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G20 Roadmap for Enhancing Cross-border Payments

Consolidated progress report for 2022



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Executive summary

The Roadmap for Enhancing Cross-border Payments is a priority initiative of the G20. Much has been accomplished during its first two years, including agreement on a set of outcome targets endorsed by the G20 in October 2021. The work in 2021 and 2022 has focused on establishing the foundational elements of the Roadmap and beginning to pivot from stocktaking, analysis and guidance to practical projects to improve existing systems and develop new ones.

The international bodies leading the various building blocks of the Roadmap have published consultative or final reports offering specific proposals, best practices, or guidance across numerous building blocks. These include a number of CPMI reports, which include: facilitating increased adoption of payment-versus-payment (PvP); a best practices framework for the self-assessment of access policies to key payment systems; a framework for central banks considering establishing liquidity bridges; extending and aligning RTGS operating hours; arrangements for interlinking payment systems; and trends in adoption of application programming interfaces (API) by payment systems. Additional publications include guidance on how technology or other mechanisms can improve information sharing to enhance anti-money laundering and combatting the financing of terrorism (AML/CFT) functions; and FATF's 2021 update on its 2019 Guidance for a Risk-Based Approach to Virtual Assets and Virtual Asset Service Providers (VASPs). The CPMI has also collated information on steps taken by individual jurisdictions in support of a number of building blocks in the Roadmap (see Annex).

The work under the Roadmap also continues to explore the potential for new systems and arrangements. This includes a report about the feasibility of new multilateral platforms and arrangements for cross-border payments, as well as a report on central banks' efforts to design and develop CBDCs and the need for collaboration to fully harness the potential of CBDCs for enhancing cross-border payments.

Where necessary, the timelines for certain building blocks have been revised. For example, the timelines for building block 4 (Aligning regulatory, supervisory and oversight frameworks for cross-border payments) and building block 6 (Reviewing the interaction between data frameworks and cross-border payments). These building blocks remain a priority and work on them will progress in accordance with revised timelines in this report.

The G20 targets will not, however, be achieved merely through analyses and recommendations. The quantitative targets for cost, speed, access and transparency play an important role in defining the ambition of the work and creating accountability for realising practical improvement. To motivate progress toward the targets and inform decision-makers about which challenges, or areas of the market may require more or less focus, the FSB will publish its planned framework for monitoring progress toward the G20 targets for cross-border payments. Estimates of current performance will be published in the coming months and progress toward the targets reported on annually.

The work on the Roadmap has now reached an inflection point. The FSB, in coordination with CPMI and other relevant international organisations and standard-setting bodies have published a separate note to the G20 on the way forward for the Roadmap, which outlines the priority areas and approach to external engagement for the next phase of the work under the Roadmap to achieve the targets that have been set.

Introduction

In 2020, the G20 made enhancing cross-border payments a priority. Making cross-border payments, including remittances, faster, cheaper, and more transparent and inclusive, while maintaining their safety and security, would have widespread benefits for citizens, businesses, and economies worldwide, supporting economic growth, international trade, global development, and financial inclusion. The FSB, in coordination with the Committee on Payments and Market Infrastructures (CPMI) and other relevant international organisations and standard-setting bodies, developed a roadmap to address these challenges.¹ The G20 Leaders endorsed the roadmap at their November 2020 Summit.

The FSB coordinates the implementation of the roadmap through its Cross-Border Payments Coordination Group (CPC), and reports on progress to the G20. Each of the roadmap's 19 building blocks is being taken forward by one or more specified bodies – notably the CPMI, FSB and other relevant international organisations and standard-setting bodies (SSBs).

The roadmap is a comprehensive, high-level plan that is designed to be flexible and to adapt over time as the work progresses and the cross-border payments landscape evolves. It encompasses a variety of approaches and time horizons, to achieve practical improvements in the shorter term while acknowledging that other initiatives will need to be implemented over longer time periods. It is also flexible to changing priorities and resourcing considerations, with scope to adjust individual actions and deadlines where necessary.

This report summarises progress during the second year of the roadmap, bringing together in one place the work under the roadmap's wide-ranging but interconnected set of initiatives. The report also confirms the next steps in the roadmap for 2023 and beyond organised around the priority themes described in the FSB note for G20.

1. Involving a wide range of stakeholders

Regular engagement between and action from the public and private sectors is necessary to ensure the building blocks produce recommendations and actions that have industry support, secure timely investment where needed, and deliver tangible enhancements to cross-border payments by end-2027.

The work conducted in 2022 has continued to involve close collaboration with a wide range of private and public sector stakeholders who shared their insights and expertise. Private-sector involvement and experience is an important input to the work on the building blocks. In addition to surveys, consultation publications and bilateral discussions, detailed input to individual workstreams, stakeholder engagement in 2022 has included:

- FSB outreach events with the private sector to inform work being done on building block 1 to develop an implementation methodology for monitoring progress toward the

¹ FSB (2020), *Enhancing Cross-border Payments - Stage 1 report to the G20*, April. CPMI (2020), *Enhancing cross-border payments: building blocks of a global roadmap*, July. FSB (2020), *Enhancing Cross-border Payments - Stage 3 report to the G20*, October.

roadmap's targets, building block 6 to review the interaction between national data frameworks and cross-border payments, and building block 16 to establish unique identifiers with proxy registries.

- CPMI's launch of service level task force made up of private-sector managers of service level agreements and payment schemes to support the development of (a) service level template(s) under building block 3.
- CPMI workshops with both providers and users of PvP arrangements to refine the findings of their consultative report on proposals for increased adoption of PvP and gain further insight into evolving user requirements for PvP services.
- International conferences, such as the Bank of Indonesia's Festival Ekonomi Keuangan Digital Indonesia 2022, held in the context of its G20 presidency, which included a workshop on cross-border payments and interoperability that was organised in coordination with the CPMI and the BIS Innovation Hub.
- The development of preliminary ISO 20022 harmonisation guidelines by a joint task force of ISO 20022 specialists from the CPMI and the SWIFT Payments Market Practice Group (PMPG), which should set minimum guidelines for core data components across the cross-border payments chain.

