

Exploring multilateral platforms for cross-border payments

January 2023



Committee on Payments
and Market Infrastructures

Innovation
Hub



WORLD BANK GROUP

This publication is available on the BIS website (www.bis.org).

© *Bank for International Settlements 2023. All rights reserved. Brief excerpts may be reproduced or translated provided the source is stated.*

The views expressed in this paper are those of the author(s) and do not necessarily represent the views of the IMF, its Executive Board, or IMF management.

ISBN 978-92-9259-625-5 (online)

Contents

Executive summary	4
1. Introduction	5
2. The role of multilateral platforms	5
2.1 Multilateral platforms in the taxonomy of cross-border payments	5
2.2 Key design choices and related considerations.....	8
2.3 Effects of multilateral platforms on frictions.....	11
3. Stocktake of multilateral platforms	13
4. Risks, barriers and challenges.....	16
4.1 Legal risk.....	16
4.2 Operational risk	17
4.3 Illicit finance risks	18
4.4 FX and liquidity risk.....	18
4.5 General business risk	19
5. Considerations for increasing the role of multilateral platforms.....	19
5.1 General considerations	21
5.2 Considerations specific to the growth approach	22
5.3 Considerations specific to the greenfield approach	22
5.4 Potential roles for the public sector	23
6. Conclusion.....	25
References	26
Appendix 1: Key interdependencies with other building blocks.....	27
Appendix 2: Composition of the Future of Payments Working Group (FoP).....	29
Appendix 3: Acronyms and abbreviations.....	32

Executive summary

This report provides an assessment of whether and how multilateral platforms could bring meaningful improvements to the cross-border payments ecosystem. It was written by the Bank for International Settlements' Committee on Payments and Market Infrastructures (CPMI) in collaboration with the BIS Innovation Hub, the International Monetary Fund (IMF) and the World Bank. The report analyses the potential costs and benefits of these platforms and how they might alleviate some of the cross-border payment frictions. It also evaluates the risks, barriers and challenges to establishing multilateral platforms and explores two paths for their evolution. The analysis is based on a stocktake, conducted by the CPMI, of existing and potential multilateral platforms as well as bilateral discussions with existing platform operators.

A multilateral platform is a payment system for cross-border payments that is multi-jurisdictional by design. It can substitute for or operate alongside traditional correspondent banking relationships or bilateral interlinking of domestic payment infrastructures. A multilateral platform can potentially shorten transaction chains by allowing participants in different jurisdictions to send or receive payments directly instead of via multiple intermediaries. Depending on its design, a platform can offer extended operating hours to meet the requirements of participants in different time zones and ease compliance checks related to anti-money laundering and combating the financing of terrorism (AML/CFT). Built as new, it can also reduce dependencies on legacy systems by implementing the latest technology and payment message standards. To the extent a multilateral platform is able to mitigate these underlying frictions, it could reduce the costs and increase the safety, speed and transparency of cross-border payments.

Multilateral platforms could enhance cross-border payments but often involve more complicated legal and operational issues relative to domestic payment systems. Any decision to increase the role of multilateral platforms should weigh all relevant trade-offs, risks and benefits relative to other cross-border arrangements such as correspondent banking, not merely the added risks relative to domestic systems. These considerations vary depending on the current state of cross-border payment arrangements in a specific geographical region or for a specific payment system function, as well as on the purpose and chosen approach for increasing the role of multilateral platforms. The actual improvements that a potential platform can bring to the cross-border payments ecosystem will, of course, depend on its concrete design. Hence, this report can only offer some high-level considerations, without pre-empting potential future considerations on individual business cases.

This report explores two conceptual implementation approaches: the growth approach and the greenfield approach. The growth approach involves expanding existing multilateral platforms to additional jurisdictions, currencies and participants (including by extending access to foreign participants and interlinking with domestic systems and other platforms). This option could be based on existing institutional arrangements but may nevertheless require additional public-private sector involvement and coordination. The greenfield approach involves building a new, potentially global infrastructure for cross-border payments. This option could foster greater alignment of certain aspects of cross-border payments but may entail complex governance discussions and cooperative oversight arrangements as well as careful balancing of the roles of public and private sector stakeholders.

