for harmonized rules.				
FATF Strategic Review of mutual evaluation program.				
BB6: Reviewing the interaction between data frameworks and cross-border payments [FSB]				
FSB, other SSBs stocktaking on existing national and regional data frameworks.				
FSB recommendations to facilitate cross-border payments through improved cross-border flows of data and information sharing.				

Continued...

	Q1	Q2	Q3	Q4
Focus area B: Coordinate regulatory, supervisory and oversight frameworks				
BB7: Promoting safe payment corridors [IMF-WB]				
IMF/WB/FATF/volunteering national authorities develop framework for corridor risk assessments.	■	■	■	
Volunteering national authorities publish results and guidance based on pilot assessments.			■	■
BB8: Fostering KYC and identity information sharing [FSB]				
SSBs issue standard for mutual recognition of IDs for KYC purposes.	■	■	■	■
WB proposes solutions to address identified gaps in Digital ID solutions.	■	■	■	■
Volunteering national authorities develop a shared or interoperable CDD infrastructure which could be explored for a pilot.	■	■	■	■
Volunteering national authorities establish, where appropriate, a shared or interoperable regional CDD infrastructure.				■
Focus area C: Existing payment infrastructures and arrangements				
BB9: Facilitating increased adoption of PvP [CPMI]				
CPMI takes stock of/analyses availability and use of PvP.	■	■		
CPMI develops proposals for increasing PvP adoption.		■	■	■
BB10: Improving (direct) access to payment systems [CPMI]				
CPMI assesses objectives, benefits and barriers.	■	■		
CPMI issues best practices for authorities and operators.		■	■	■
BB11: Exploring reciprocal liquidity arrangements (liquidity bridges) [CPMI]				
CPMI to consult central banks on liquidity bridges.	■	■	■	■
CPMI, with others, analyses benefits and risks, issues a framework on how to establish a liquidity bridge.			■	■
Relevant bodies provide technical assistance.			■	■
BB12: Extending and aligning operating hours [CPMI]				
CPMI takes stock and identifies gaps.	■			
CPMI sets out potential targets, identifies risks associated and issues potential mitigation measures.	■	■	■	
CPMI develops guidance for each target.				■

Continued...

	Q1	Q2	Q3	Q4
Focus area C: Existing payment infrastructures and arrangements				
BB13: Pursuing interlinking of payment systems for cross-border payments [CPMI]				
CPMI analyses existing/envisaged interlinking models.				
CPMI issues an interlinking framework.				
Focus area D: Data and market practices				
BB14: Adopting a harmonized ISO 20022 version for message formats (including rules for conversion/mapping) [CPMI]				
BISIH in cooperation with relevant stakeholders to host a TechSprint on ISO20022 (and other formats) for cross-border payments. [Joint effort with Action 1:of BB15]				
CPMI assesses suitability of existing ISO formats for cross-border payment, and facilitates the development of market guidance on specific use cases based on those formats.				
CPMI members and national authorities publish plans for adopting a harmonized version of ISO20022.				
BB15: Harmonizing API protocols for data exchange [CPMI]				
BISIH, with relevant stakeholders to host a TechSprint on ISO20022 and APIs for data exchange to enhance cross-border payments. [Joint effort with Action 1:of BB14]				
CPMI, with relevant stakeholders, analyses existing messaging standards / protocols for information exchange.				
CPMI, with relevant stakeholders and data authorities, identifies elements for an API protocol framework to ensure interoperability for cross-border information exchange.				
BB16: Establishing unique identifiers with proxy registries [FSB]				
FSB explores scope for and obstacles to a global digital identifier (LEI or similar for legal entities, and a suitable form of identifier for individuals).				
FSB, with GLEIF, LEI ROC and national authorities, explores options to improve adoption of LEI.				
FSB assesses existing proxy databases for personal identifiers, proposes standard design principles, and defines minimum requirements.				
National authorities explore adoption of a global digital unique identifier on national level, or the interlinking of existing identifiers.				

Continued...

	Q1	Q2	Q3	Q4
Focus area E: New payment infrastructures and arrangements				
BB17: Considering the feasibility of new multilateral platforms and arrangements for cross-border payments [CPMI-BISIH]				
CPMI, IMF, WB take stock of multilateral platforms for cross-border payments and analyze pros and cons, demand, design features, risks and challenges to establishing such platforms.				
CPMI, with BIS, IMF and WB analyze the business case, requirements, potential features and feasibility of new multilateral platforms, and conclude on potential benefits to cross-border payments. The study will be informed by BISIH work on a "global stack" for a multilateral cross-border payment platform and a proof-of-concept.				
BB18: Fostering the soundness of global stablecoin arrangements [FSB-CPMI]				
SSBs review and complete their revision of existing standards, principles or guidance in light of the FSB report on stablecoins.				
National authorities establish or, as necessary, adjust for any existing GSCs and stablecoin arrangements that have the potential of becoming a GSC, cooperation arrangements consistent with international standards and principles, and the FSB Report.				
National authorities establish or, as necessary, adjust their frameworks consistent with the FSB recommendations and international standards and guidance.				
BB19: Factoring an international dimension into CBDC design [CPMI-BISIH]				
CPMI with BISIH, IMF, WB takes stock of provisional domestic CBDC designs and central bank experimentation with multi-CBDC arrangements.				
IMF, in cooperation with other relevant stakeholders, analyses international macro-financial implications of cross-border CBDC use.				

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