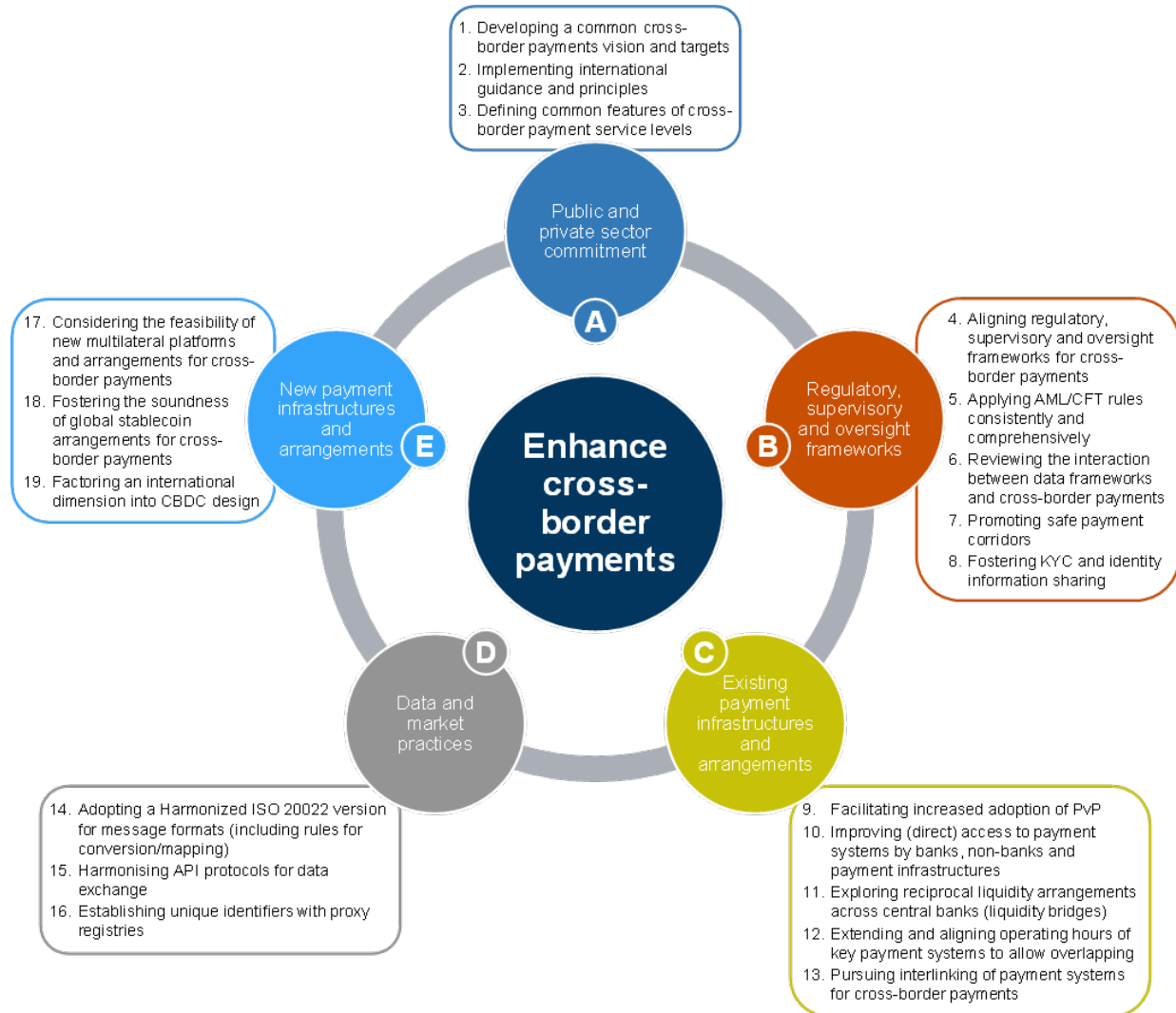
As reflected in the accompanying note to the G20 outlining the way forward for the Roadmap, the bodies taking forward the roadmap's building blocks remain committed to following an inclusive and collaborative process, including public consultation at the appropriate points.

2. Design of the roadmap

The roadmap is structured according to the 19 building blocks in the CPMI's Stage 2 report in July 2020, which span the following five focus areas:

Overview of the focus areas and associated building blocks

Figure 1



Source: CPMI: Enhancing cross-border payments: building blocks of a global roadmap - Stage 2 report to the G20 (July 2020)

3. Report on progress in 2022

This section of the progress report provides an update on progress on all actions underway (both those scheduled to be completed by October 2022 and those with longer completion horizons), summarised by focus area and building block.

Focus area A: Committing to a joint public and private sector vision to enhance cross-border payments

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

In 2021, the G20 Leaders endorsed the FSB's *Targets for addressing the four challenges of cross-border payments: Final report*,² which established 11 targets at the global level to provide a common vision for the improvements sought under the G20 Roadmap for Enhancing Cross-border Payments. In addition, the FSB committed to providing a report in October 2022 to the G20 and the public with the details of an approach for monitoring progress towards the targets using key performance indicators (KPI) and with baseline estimates of those KPIs against which future progress would be measured.

In 2022 the FSB established a working group of experts from FSB member organisations to develop the KPIs, identify data sources, and make recommendations on how to operationalise the monitoring exercise, including which organisation(s) would be best suited for sourcing the data. The working group has gone through an extensive and inclusive process that includes seeking input from both the private and public sectors. The working group held outreach events with both a diverse group of industry participants and with official-sector representatives from the FSB's Regional Consultative Groups.³ In July, the FSB published *Developing the Implementation Approach for the Cross-Border Payments Targets: Interim Report*,⁴ which provided an update on the working group's progress and sought public feedback on its preliminary observations and recommendations for KPIs and data sources.

Based on its analysis and the feedback received, the working has been able to define the KPIs that will be used to monitor progress toward the targets and to identify data sources that can inform KPIs for each segment of the cross-border payments market for which targets have been set – wholesale, retail, and remittances. In addition, the working group has developed recommendations for responding to identified gaps in the data. Given the lack of pre-existing indicators and a comprehensive data source for all three market segments, the working group is engaged in further discussions and collaboration with potential data providers to develop reliable estimates. Therefore, baseline estimates of current performance of cross-border payments will not be available for several more months.

As a next step in November, the FSB will publish its final report detailing the implementation approach for monitoring progress toward the targets. In 2023, the FSB will finish operationalising

² Available [here](#).

³ See more on the [FSB website](#).

⁴ Available [here](#).

the receipt of the requisite data and the calculation of the KPIs and begin publishing annual updates on the progress being made. In addition, the FSB will continue to work on responding to the gaps identified in the data to enhance the monitoring exercise.

Building block 2 - Implementing international guidance and principles

In 2021, the FSB conducted a stocktake of international standards, principles and guidance that are relevant to cross-border payments, covering Action 1 of both building blocks 2 and 4 jointly. The goal of the stocktake was to identify potential areas, if any, for further alignment across jurisdictions or in policy areas or types of institutions that standards or guidance cover, or opportunities for enhancing implementation monitoring.

The stocktake identified three policy areas for further exploration: (i) supervision of banks versus non-banks in respect of their cross-border payment activities, (ii) transparency of information provided to end-users about payment transactions, and (iii) cyber/technology risk regulation. The three subject areas identified for further exploration from the stocktake are where there exist potential gaps or areas for alignment that may need to be addressed internationally, rather than areas where enhanced implementation monitoring of existing international standards is needed.

As a next step the FSB will move forward work on these topics under Action 2 of Building Block 4.

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

Agreed service levels cover a set of functions, procedures and arrangements to facilitate the execution of cross-border payments between different entities. These service levels can be defined through service level agreements (SLAs) or payment schemes.

In 2021, the CPMI analysed different multilateral SLAs and payment schemes and identified a set of common features that could contribute to achieving the G20 targets for addressing the challenges of cross-border payments. These common features include governance, technical standards, processing rules, risk management procedures, access criteria, among others. They have the potential to alleviate cross-border payment frictions if designed appropriately, especially if they converge across different SLAs and schemes.

In December 2021, the CPMI invited task force nominations from managers of service level agreements and payment schemes to discuss the design options for such common features of cross-border payment service levels (Action 2).⁵ In March 2022, the CPMI launched the Service Level Task Force to take BB3 Action 2 forward. The task force is comprised of international and domestic payment schemes, payment infrastructures, messaging service providers, banks and industry associations. This industry group's mandate comprises: (i) agreeing on the common service level features relevant for cross-border payments; (ii) assessing how such features could

⁵ BB3 Action 2 (Sep 2021 – Dec 2022): CPMI to convene market stakeholders to analyse how service level agreements/schemes and their common elements can contribute to achieve the cross-border payment targets across the different payment market segments.

help to meet the G20 cross-border payments targets; and (iii) helping to develop a proposal on how to encourage the use of (a) service level template(s) to support cross-border arrangements.

As a next step, the CPMI will finalise the development of (a) service level template(s) in the first half of 2023 (Action 3),⁶ building on the Service Level Task Force's findings.

Focus area B: Coordinating on regulatory, supervisory and oversight frameworks

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

In 2021, the FSB conducted a stocktake of international standards, principles and guidance that are relevant to cross-border payments covering Action 1 of both building blocks 2 and 4 jointly. The goal of the stocktake was to identify potential areas, if any, for further alignment across jurisdictions or in policy areas or types of institutions that standards or guidance cover, or opportunities for enhancing implementation monitoring.

The stocktake identified three policy areas for further exploration: (i) supervision of banks versus non-banks in respect of their cross-border payments activities, (ii) transparency of information provided to end-users about payment transactions, and (iii) cyber/technology risk regulation. The three subject areas identified for further exploration from the stocktake are where there exist potential gaps or areas for alignment that may need to be addressed internationally, rather than areas where enhanced implementation monitoring of existing international standards is needed.