Policymakers have different options to consider as they analyse the potential development and implementation of multilateral platforms. Any evaluation should carefully consider the trade-offs of multilateral platforms and account for the evolving nature of the cross-border payments market. To this end, possible further measures could entail efforts by regional bodies, operators and/or international organisations to realise the potential of multilateral platforms. Taking advantage of the momentum generated by the G20 cross-border payments programme, payment system operators and authorities contemplating the expansion or establishment of multilateral platforms can use this analysis as a basis for evaluating the best approach for their specific circumstances. Such preparatory steps could allow relevant stakeholders to gain a sound basis from which to plan and assess future actions.

1. Introduction

In October 2020, the G20 endorsed a roadmap for enhancing cross-border payments that was drawn up by the Financial Stability Board (FSB) in coordination with the CPMI and other relevant international organisations and standard-setting bodies (FSB (2020c)). The G20 cross-border payments programme aims to address long-standing challenges in the cross-border payments market, including high costs, low speed, limited access and insufficient transparency. The programme comprises the necessary elements of a globally coordinated response in the form of a set of 19 building blocks (BBs), based on a CPMI report to the G20 (CPMI (2020a,b)), of which BB 17 explores the role of multilateral platforms.¹

Multilateral platforms can help meet a growing demand for new and improved cross-border payment services that is driven by deeper economic and financial integration at both global and regional levels. Furthermore, payment service providers (PSPs)² may see multilateral platforms as more efficient back-end solutions for implementing their digitalisation strategies or for tapping new business areas, especially in the retail payments segment. In this context, multilateral platforms often need to implement new and improved functionalities, such as multi- or cross-currency settlement.

Technology and public sector collaboration could spur the development of multilateral platforms. Innovative solutions such as real-time processing and end-to-end transaction monitoring have allowed new players to challenge the traditional PSPs, particularly in domestic payment markets. Multilateral platforms may apply similar innovation to improve their existing cross-border payment services or to offer new ones. At the same time, prevailing market forces and incentives may inhibit cross-border payment services from adequately reaching emerging market and developing economies (EMDEs), or from meeting the needs of users with limited or no access to financial services. Public sector entities have sought to catalyse or actively engage in the development of multilateral platforms that are able to fill service gaps on a regional level and could expand their role on a global level.

The rest of the report is structured as follows: Section 2 defines multilateral platforms, analyses two key design features and explores how multilateral platforms may mitigate the frictions of cross-border payments; Section 3 provides an overview of existing multilateral platforms based on the 2021 stocktake; Section 4 discusses the risks, barriers and challenges of multilateral platforms; Section 5 describes possible approaches for enhancing existing multilateral platforms or establishing new ones; and Section 6 concludes. Annex 1 lists the key interdependencies between BB 17 and the other BBs of the programme.

2. The role of multilateral platforms

2.1 Multilateral platforms in the taxonomy of cross-border payments

A multilateral platform is a payment system for cross-border payments that is multi-jurisdictional by design. Unlike most domestic payment systems, which do not extend participation to PSPs from foreign jurisdictions, a multilateral platform is designed to allow entities from several jurisdictions to participate in and use the platform to provide cross-border payment services to their customers. A multilateral platform

¹ This report is the output of BB 17 action 2. In action 1, the CPMI Future of Payments working group (FoP) conducted a stocktake of existing and potential multilateral platforms and evaluated their risks and benefits. In action 2, the FoP analysed whether and how these platforms could bring meaningful improvements to the cross-border payments market. The action 1 stocktake was carried out as a part of a larger survey on cross-border payments, in which the CPMI asked central banks about existing and planned multilateral platforms in their jurisdictions and their views on how such platforms might be able to address the frictions of cross-border payments, see also CPMI (2022a).

² PSPs include banks as well as non-banks that provide payment services.

enables customers of any participating PSP (eg a commercial bank) in one jurisdiction to pay customers of any other participating PSP (eg an e-money institution) in another jurisdiction.³

Similar to a domestic payment system, a multilateral platform may have a tiered participation structure that allows some firms (“indirect participants” or “third parties”) to rely on the services provided by direct participants to use the platform’s central payment, clearing, settlement or recording facilities without necessarily establishing a contractual relationship with the platform. Multilateral platforms are commonly governed by stakeholders from several jurisdictions and overseen by multiple public authorities, often through a cooperative oversight arrangement. The participants of a multilateral platform must adhere to a single rulebook established for that platform.

Multilateral platforms can substitute for or operate alongside traditional cross-border payment back-end arrangements such as correspondent banking and closed loop systems. Generally, the processing of cross-border payments can be split into the front end, in which payers and payees interact with their PSPs to initiate or receive payments, and the back end, in which the clearing and settlement of payments is supported by different arrangements (Box 1).

Any cross-border payment via correspondent banking involves at least two PSPs, an originator PSP and a beneficiary PSP, and may involve one or several intermediary banks. To the extent that multilateral platforms allow the originator PSP to reach the beneficiary PSP more directly, they can replace some or all of the intermediary banks in a transaction chain. As such, multilateral platforms are distinct from correspondent banking.⁴ Multilateral platforms are also distinct from closed loop systems, in which the PSP of the payer is the same entity (or part of the same group of companies) as the PSP of the payee; multilateral platforms do not require end users to be customers of the same PSP.

Multilateral platforms share several characteristics with interlinking arrangements. Both involve comparable design choices and similar considerations of benefits, costs and risks, and multilateral platforms can form part of interlinking arrangements. Interlinking arrangements are typically classified into four stylised models (Graph 1):

1. In the *single access point* model, participants in one domestic payment system have access to a foreign system through a single entity that directly participates in the foreign system.
2. In the *bilateral link* model, participants in the domestic system can directly reach all participants in the foreign system via the link instead of only through the single gateway entity.
3. In the *hub and spoke* model, bilateral links between two or more payment systems (the spokes) are replaced by links to a common intermediary (the hub).
4. In the *common platform* model, participants can reach each other directly across borders on a single, integrated technical platform.

³ The *Principles for financial market infrastructures* (PFMI) define a *payment system* as a set of instruments, procedures and rules for the transfer of funds between or among participants (CPSS-IOSCO (2012)). *Cross-border payments* are defined as funds transfers for which the payer and the payee (ie the end users) are located in different jurisdictions. A cross-border payment may or may not involve currency conversion. *Participants* include, but are not limited to, central banks, commercial banks, non-bank PSPs and payment system operators. Participants may execute payments on their own behalf or on behalf of their customers. Multilateral platforms not only process cross-border payments; they may also process domestic payments or funds transfers related to ancillary systems (eg automated clearing houses or securities settlement systems).

⁴ International card networks also operate multilateral platforms if they clear or settle cross-border payments. The card networks usually rely on correspondent banking for cross-border settlement although not on a bilateral basis between the issuing and the acquiring banks. Rather, they typically offset transactions on a multilateral basis such that issuing banks must settle only the net amounts by crediting the card networks’ accounts at their settlement banks. As such, the issuing banks still need access to correspondent banking services to do so but to ease the cost burden of such relationships, the card network may offer options to settle in a number of currencies across settlement accounts in different jurisdictions. In some instances, issuing banks may be able to settle cross-border transactions in their home currency via a correspondent bank in their own jurisdiction.

While all four interlinking models can achieve similar results, the common platform is, in a strict sense, not a form of interlinking since PSPs participate in one and the same payment system.⁵ Depending on their design (eg if all participating PSPs must adhere to the same rulebook) some examples of the hub entity in hub and spoke models can be regarded as multilateral platforms whereas all examples of the common platform model are multilateral platforms.