Establishing a level regulatory and supervisory playing field between banks and non-banks is important for ensuring that entities involved in the same business activities and offering the same payment services are subject to the same or similar rules and supervision (“same activities, same risk, same rules”). At the same time, the application of regulation and supervision to non-banks should be proportionate to the risk they pose. If standards are not aligned proportionately to risks, or implementation is inconsistent, this may lead to the concern that non-bank entities engaging in cross-border payment services may be less likely (or at least may be perceived to be less likely) to have appropriate controls in place (for instance for AML/CFT), leading to blind spots about potential risks or risk management gaps within the financial system. Concerns about inconsistent supervision of non-bank remittance service providers is a case in point. Promoting supervision of banks and non-banks that is consistent with the differences in risks that they pose can foster greater competition and innovation in the cross-border payments market.

Due to resource constraints and competing priorities, follow up work on the 2021 stocktake was delayed, as set out in Table 2 below. However, this remains a priority.

As a next step through the end of 2022 and into 2023 the FSB will establish a working group to further explore and make recommendations related to the application of supervision to banks and non-banks regarding their cross-border payments activities. In addition, the FSB will

⁶ BB3 Action 3 (Aug 2022 - Mar 2023): CPMI (in consultation with public and private sector stakeholders) to develop a template for service level agreements, stakeholders can use as a starting point when establishing agreements.

establish workstreams to evaluate from a cross-border payments perspective (i) transparency of information provided to end-users about payment transactions, and (ii) cyber/technology risk regulation.

Table 2: Change to building block 4 from the Stage 3 Roadmap

Action #	Roadmap Action and timeline	Proposed change
2	Action: If gaps or areas for alignment were identified in Action 1, relevant SSB (in cases where this falls within its mandate) or FSB (where gap or area for alignment does not fall within a specific mandate) to launch a workstream to consider how to address the gap or area for alignment	No change to description of action
	Old timeline: October 2021 – March 2022	New timeline: October 2022 – March 2023
	Action: Relevant SSB or FSB to provide report, for public consultation, on how to address gaps or areas for alignment that were identified (outreach activities could be conducted by the SSB or FSB to gather feedback from specific regions)	No change to description of action
	Old timeline: March 2022 – March 2023	New timeline: March 2023 – March 2024
	Action: Each relevant national authority to publicly communicate how it plans to address gaps or areas for alignment (if any) that were identified	No change to description of action
Old timeline: March 2022 – September 2023	New timeline: March 2023 – September 2024	

Building block 5: Applying AML/CFT rules consistently and comprehensively

This building block focuses on addressing points where AML/CFT rules, or their implementation, cause friction for cross-border payments, and considering how these could be addressed. The progress update on these actions points is as follows:

Action 1: Further harmonisation of AML/CFT and customer due diligence (CDD) requirements: (completed) In October 2021, the FATF published a stocktake report, based on the feedback received in an industry survey and consultations. The report highlights that lack of risk-based approach and inconsistent implementation create obstacles in areas such as identifying and verifying customer and beneficial owners, screening for targeted financial sanctions, sharing of information and establishing and maintaining correspondent banking relationships. Since the publication of the report, the focus of the FATF has been on leveraging a number of the on-going work-streams in order to address the key issues raised in the stocktake. This includes strengthening of beneficial ownership standards, carrying out further work on data pooling and data protection and promoting digital transformation of AML/CFT (see Action 4 below).

In March 2022, the FATF adopted revised standards on beneficial ownership of legal persons to ensure greater transparency on the ultimate ownership and control of legal persons and to mitigate the risks of their misuse. The FATF is currently developing a Guidance on implementation of these new Standards and, in parallel, reviewing its Standards on beneficial ownership of legal arrangements to ensure a consistent approach. The FATF will continue to raise awareness on this topic so that supervisors and national authorities are able to make adjustments in their supervisory frameworks where needed, without compromising AML/CFT standards.

Action 2 - Review the evaluation program for national CDD measures and supervision: (completed) This is focused on promoting consistent and effective implementation of global AML/CFT standards by national authorities and the private sector. The FATF's Mutual Evaluation (ME) Programme is an important way to achieve this. The Strategic Review concluded in June 2022 and one of the key outcomes is the further strengthening of the ME process and Methodology. This will ensure that the future assessments are more timely and risk-based with targeted focus on implementation of preventive measures, including CDD measures and supervisory processes in the financial sector.

Action 3 - Enhanced cooperation in AML/CFT supervisory matters: (superseded). As noted earlier, the FATF decided not to pursue this action item at this stage, due to significant amount of work already done by other bodies on the topic.

Action 4 - Use of technology for AML/CFT: (completed.) Digital Transformation of AML/CFT is a key priority of the FATF. In July 2021, the FATF published two stocktake reports on the use of emerging technologies: (1) to share AML/CFT information between financial institutions while ensuring data privacy and protection; and (2) on opportunities and challenges associated with emerging AML/CFT technologies. These reports highlight how data analytics and other emerging technologies can lead to efficiency gains by the public and private sector in the AML/CFT space. In July 2022, the FATF published a report on data protection, technology and private sector information sharing. The report contains a set of recommendations for the public and the private sector on designing and implementing information collaboration initiatives among the private sector entities, in accordance with data protection and privacy. In June 2022, the FATF organised a conference on digital transformation, bringing together experts in financial crime, data protection, and technology to discuss the potential benefits and challenges of digital transformation. These initiatives help develop greater awareness within the public and the private sector on the use of technology for AML/CFT purposes.

Finally, while the specific actions envisaged under BB5 have been completed or superseded, there is an ongoing and open-ended programme to ensure that the AML/CFT rules are applied consistently and proportionately, without generating unnecessary friction for payment systems or other stakeholders. To this end the FATF Work Programme includes potential projects and other engagements (including with the private sector) in 2022-24 to carry out further policy work and outreach, as needed, in view of the emerging developments, including ISO 20022.

Building block 6: Reviewing the interaction between data frameworks and cross-border payments

Work under this building block is underway and a stocktake of national and regional data frameworks relevant to cross-border payments has been completed (Action 1). A survey of member jurisdictions launched in July 2021 to gather information on existing national and regional data frameworks and their effect on cross-border payments highlighted the importance of complementing its findings with external stakeholder outreach. A first step in soliciting industry views was a public call for written feedback from external stakeholders, including industry and non-governmental organisations, which lasted from early December 2021 to mid-January 2022.

As a second step, an outreach event with industry participants took place in February 2022 to review the interaction between national data frameworks and cross-border payments. The discussion was guided by the stocktake work conducted to date, focusing on the issues relating to the cross-border use of data by national authorities and the private sector identified through the survey of the official sector and the written feedback from external stakeholders. The feedback from the outreach event informed the stocktake report.

Next steps: ending Plenary approval, the expected completion date for the stocktake has been extended from March 2022 to September 2022, and subsequent milestones under this Building Block have been accordingly extended by six months relative to the deadlines set in the 2021 Progress Report. After the stocktake, the FSB, in cooperation with the CPMI and other SSBs, domestic data protection, and other data governance bodies, will begin the next stage of work – to issue by September 2023 recommendations to facilitate cross-border payments through improved data flows and information sharing.