Box 1

Back-end arrangements for cross-border payments

Various back-end arrangements allow PSPs to process cross-border payments on behalf of their customers. These arrangements can be broadly classified into four models: (i) correspondent banking; (ii) single system or closed loop; (iii) interlinking; and (iv) peer-to-peer. Multilateral platforms are often grouped with interlinking arrangements.^①

Correspondent banking

Correspondent banking is an arrangement under which one bank (correspondent) holds deposits owned by other banks (respondents) and provides payment and other services to those respondent banks. Correspondent banking arrangements enable banks to access financial services in other jurisdictions and provide cross-border payment services to their customers, supporting international trade and financial inclusion. A cross-border payment via correspondent banking typically involves a series of funds transfers in a chain of linked correspondent banks. The intermediary banks in these chains are often large global banks offering their correspondent banking services to smaller domestically focused PSPs.

Single system or closed loop

In a closed loop system, the PSP of the payer is the same entity, or part of the same group, as the PSP of the payee. Closed loop systems are also known as “single platforms” and the payments through these systems are known as “on-us”, “in-house” or “intragroup” transfers. On-us transfers in a closed loop system are initiated and completed by the same PSP across multiple jurisdictions and do not rely on a connection between other institutions or infrastructures in those jurisdictions. This can be the case for proprietary arrangements such as traditional money transfer operators, international card schemes that use the three-party model, e-money schemes or large global banks that are present in both the payer’s and the payee’s country.

Interlinking

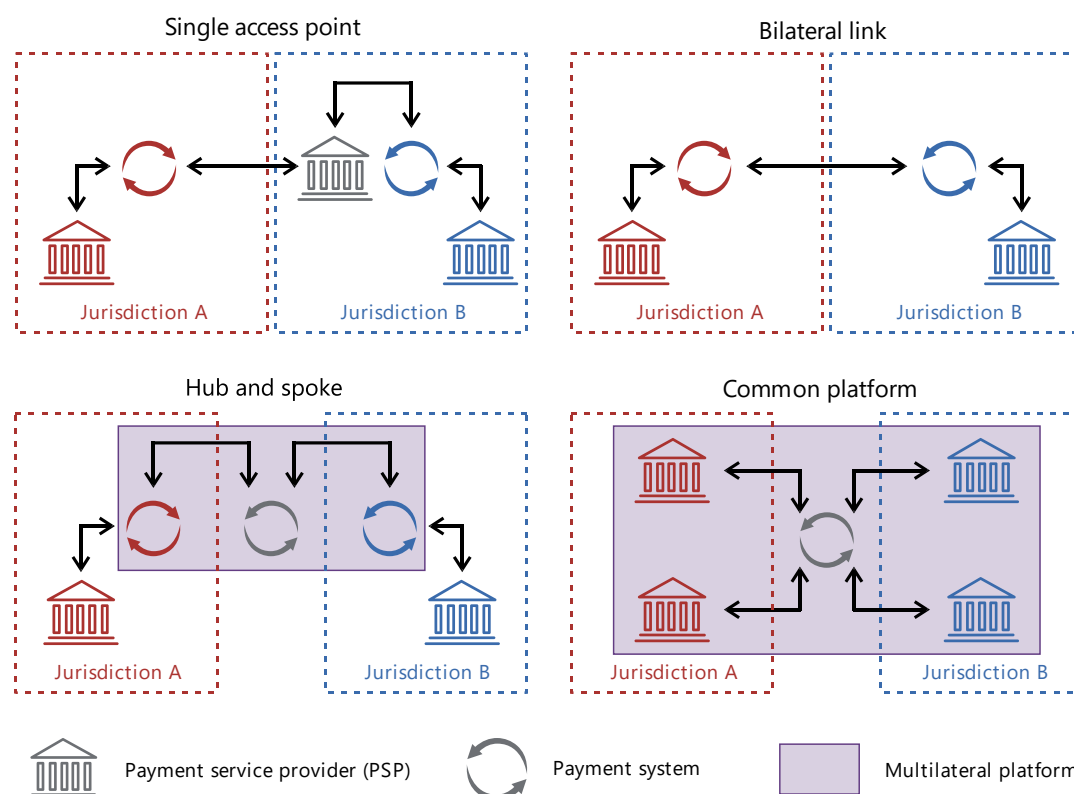
Interlinking arrangements for cross-border payments can be defined as a set of contractual agreements, technical links and standards, and operational components between payment systems of different jurisdictions, allowing their respective participating PSPs to transact with one another as if they were in the same system. An interlinking arrangement enables a PSP participating in the payment system of country A to send payments to PSPs participating in the payment system of country B without the need for country A’s PSP to open accounts in country B or become a participant in country B’s payment system. Interlinking arrangements can be a series of bilateral links each with their own rules or links under a common framework.

Peer-to-peer

In the peer-to-peer model, the payer can send the payment directly to the payee without the involvement of any intermediary PSPs. Peer-to-peer payments can take a variety of forms; the simplest form is a direct cash payment. The emergence of distributed ledger technologies can allow peer-to-peer transactions to be executed electronically between parties using a shared ledger structure where the transaction is settled, and holdings are recorded. Peer-to-peer solutions relying on this type of technology comprise cryptoassets, stablecoin arrangements and some potential CBDC designs.

① For more information about back-end (and front-end) arrangements, see CPMI (2018) and FSB (2020b).

⁵ The interlinking of cross-border payment systems is the subject of BB 13, see CPMI (2022d) for additional detail.



¹ Examples include euroSIC (single access point), Directo a México (bilateral link), the Regional Payment and Settlement System (REPSS) of the Common Market for Eastern and Southern Africa (hub and spoke) and Southern African Development Community (SADC)-RTGS (common platform). ² The multilateral platform includes the participants and the entity operating the arrangement. In the hub and spoke model, the participants are payment systems. In the common platform model, the participants are PSPs.

Source: Adapted from CPMI (2022d).

The hub and spoke and common platform models, referred to collectively as the *network models* of multilateral platforms, differ from each other in two notable ways. First, in the hub and spoke model, the domestic payment systems (the spokes) connected to the hub must adhere to the hub's rulebook, but the PSPs participating in the spokes may only be bound by the hub's rules if they offer cross-border services. Conversely, on a common platform, all PSPs must adhere to a common rulebook. Second, hub entities are most often built solely to enable cross-border payments, while common platforms can be built to enable domestic as well as cross-border payments.

2.2 Key design choices and related considerations

Since a broad range of payment systems fall under the definition of a multilateral platform, as a category they cover a wide variety of payment system functions and related features (Table 1). This subsection analyses two key design choices, the network model and the currency arrangement, and explores considerations associated with each design choice in relation to other platform features.

Examples of multilateral platform features		Table 1
Function	Related features	
1. Liquidity management	Intraday credit facilities Liquidity-saving mechanisms Collateral management functions	
2. Payment messaging including authentication, initiation, submission and conditionality	Standardised messaging Proxy lookup registries Pre-validation services APIs for technical integration with third parties Limited operating hours or 24/7/365 Quantity and time limits Capital flow management measures	
3. Compliance and data processing	AML/CFT and fraud monitoring KYC registries Privacy and data management	
4. Clearing including netting (where applicable)	Single or multi-cycle Bilateral or multilateral	
5. Settlement	Legal finality and technical settlement Real-time gross or deferred net settlement Settlement currency Type of settlement asset (commercial bank money, central bank money, crypto) Settlement risk management measures (eg prefunding)	
6. Foreign exchange (FX)	Currency conversion Payment versus payment (PvP)	
Source: CPML		

2.2.1 Choice of network model

The choice of network model, between hub and spoke and common platform, may influence the development of the platform's rules and procedures. As noted in the definition above, the participants in a multilateral platform must adhere to a single, common rulebook. However, in a hub and spoke model, if the laws and regulations governing key issues of the spokes across jurisdictions are consistent, the hub entity could theoretically operate with a minimal, uniform set of rules. For any inconsistencies (eg on settlement finality or the enforceability of netting arrangements), the hub and spoke entities will need to identify the associated risks and may need to develop specific rules and procedures to mitigate them. However, in a common platform model, the platform's rules and procedures in their entirety must be consistent with the relevant laws and regulations of each jurisdiction in which it operates. In addition to these conceptual considerations, there are other practical factors, including considerations other than the choice of network model, that could affect how the rules and procedures of the platform are developed.