Table 3: Change to building block 6 from the 2021 Progress Report

Action #	Roadmap Action and timeline	Proposed change
1	<p>Action: FSB (in cooperation with CPMI and other SSBs, domestic data protection bodies and other data governance bodies) to conduct a stocktake of existing national and regional data frameworks relevant to the functioning, regulation and supervision of cross-border payment arrangements, and to identify issues relating to cross-border use of those data by national authorities and by the private sector.</p> <p>Old timeline: October 2020 – March 2022</p>	<p>No change to description of action</p> <p>New timeline: October 2020 – September 2022</p>
2	<p>Subsequent milestones for Action 2 are similarly delayed by six months:</p> <p>Action 2, first milestone, old timeline: March 2022 – March 2023</p> <p>Action 2, second milestone, old timeline: March 2023 – March 2024</p>	<p>No change to description of action</p> <p>New timeline: September 2022 – September 2023</p> <p>New timeline: September 2023 – September 2024</p>

Action 2, third milestone, old timeline

March 2024 – March 2025

New timeline:

September 2024 – September 2025

Building block 7: Promoting safe payment corridors

Following the IMF/WB publication of *A draft framework for money laundering/terrorist financing risk assessment of a remittance corridor*,⁷ which is a draft methodology for the assessment of money laundering and terrorist financing risks in remittance corridors, national authorities have been invited to volunteer to implement a safe payment corridor. This second stage of the Roadmap is a pilot implementation of a remittance corridor risk assessment and corresponding guidance to financial authorities as feasible. The IMF/WB team initiated several outreach efforts to raise awareness and offer support to volunteer authorities and outreach is ongoing.

Next steps: The IMF and WB will continue with outreach efforts to encourage countries to implement safe payment corridors, focusing on establishing pilot risk assessments for likely lower ML/TF risk corridors. As implementation of the second action on pilot safe payment corridors depends on the volunteer country uptake, the timeline is uncertain.

Building block 8: Fostering KYC and identity sharing

Action 2 of this building block, which is being led the World Bank, has the objective of providing a set of policy options to address gaps in coverage, access, and quality of digital IDs for individuals and databases to enable them to meet KYC requirements for cross-border payments.

The World Bank has conducted a series of surveys since 2020 on three different areas: (i) status of the digital ID systems worldwide, (ii) legal and regulatory framework related to the adoption of Digital ID as well as access to data and authentication services by PSPs, and (iii) PSPs' practices regarding the usage of Digital ID and ID authentication services. Follow up interviews took place with some entities and groups of PSPs.

A report on the gaps identified from the surveys has been produced and shared with the FSB Working Group on Cross-border Payments Data and Identifiers (CPDI) for review in August. The draft provides an analysis of the status of digital ID systems based on verification and authentication capabilities as well as the supporting legal and technological framework and draws conclusions on identified gaps. The next step is to develop potential solutions to the identified challenges regarding the adoption and further usage of Digital ID systems for cross-border payments. The final Action 2 report is due in December 2022.

The 2021 progress report stated that the South Pacific Central Banks were investigating a possible regional KYC facility, targeted at low risk, retail remittances. The South Pacific Central Bank Governors have since decided to prioritise countries developing strategies for delivering their own eKYC capability.⁸ Currently no national authorities have volunteered to take forward

⁷ Available [here](#).

⁸ "Central Banks Committed to Economic Prosperity and Wellbeing in South Pacific", RBA Media Release, available [here](#)

Action 3 of this building block, to develop a shared or interoperable regional CDD framework as a pilot project.

Next Steps

The final report will discuss potential next steps, including with regard to the identified challenges regarding the adoption and further usage of Digital ID systems for cross-border payments.

Focus area C: Improving existing payment infrastructures and arrangements to support the requirements of the cross-border payments market

Building block 9 - Facilitating increased adoption of PvP

A cross-border payment often involves foreign exchange (FX) trades to exchange two currencies, exposing the counterparties to settlement risk (i.e. the risk of loss when an entity in a FX transaction pays the currency it sold but does not receive the currency it bought). Payment versus payment (PvP) mechanisms⁹ help mitigate this risk and, depending on their design, substantially reduce funding costs by offering functionalities such as netting to reduce participants' liquidity obligations. However, many deliverable FX trades are not settled using PvP and the proportion of PvP to non-PvP settlement has decreased since the early 2000s. This relative decline in PvP settlement is due to a combination of factors, including the lack of availability of PvP arrangements for some emerging market currencies, and existing arrangements being deemed too expensive or not meeting the specific needs of certain FX market participants.

Under BB9, the CPMI is engaging with key public and private sector stakeholders to facilitate the increased adoption of PvP. Over the course of 2021 and the first half of 2022, the CPMI engaged with industry through a survey of five existing PvP arrangements and a call for ideas on new proposals for PvP settlement that yielded responses from a range of interested parties, including existing infrastructures, global banks, new entrants and industry groups. In July 2022, based on an analysis of the input from industry, the CPMI published a consultative report on proposals for increased adoption of PvP.

The report found that while existing PvP arrangements are available for the most-traded currency pairs and products, new PvP solutions can complement existing arrangements by providing flexibility and functionalities such as real-time settlement or 24/7 operations, as well as targeting emerging market currencies. However, these arrangements face barriers to development and adoption, and addressing those barriers would benefit from further engagement between the public and private sectors. For example, implementing new functionality for same-day PvP would likely require operational changes by both central banks and commercial correspondent banks. In September 2022, the CPMI held workshops with PvP providers and users to confirm and

⁹ PvP mechanisms ensure that the final transfer of a payment in one currency occurs if and only if the final transfer of a payment in another currency or currencies takes place.

refine the findings of the consultative report and to gain further insight into the addressable market for the proposed services.

As a next step, the CPMI expects to publish a final report by January 2023 (rather than November 2022 as originally targeted). The extension will allow for proper consideration of the public consultation responses. The final report will discuss the most feasible options for encouraging greater use of PvP and set out next steps based on information received during the consultation.

Table 4: Change to building block 9 from the Stage 3 Roadmap

Action #	Roadmap Action and timeline	Proposed change
3	<p>Action: CPMI to conduct public consultation (domestically and/or internationally, as appropriate) on the most feasible option(s) for encouraging greater use of PvP and determine next steps for implementing the BB, based on the results of the consultation.</p> <p>Old timeline: May 2022 – November 2022</p>	<p>No change to description of action</p> <p>New timeline: July 2022 – January 2023</p>
	<p>Action: Relevant bodies to work with CPMI to develop an implementation plan</p> <p>Old timeline: December 2022 – December 2023</p>	<p>No change to description of action</p> <p>New timeline: February 2023 – February 2024</p>

Building block 10 - Improving (direct) access to payment systems by banks, non-banks and payment infrastructures

Access to key domestic payment systems facilitates the ability for banks, non-bank payment service providers (PSPs) and financial market infrastructures (FMIs) to provide cross-border payment services safely and efficiently. In particular, expanded access can level the playing field for PSPs and foster greater competition and innovation. Direct participation can reduce the number of intermediaries in lengthy transaction chains and lower the prefunding cost assumed by those market participants without access to payment systems. Expanded access, however, can also entail risks if not appropriately addressed and authorities and payment system operators might also face barriers such as legal eligibility, and uneven regulatory standards, among others.

Improving access to key payment systems that settle in central bank money would support progress on other building blocks of the roadmap. In particular, access to real time gross settlement (RTGS) systems – typically owned and operated by central banks – is critical for market participants to settle obligations in central bank money. However, only a minority of systems settling in central bank money currently provide direct access to three important types of cross-border payment providers: non-bank PSPs, foreign banks and FMIs. Moreover, collaboration and coordination across jurisdictions considering expanding access simultaneously could amplify the benefits for cross-border payments.

In May 2022, the CPMI published a [best practices framework](#) for the self-assessment of access policies to key payment systems. The self-assessment framework, which completes Action 2, is a tool that is intended to help authorities and payment system operators to evaluate the benefits, risks, and barriers of expanding direct access to their payment systems. The framework includes case studies of jurisdictions in which the benefits of expanding access exceeded the associated costs and risks, and that have overcome barriers to expand access. The report benefited from insights gained during workshops held with payment system operators, banks and new market entrants in December 2021.

As a next step, national authorities and payment system operators that are considering expanding access, will undertake self-assessments of their respective access policies (Action 3). If authorities and payment system operators conclude that there is a case to expand access, they would proceed with identifying the changes required and developing an action plan towards overcoming barriers and addressing risks. For the latter, technical assistance may be provided by relevant multilateral organisations, as foreseen in Action 4.