Any multilateral platform involves coordinating among many public and private sector stakeholders across jurisdictions to agree on how the platform should be designed, governed, operated and overseen. A hub and spoke platform may be able to leverage existing relationships between the spokes and their participating PSPs for domestic payments, thus allowing stakeholders to focus on the

issues surrounding cross-border payments via the hub. For example, stakeholders do not necessarily need to consider all the differing technicalities across the domestic systems (eg how participants connect, technically pre-position funding and interact with domestic ancillary systems), but can focus on the elements that need to be adjusted to exchange information via the hub. Conversely, for a new common platform, stakeholders would need to agree on almost every aspect of the platform's activities. Reaching agreement could require compromise either on the part of the participants, if they must align their procedures with the capabilities of the platform, or on the part of the platform, if it must be tailored or modified to meet the specific needs of different subsets of participants, or both. In any case, agreements can be difficult to reach, and adjustments are often costly, time-consuming and may introduce inefficiencies.

Yet, once established, a common platform may be less technically complex and thus more efficient to operate and maintain than a hub and spoke system. A common platform is typically built on a single technical infrastructure, whereas the hub entity and the individual spoke systems may be based on entirely different technical platforms. Updating a hub and spoke system (eg implementing new functionality for all participants) may require tailoring a technical solution for each of the spoke systems, in addition to changing how the newly updated spokes exchange information via the hub entity. Conversely, updating a common platform with new functionality only requires implementation in one system. In both cases, participating PSPs would need to make technical and procedural changes. A similar logic applies to changes to the operating procedures of a platform (eg an extension of operating hours⁶): in a hub and spoke system, such changes must be implemented and aligned across a range of payment systems' operations teams in different jurisdictions, whereas on a common platform such changes can be implemented centrally in one payment system operation team.

A common platform may also be better able to offer a more consistent service to participants than a hub and spoke system. Although some harmonisation is likely to have been required to connect to the hub entity, as separate domestic payment systems, the spokes of a hub and spoke system may differ markedly in areas such as access requirements,⁷ pre-funding floors, transaction amount caps and liquidity management tools. A common platform may also be able to recover costs more efficiently than a hub and spoke system. The spokes may use different pricing schemes to recover costs, with some systems emphasising transaction volumes and others the relative balance sheet sizes of participants, which may lead to an uneven distribution of costs among participants. As a single technical infrastructure with a common rulebook for domestic as well as cross-border payments, a common platform is likely better positioned to offer all participants harmonised payment services at transparent and non-discriminatory prices such that the platform can recover its costs.

2.2.2 Choice of currency arrangement

Another key design choice is whether the multilateral platform should be a single currency, multicurrency or cross-currency platform:

- On a *single currency platform*, transactions are processed in one currency, which can be: (i) a common currency of a currency union between the connected jurisdictions; (ii) a national currency commonly used for international trade among the connected jurisdictions; or (iii) an international reserve currency such as the US dollar or the euro. On a single currency platform, the conversion from any other currency to the settlement currency is provided outside the arrangement by the payer's PSP, the payee's PSP and/or an international settlement bank.
- On a *multicurrency platform*, transactions are processed in multiple currencies using account structures that are segregated by currency. Currency conversion happens outside the platform, that is, cross-currency transactions on the platform are not possible. However, participants may

⁶ Extending and aligning payment system operating hours for cross-border payments is the subject of BB 12.

⁷ Best practices for self-assessment on improving access to payment systems for cross-border payments have been developed under BB 10.

be able to exchange currencies with the platform when funding and defunding their accounts. To transact in multiple currencies, participants need to maintain multiple settlement accounts with the platform.