Building block 11 - Exploring reciprocal liquidity arrangements across central banks (liquidity bridges)

A liquidity bridge is a cross-currency intraday liquidity arrangement between two or more central banks. In a liquidity bridge, RTGS system participants pledge collateral – typically cash – to a given central bank (“facilitating central bank”) in exchange for short-term (typically intraday) liquidity from another central bank (“lending central bank”) in the latter’s currency. BB11 aims to explore the potential risks and benefits of these arrangements.

Building on the exploratory phase completed in 2021,¹⁰ the CPMI this year conducted further analysis to inform the development of a framework that could be used by central banks considering establishing liquidity bridges. Two pairs of central banks conducted bilateral scoping exercises to explore how a hypothetical liquidity bridge between them could be designed and operated. These were purely analytical initiatives intended to better understand the key design and practical considerations around establishing liquidity bridges to support the development of the framework. Learnings included identifying the purpose of a potential bridge, duration of liquidity provision and collateral encumbrance, participant and collateral eligibility, haircuts, policies around limits to usage, operational communication flows, costs to participants and cash collateral remuneration, default procedures, and related legal agreements. The findings from the exercises were used as input for a CPMI report¹¹ published in September 2022. The report discusses the benefits and risks of liquidity bridges, sets out some factors that influence the potential usefulness of liquidity bridges and outlines a framework for central banks considering establishing liquidity bridges.

As a next step, the Action 2 report published in September 2022 is expected to form the basis for relevant bodies to provide technical assistance to central banks considering establishing liquidity bridges (Action 3).

¹⁰ Available [here](#).

¹¹ Available [here](#).

Building block 12 - Extending and aligning operating hours of key payment systems to allow overlapping

Limited operating hours of key payment infrastructures that facilitate cross-border payments, particularly RTGS systems, constrain the times when payments can be processed. This ultimately leads to increased liquidity costs and settlement risk for those executing the payment, and to delays for the end users receiving payment. Extending and aligning the operating hours of key payment systems across jurisdictions could speed up cross-border payments, improve liquidity management, reduce settlement risk and support progress on other building blocks by enhancing the performance of ancillary payment systems that may be used for cross-border payments.

In November 2021, the CPMI released a consultative report¹² inviting comments on three potential scenarios for extending RTGS system operating hours (“end states”) and associated operational, risk and policy considerations. End state 1 comprises an increase in operating hours on current operating days (e.g. standard working days); end state 2 is the inclusion of current non-operating days (e.g. weekends and holidays); and end state 3 is full 24-hour and seven-day-a-week (24/7) operations. The report also considers the concept of a “global settlement window”, the period when the largest number of RTGS systems simultaneously operate. The CPMI organised a virtual stakeholder event on the report and almost 30 stakeholders responded to the public consultation.

In May 2022, the CPMI published the final Action 2¹³ report that sets out the opportunities, risks and policy implications of these possible scenarios for extending RTGS system operating hours, taking into consideration the industry feedback. To improve the status quo and help facilitate further overlap of operating hours, central banks could consider the three potential end states and the global settlement window concept as they assess their current operating hours and plan for the future, according to the report. As part of Action 3, the CPMI has developed technical and operational approaches to support the central banks and operators considering the extension operating hours.

As a next step under Action 3, central banks and payment system operators wishing to align/extend operating hours are encouraged to work with their participants and other domestic stakeholders to consider each of the potential end states along with the associated challenges, risks and potential solutions that have been identified, with the goal of seeking consensus if and how best to move forward.

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

Interlinking arrangements for payment systems allow banks and other PSPs to transact with each other without requiring them to participate in the same payment system or use intermediaries (e.g. correspondent banks). Such arrangements can shorten transaction chains, reduce overall costs and increase the transparency and speed of payments. To complete the first action, the CPMI surveyed central banks and conducted a stocktake and analysis of existing

¹² Available [here](#).

¹³ Available [here](#).

and potential interlinking models. This study provided a stylised classification of existing and potential models and an evaluation of the benefits and risks and of each model. Interlinking offers a variety of benefits, but has challenges too, which can vary depending on the specific interlinking model.

The report to the G20¹⁴ on interlinking and APIs, developed under Action 2, was published in July 2022 and presented at a workshop¹⁵ on cross-border payments and interoperability at the Festival Ekonomi Keuangan Digital Indonesia (FEKDI) 2022.¹⁶ This workshop was organised by the Indonesian G20 Presidency in coordination with the CPMI and the BIS IH. The aim of the report is to help payment system operators and authorities understand and evaluate the benefits, challenges and risks of interlinking arrangements, and to provide them with some practical perspectives and considerations. For example, practical considerations such as support by relevant public and private sector stakeholders or conducive legal, regulatory and oversight frameworks are included in the report. The report also provides an overview of important trends and case studies of interlinking arrangements and includes findings from BB15 on API adoption by payment systems, drawing on recent CPMI surveys. Whether interlinking is the most suitable strategy for a particular jurisdiction or payment system would depend on their specific needs and circumstances. For instance, factors such as demand, political support, industry readiness/willingness, infrastructure choices, as well as cost and risk management considerations could influence the suitability of interlinking arrangements.

As a next step, relevant bodies are encouraged to consider the framework in the Action 2 report, when providing technical assistance to authorities and payment system operators considering establishing links to other jurisdictions or adapting existing links.

Focus area D: Increasing data quality and straight-through processing by enhancing data and market practices

Building block 14 - Adopting a harmonised ISO 20022 version for message formats (including rules for conversion/mapping)

ISO 20022 is a common messaging standard for the financial industry, allowing payment systems to share data, particularly across borders, with richer and more structured data information. Promoting the adoption of common message formats, such as a harmonised implementation of ISO 20022, can play an important role in payment system interoperability and, more generally, in addressing data standards and quality and quantity restrictions in cross-border payments. Common standardised message formats can lead to additional efficiency gains by avoiding workarounds and translation from one implementation to another during integration of systems, thus facilitating interoperability and reducing the implementation costs for new providers and enhancing the ability to achieve fully automated straight through processing functionalities.

¹⁴ Available [here](#).

¹⁵ Recording is available [here](#).

¹⁶ See more [here](#).

Existing ISO 20022 message usage guidelines for payments at the jurisdiction or global level provide a strong foundation for transitioning from legacy standards to ISO 20022 in the co-existence period (2022-25) of the SWIFT MT standard and ISO 20022. However, additional, overarching harmonisation guidelines are needed to ensure that the benefits of ISO 20022 can be optimised for cross-border payments once the co-existence period ends. Currently, international work on the development of these overarching guidelines for ISO 20022 in cross-border payments is ongoing. As part of Action 2, the CPMI is liaising with relevant stakeholders in this regard. A joint task force of ISO 20022 specialists from the CPMI and the SWIFT Payments Market Practice Group (PMPG) has developed preliminary harmonisation guidelines which should set minimum requirements for core data components across the cross-border payments chain. The preliminary harmonisation guidelines will serve as best practice requirements for ISO 20022 messaging in cross-border payments after the co-existence phase ends in 2025. They have been informed by [results of a CPMI stocktake](#) of ISO 20022 migration plans of payment systems taken in late 2021.

As a next step, the joint task force will publish its harmonisation guidelines for broader industry consultation at end-2022. Once a final version of the guidelines is published in 2023, their adoption will require a whole community effort that will potentially span several years. However, while individual payment systems will ultimately decide for themselves when to implement the guidelines, an early public commitment for adoption of the harmonised guidelines could generate and sustain global momentum for adoption of the guidelines. The revisions to Action 3 thus reflect a near-term objective for such commitments to be issued, along with identifying with greater specificity the parties to such a commitment (i.e. payment systems and market practice groups).

Table 5: Change to building block 14 from the 2021 Progress Report

Action #	Roadmap Action and timeline	Proposed change
3	<p>Action:</p> <p>CPMI members, and national authorities of other jurisdictions supporting the adoption of a harmonised version of ISO 20022, to continue to work on future plans, and set out publicly their commitment for adoption of a harmonised version of the ISO 20022 standard for cross-border payments. CPMI to take stock of ISO 20022 migration plans of individual jurisdictions.</p> <p>Old timeline:</p> <p>June 2021 – December 2022</p>	<p>New action:</p> <p>Payment system operators supporting the adoption of a harmonised version of ISO 20022, to continue to work on future plans, and set out publicly their commitment for adoption of a harmonised version of the ISO 20022 standard for cross-border payments. Market practice groups to align their guidelines with CPMI harmonisation guidelines. CPMI to take stock of ISO 20022 migration plans of individual jurisdictions.</p> <p>New timeline:</p> <p>June 2021 – December 2023</p>

Building block 15 - Harmonising API protocols for data exchange

PSPs, financial institutions and other entities in the payments ecosystem have been using APIs to enhance efficiency, facilitate automation and extend payment functionality. For cross-border payments, API harmonisation has the potential to improve transaction times and reduce costs

(e.g. associated with regulatory compliance). However, different standards of API protocols have been implemented to cater to specific needs, including regulatory expectations or requirements where they exist. To overcome this fragmentation of API protocols, various initiatives are underway worldwide for standardisation of APIs in different sectors. These initiatives seek to ensure consistency in functional and technical specifications, facilitating the integration and interoperability of payment systems.

A stocktake analysis for BB15 was concluded and findings incorporated in the CPMI report to the G20¹⁷ providing a framework for interlinking of payment systems and the role of APIs in such a use case. A number of fast payment systems (FPS) have recently been interlinked, or are in the process of interlinking, in many cases by leveraging APIs. This trend is expected to continue and could help achieve the G20 targets with respect to the cost, speed, and transparency of cross-border payments. Greater harmonisation of API protocols can facilitate interlinking of payment systems by reducing development costs and time to market.

Recognising the importance of harmonisation, but also the absence of a global convening authority or initiative for harmonisation of technical standards for APIs, the CPMI intends to play an active role in kick-starting such an initiative. In particular, the CPMI has been planning the launch of a joint industry panel to bring together representatives of API governance and standardisation bodies, as well as API developers. This group would review current industry standards in operation and consider the ongoing governance structure. This entails outreach to jurisdictions to nominate representatives to participate in such an initiative.

As a next step, as part of Action 3 the joint industry panel will be established and, as a first task, evaluate select existing APIs (e.g. those developed by the BIS IH as part of concurrent action 4 as well as potentially others) for their extendibility as potential standardised APIs. The joint industry panel will then move to consider options for the longer-term governance and maintenance of harmonised API requirements.

Table 6: Change to building block 15 from the Stage 3 Roadmap

Action #	Roadmap Action and timeline	Proposed change
3	<p>Action:</p> <p>CPMI in cooperation with relevant stakeholders (including data authorities), to call developers and engineers working in financial sector for proposals for a set of API standards that will utilise one of more of the (existing) protocols as appropriate to ensure interoperability of cross-border information exchange.</p>	<p>New action:</p> <p>CPMI to call for participation of relevant stakeholders (including jurisdiction-level harmonisation bodies and data authorities) in a joint industry panel to</p> <ul style="list-style-type: none"> a) assist in the evaluation of proposals for a set of API standards that will utilise one of more of the (existing) protocols as appropriate to ensure interoperability of cross-border information exchange, and b) develop a longer-term global governance proposal and process to continue updating harmonised API requirements.

¹⁷ Available [here](#).

	Old timeline: November 2021 - June 2022	New timeline: For (a): November 2021 – June 2023 For (b): June 2023 – December 2023
4	Action: BIS IH in cooperation with volunteering operators to implement a harmonised protocol based on the framework and share their experience of the proof-of-concept or pilot. After assessing its effectiveness, possibly refine the arrangement and pursue implementation by operators who are volunteering.	New action: BIS IH in cooperation with volunteering operators to implement one or more harmonised APIs and share their experience of the proof-of-concept or pilot. After assessing its effectiveness, possibly refine the arrangement and pursue implementation by operators who are volunteering.
	Old timeline: April 2022 - June 2023	New timeline: April 2022 - December 2023

Building block 16: Establishing unique identifiers with proxy registries

Work under this building block is underway with an exploration of the scope for and obstacles to developing a global digital unique identifier (Action 1), following the publication of the report on options to improve the adoption of the Legal Entity Identifier (LEI) in July 2022 (Action 2).

In February 2022, a survey of member jurisdictions was launched to gather information on existing national, regional, and global digital identifiers and their interaction with cross-border payment arrangements. The survey findings informed both lines of work and highlighted the importance of seeking additional feedback from the private sector. To that end, an outreach event with industry participants took place in April 2022 to solicit views on ways to improve the adoption of the LEI and the benefits and challenges associated with potentially developing a new global digital unique identifier for cross-border payments that includes individuals.

As the work on Action 1 progressed, a further short survey of selected industry participants was launched to collect views on the potential benefits, challenges, and approaches to developing a global digital unique identifier. Other topics surveyed were the costs and requirements associated with using proxy registries and the impact that cross-border data frameworks could have on building a worldwide digital identifier.

The Action 1 report will be published in December 2022, following a review by the CPC. The next stage of the work will include further analysis aimed at quantifying benefits and costs to ascertain whether a new identifier is desirable and feasible. Should this be the case, work will focus on assessing existing proxy databases for personal identifiers, proposing standard design principles for these databases, and defining minimum requirements for personal identifiers.

Focus area E: Exploring the potential role of new payment infrastructures and arrangements

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

Multilateral platforms can be characterised as payment systems of multi-jurisdictional nature and they typically (but not necessarily) process multiple currencies. Some platforms have been developed in the context of public sector initiatives to promote regional financial integration.

The CPMI, the IMF and the World Bank led a stocktake of existing and potential multilateral platforms as part of Action 1. The stocktake found that multilateral platforms have the potential to mitigate certain cross-border payment frictions, including long transaction chains, legacy technology platforms, fragmented and truncated data formats, and, depending on their design, funding costs. However, multilateral platforms may also exacerbate other frictions or introduce new risks, depending on their design features and operating model, which require further consideration and a careful assessment of the relevant trade-offs. In addition to such trade-offs, multilateral platforms may be subject to multiple legal, regulatory, and oversight frameworks across jurisdictions. This would require clarification in the application of relevant laws and regulations.

As Action 2, the CPMI, in collaboration with BIS IH, the IMF and World Bank, produced a report that considers the feasibility of new multilateral platforms and arrangements for cross-border payments. Building on the stocktake under Action 1, the report analyses key design choices of multilateral platforms and explores two possible approaches to expanding the role of such platforms in the cross-border payments ecosystem. The resulting report will be published in by end 2022 and is the final action for BB 17 under the current Roadmap.

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

The international regulatory community is closely monitoring developments in the stablecoins sector and identifying potential impacts of this segment on broader financial markets. The work is underway at standard-setting bodies (SSBs) to understand this area and make necessary changes in their respective domains in order to safeguard the financial system from potential financial stability risks as well as to consider how well-designed and risk-managed systemically important stablecoin arrangements (SAs) could play a role in improving global cross-border payments.

In light of this, the CPMI and IOSCO published in July 2022 the final guidance on the application of the Principles for Financial Market Infrastructures (PFMI) to SAs,¹⁸ confirming that the PFMI¹⁹ apply to systemically important SAs that perform the transfer function. This guidance applies the principle of “same risk, same regulation” to systemically important SAs. The CPMI and IOSCO

¹⁸ Available [here](#).

¹⁹ See more [here](#).

remain committed to continue the examination of regulatory, supervisory and oversight issues associated with SAs and coordinate with other SSBs.

Other SSBs are also continuing to pay close attention to SAs and how international standards should be applied to them. In October 2021, the FATF updated its 2019 Guidance for a Risk-Based Approach to Virtual Assets and Virtual Asset Service Providers (VASPs) and a targeted update on implementation²⁰ was published in July 2022. The application of FATF Standards to stablecoins is one of six focus areas of the updated Guidance.

The BCBS has also progressed²¹ its work, issuing a second consultation paper on the prudential treatment of banks' crypto exposures. Highlighting the importance of having a global minimum prudential framework to mitigate risks from crypto assets, the consultation paper is considering issues related to, among others, unbacked crypto assets and stablecoins. In particular, the need for an effective stabilisation mechanism is emphasized. This work is done with a view to finalising the prudential treatment around the end of this year.

In addition to the work of the SSBs, the FSB is also focused on the developments in the stablecoin sector. Following the adoption of the FSB report²² and high-level recommendations on the regulation, supervision and oversight of global SAs in 2020, a progress report was issued in October 2021,²³ with a stocktake of the implementation of the FSB high-level recommendations across jurisdictions. In July 2022, the FSB made a public statement²⁴ conveying to stakeholders that crypto-asset activities [and markets], including stablecoins, must be subject to effective regulation and oversight commensurate to the risks they pose, both at the domestic and international level and announcing a public consultation report on the review of the FSB high-level recommendations. This report will be presented to the G20 Finance Ministers and Central Bank Governors at their October 2022 meeting.

As the stablecoin sector is evolving rapidly with potential to have an impact at global scale, close attention will be required around risk management. **As a next step**, the CPMI in cooperation with relevant stakeholders and subject to the work laid out above, is considering whether and how the use of well-designed and risk-managed SAs could enhance cross-border payments by addressing existing frictions, what opportunities and challenges this would entail, and how this could impact central banks' core functions. The outcome of this work will be finalised by the end of this year.

Building block 19 - Factoring an international dimension into CBDC design

Over the past year, work on CBDCs gained further momentum. The latest BIS CBDC survey²⁵ showed that more than half of the surveyed central banks are developing a CBDC or running concrete experiments and that cross-border payments efficiency is an increasingly explored use

²⁰ See more [here](#).

²¹ See more [here](#).

²² Available [here](#).

²³ Available [here](#).

²⁴ Available [here](#).

²⁵ See more [here](#).

case. This highlights the need for interoperability between CBDCs and international collaboration.

As a follow-up to the publication of the Action 1 report²⁶ on CBDCs for cross-border payments in July 2021, the CPMI in collaboration with the BIS IH, IMF and World Bank identified and analysed options for access to and interoperability of CBDCs that could improve cross-border payments. The resulting report²⁷ to the G20 was published in July 2022 and highlights that central banks across the globe would need to collaborate in the early stages of CBDC design in order to fully harness the potential of CBDCs for enhancing cross-border payments. The report further concludes that there is no “one size fits all” model for access to and interoperability of CBDC systems, and hence serves as a tool for central banks to assess how to best leverage CBDCs to enhance cross-border payments in the context of their own objectives.

In addition, the BIS IH conducted a deep-dive into the experience gained across its four cross-border CBDC experiments, which are part of a broader portfolio of projects that examine different aspects of retail and wholesale CBDC. The World Bank published a guidance note in November 2021 that is intended to be used primarily by central banks and relevant public authorities considering the issuance of CBDC and by those institutions supporting them in this process.²⁸

As a next step, the BIS in collaboration with IMF and World Bank will organise a conference to share information and encourage collaboration on cross-border payments across (planned) CBDC implementations by March 2023. Additionally, the IMF and World Bank will provide technical assistance on how to facilitate cross-border use of CBDC if requested.

Table 7: Change to building block 19 from the Stage 3 Roadmap

Action #	Roadmap Action and timeline	Proposed change
3b	<p>Action: BIS in collaboration with IMF and WB to organise a conference to share information exchange/encourage collaboration on cross-border payments across (planned) CBDC implementations.</p> <hr/> <p>Old timeline: January 2022 – December 2022</p>	<p>No change to description of action</p> <hr/> <p>New timeline: January 2022 – March 2023</p>

²⁶ Available [here](#).

²⁷ Available [here](#).

²⁸ World Bank. (2021), Central Bank Digital Currency: A Payments Perspective.

Annex: Illustrative examples of developments on selected BBs in CPMI jurisdictions

Building block 9 - Facilitating increased adoption of PvP

- Brazil: A new FX law will enter into force in December 2022. It is expected to stimulate competition in the FX market, with the potential to reduce costs, foster digitalisation and enable FX operations to be carried out in a simpler and faster way.
- China: The Cross-border Interbank Payment System (CIPS) currently adopts a hybrid settlement mechanism combining RTGS and deferred net settlement, while also supporting delivery versus payment (DvP), PvP and other settlement methods.
- European Union: The Eurosystem and Sveriges Riksbank are exploring whether the TIPS platform could process transactions between the euro and the Swedish krona. An investigation is being conducted to define the operational model and legal set-up of a potential cross-currency settlement feature and introducing PvP settlement into TIPS.
- Hong Kong SAR: the four RTGS systems of Hong Kong have been interlinked to enable participants to settle CNH/HKD, CNH/USD, RMB/EUR, HKD/USD, HKD/EUR, USD/EUR foreign exchange transactions on a PvP basis. Moreover, Hong Kong has also developed PvP links with Malaysia, Indonesia and Thailand which allow settlement of USD payments against the respective local currencies. The HKMA will introduce PvP net settlement for USD/CNH PvP in Q1 2023 on top of its existing PvP gross settlement solution.
- Indonesia: In 2010, Bank Indonesia (BI) developed a PvP link through interconnection of BI-RTGS in Indonesia and USD CHATS in Hong Kong. This arrangement allows participating Indonesian banks to settle their USD/IDR FX transactions simultaneously, with the settlement of the USD leg in USD CHATS and the IDR leg in BI-RTGS System.

Building block 10 - Improving (direct) access to payment systems by banks, non-banks and payment infrastructures

- Australia: The Reserve Bank of Australia is working to develop a set of common requirements to help facilitate access to Australian payment systems, including for non-bank PSPs. The intention is for these requirements to be incorporated into a new payments licensing framework that the Government has agreed to develop.
- European Union: As part of the EU Settlement Finality Directive (SFD) review, the European Commission will consider whether to extend the scope of the SFD to include e-money and payment institutions. The European Commission will examine whether it is appropriate to propose legislation aimed at securing a right of access under fair, reasonable and non-discriminatory conditions, to technical infrastructures considered necessary to support the provision of payment services.

- India: In July 2021, RBI reviewed the access criteria for participation in its centralised payment systems (i.e. the RTGS system and the National Electronic Funds Transfer (NEFT) system) and permitted certain categories of non-bank payment system operators, i.e. card networks, white label ATM operators and e-money issuers to participate as direct members. The access included opening current accounts with the RBI.
- Indonesia: All BI-RTGS System participants are direct members and have their own account in the BI-RTGS System. BI has taken the role of participants toward monetary and financial system stability into consideration and continues to review participation to BI-RTGS System especially in promoting innovation and inclusion.
- Japan: Discussions on improving access to the Zengin system (one of Japan's major payment systems) started in 2020 by a dedicated task force comprising private and public sector stakeholders. Following such discussions, in September 2022, the Zengin-net (operator of the Zengin-system) decided to enable direct and indirect access by non-banks PSPs in October 2022.
- Singapore: MAS and the industry have completed the implementation of enabling non-bank financial institutions (NBFIs) to have direct access to the retail real-time funds transfer system from February 2021. Direct connection to FAST and PayNow will enable users of NBFIs e-wallets to make real-time funds transfers between bank accounts and e-wallets as well as across different e-wallets.
- Switzerland: Banks domiciled outside of Switzerland has been able to access the Swiss RTGS system since 1998. In 2019, with the creation of a new licensing regime in the Swiss Banking Act, fintech companies regulated and licensed under this regime were added to the entities eligible for access to the Swiss RTGS system. In March 2022, the SNB added "DLT trading systems" as a further category with access to the Swiss RTGS system.²⁹
- United Kingdom: Bank of England (BoE) broadened access to RTGS accounts for non-bank PSPs in 2017 to support competition and innovation in payment services, and there are now seven non-banks that hold settlement accounts in the RTGS system. In April 2021, BoE announced a new policy to enable payment systems to open omnibus accounts in the RTGS system to develop innovative payment services underpinned by central bank money.
- United States of America: In August 2022, the Federal Reserve Board announced the final guidelines that establish a transparent, risk-based, and consistent set of factors for Reserve Banks to use in reviewing requests to access Federal Reserve accounts and payment services.

²⁹ FMIs for multilateral trading in DLT securities are referred to as DLT trading systems.

Building block 11 - Exploring reciprocal liquidity arrangements across central banks (liquidity bridges)

- BoE-DNB liquidity bridge: The BoE (lending central bank) established a one-way intraday euro liquidity bridge between the UK RTGS system and TARGET2 via DNB (facilitating central bank) in 2007. The liquidity bridge allows the BoE to provide intraday GBP liquidity to the UK RTGS system participants against euro cash liquidity held in TARGET2.
- The Scandinavian Cash Pool (SCP): The SCP is a three-way liquidity bridge arrangement between the central banks of Denmark, Sweden, and Norway. It was originally established to support Scandinavian CLS members' access to intraday liquidity in Danish krone (DKK), Swedish krona (SEK), and Norwegian krone (NOK), especially for large time-critical payments. The main principle of the SCP is that liquidity raised at the central bank of one country is pledged as collateral in the central bank of another country.

Building block 12 - Extending and aligning operating hours of key payment systems to allow overlapping

- Australia: In 2023, the acceptance of the AUD leg of incoming cross-border payments through the NPP, Australia's 24/7 FPS, will become mandatory for participants. This service will result in faster cross-border payments.
- Canada: Operating hours for the Canadian RTGS system (Lynx) are currently from 00:30 to 19:00. Lynx hours overlap fully with the CLS settlement window. Moreover, an FPS (RTR) available 24/7/365 will be launched in 2023/24.
- China: CIPS has extended its operating time to 24/5 plus 4 hours on the weekend, covering almost all time zones of financial markets around the world.
- European Union: Extension of RTGS operating hours with the go-live of the TARGET consolidation project in November 2022.
- India: RBI's RTGS system has been operating 24/7 since December 2020, the NEFT system has been available round the clock since December 2019. Additionally, India has two FPS, i.e. Immediate Payment Service (IMPS) and Unified Payments Interface (UPI) that operate 24/7.
- Sweden: The Riksbank has extended the RTGS operating hours by one hour and RIX-INST will operate 24/7.
- Switzerland: The Swiss RTGS system is operational almost 24/7. The Swiss RTGS system is currently being upgraded to the next version (i.e. SIC5). SIC5 will include two services, the RTGS and an instant payment service. With SIC5, the RTGS-service could be made available 24/7, but that decision has not yet been made.

- United Kingdom: The renewed RTGS system will have the technical capability to extend operating hours to 22/5, or with certain further changes, to near-24/7 operation. BoE will consider extending the operating hours in line with industry demand.
- United States of America: The Federal Reserve Board is actively considering the risk, operational, and policy implications of expanding the operating hours of the Fedwire Funds Service and the National Settlement Service (NSS) up to 24/7/365. The Reserve Banks plan to engage further with Fedwire Funds Service and NSS users throughout 2022 to inform considerations related to the Reserve Banks' longer-run provision of large-value payments, including the potential expansion of Fedwire Funds Service and NSS operating hours.

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

- European Union: After the successful completion of a cross-border, cross-currency, cross-system instant payments experiment with BUNA (the settlement platform operated by the Arab Regional Payments Clearing and Settlement Organization – ARPCSO), TIPS is currently participating in the BIS IH Nexus Proof-of-Concept (PoC) together with other instant payments platforms. As part of the PoC also APIs will be supported.
- Hong Kong SAR: Hong Kong's RMB CHATS has been linked to Mainland's payment systems to support the large volume of cross-border payments in RMB. HKMA is now working with the Bank of Thailand to establish linkage between the FPS in the two jurisdictions to further facilitate cross-border payments.
- India: NPCI International Payments Limited (NIPL, a subsidiary of NPCI) and NETS of Singapore have interlinked their systems to facilitate QR code-based payments in Singapore. RBI and MAS have announced the interlinking of two FPS, i.e. UPI (India) and PayNow (Singapore). RBI is actively pursuing the outreach of UPI to interface with similar FPS in other jurisdictions to facilitate cross-border transactions.
- Mexico: Bank of Mexico evaluates how SPEI's features (24/7, real-time and retail-FPS capabilities) can contribute to improve cross-border payments through our current interlinking capabilities with FedGlobal.
- Singapore: MAS and the Bank of Thailand launched the linkage of Singapore's PayNow and Thailand's PromptPay real-time retail payment systems in April 2021. The PayNow-PromptPay linkage is a key collaboration under ASEAN Payment Connectivity that was initiated in 2019, and closely aligns with the cross-border payments programme. Building on the success of the PayNow-PromptPay link, MAS is working towards establishing similar linkages with Malaysia and India.

Building block 14 - Adopting a harmonized ISO 20022 version for message formats (including rules for conversion/mapping)

- Australia: The adoption of ISO 20022 for Australia's high value clearing system, which also processes cross-border payments, is on track to go live in November 2022. This will help facilitate a future move to harmonised standards based on ISO 20022.
- Canada: The adoption of ISO 20022 for key payment systems is envisioned by November 2022 as part of Canada's Payments Modernisation Plan.
- European Union: Migration to ISO 20022 in RTGS payments in November 2022, while the FPS TIPS already uses the ISO 20022 message standard. The European retail payment schemes for credit transfers (including fast payments) and direct debits are already based on the ISO 20022 message standards.
- Hong Kong SAR: Hong Kong will complete the migration of the RTGS systems to ISO 20022 in Q4 2023 and will review how to adopt and realise the full benefits of the harmonised standard upon its launch.
- Japan: The BOJ-Net (the RTGS system operated by the BOJ) already migrated to the ISO 20022 standard in 2015, with the objective to complete relevant version upgrading in 2025.
- China: CIPS has adopted the ISO 20022 standards with its inception. In response to the international trend of convergence to ISO 20022, CIPS launched a working group in December 2021 focused on resolving the differences between CIPS messages and ISO 20022 cross-border payments and reporting (CBPR+) messages.
- Singapore: With the planned phased implementation of ISO 20022 in the current and future RTGS system (i.e. MEPS+ and SCRIPS), material progress has been made in the areas of BB14 (ISO 20022) and BB15 (APIs). MEPS+ successfully adopted ISO 20022 messaging format in August 2022, and the adoption of ISO 20022 in SCRIPS is planned to go-live around Q3 2023.
- Switzerland: ISO 20022 has been used since 2016, based on Version 2009, and the 2019 version will be implemented by Nov 2022.
- United Kingdom: CHAPS payments will migrate to enhanced ISO 20022 messaging in April 2023. To implement the ISO 20022 messaging standard within the UK, BoE and Pay.UK have jointly developed a harmonised 'Common Credit Message' for use across the UK's interbank high-value and retail payment systems.
- United States of America: In June 2022, the Federal Reserve Board published a Federal Register Notice announcing that Federal Reserve Banks will adopt the ISO 20022 message format for the Fedwire Funds Service in a single-day implementation strategy on 10 March 2025.

Building block 15 - Harmonising API protocols for data exchange

- Canada: Open APIs is part of Canada's Payments Modernisation Plan and Payments Canada has a developer portal for innovation in this area.
- United Kingdom: The renewed RTGS will allow organisations to use APIs for bespoke or automated data queries. The first API in the RTGS Pilot Platform uses the SWIFT API gateway and facilitates balance enquiries on a read-only basis. BoE plans to expand the set of APIs which will be available from spring 2024 and then further develop our API ecosystem from 2024 onwards.