- On a *cross-currency platform*, the conversion from one currency to another takes place on the platform, allowing one connected PSP to be debited in one currency and another connected PSP to be credited in the other currency. Foreign exchange (FX) rates may be set, and liquidity may be provided, by the platform itself or by one or multiple competing third-party FX providers, which may or may not include a mechanism enabling FX transactions to be settled using PvP.⁸ Participants can thus choose to maintain only one settlement account with the platform.

The choice of currency arrangement is often dictated by the purpose of the platform: if a platform is designed to serve a single currency area or a regional market that uses a common currency for cross-border trade, it often processes transactions only in that currency. However, if the platform is designed to foster the use of national currencies within an economically integrated region, it often processes multiple currencies. Other factors influencing the choice of currency arrangement include: (i) the liquidity of the chosen currency (or currencies), particularly in exchange with other currencies of interest; (ii) any exchange restrictions or other capital controls related to the currency; and (iii) the exchange rate regime in the relevant jurisdictions against the currency. According to the survey, several existing multilateral platforms have recently expanded their services to include more regional currencies and/or global reserve currencies.

2.3 Effects of multilateral platforms on frictions

Seven frictions contribute to the challenges of cross-border payments: (i) legacy technology platforms; (ii) fragmented and truncated data formats; (iii) funding costs; (iv) long transaction chains; (v) weak competition; (vi) complex processing of compliance checks; and (vii) limited operating hours (FSB (2020a)). This subsection discusses how multilateral platforms could address some of these frictions.

2.3.1 Legacy technology platforms and fragmented, truncated data formats

As with any other new payment system, building a new multilateral platform with no pre-existing parts or prior dependencies directly addresses the friction of legacy platforms as it provides an opportunity to use the latest technology. New platforms may thus avoid a reliance on batch processing, include real-time monitoring and implement new payment messaging standards to enable faster, safer and more efficient transactions. For example, a new platform could implement a harmonised version of ISO 20022 to improve the quality of data transmitted over the platform and facilitate straight through processing (STP).⁹ However, this version would have to be implemented across all participants (direct and indirect) to avoid the need for conversion of messages across different formats (and the associated risk of data loss).

New technologies such as APIs may further help to connect multilateral platforms with existing payment systems and facilitate the data exchange with participants.¹⁰ A platform may also offer ancillary services that go beyond mere clearing and settlement, such as proxy lookup registries, fraud monitoring and pre-validation services. However, each ancillary service may lead to additional complexity and costs, as well as potential regulatory adjustments in the participating countries (eg data protection for proxy lookup services).

New platforms may face a trade-off between innovation and interoperability. On the one hand, a new platform will seek to adopt the latest technology to provide participants with competitive payment

⁸ A multilateral platform should eliminate or mitigate principal risk through the use of a PvP settlement mechanism, see also Principle 12 of the PFMI (CPSS-IOSCO (2012)). Facilitating the increased adoption of PvP is the subject of BB 9.

⁹ Adopting a harmonised ISO 20022 version for message formats is the aim of BB 14.

¹⁰ Harmonising API protocols for data exchange is the subject of BB 15.

services with innovative features. On the other hand, it will need to keep the technical access requirements low enough such that less advanced participants can still onboard the platform. To address this trade-off, a new platform may offer ancillary services that, for example, translate messages from ISO 20022 to local formats if participants find it infeasible to adopt ISO 20022 (noting that this may entail a risk of data loss).

2.3.2 Funding costs

Multilateral platforms may reduce funding costs in multiple currencies. Funding cross-border payments is generally costly because PSPs need to hold sufficient liquidity in all the currencies in which they transact. If PSPs are unable to readily exchange funds from one currency to another, their liquidity can be tied up in individual currency pots. However, if a multicurrency platform achieves sufficient reach, participants may be able to pool their liquidity on the platform in a way that can reduce liquidity demands compared with maintaining a multitude of currency accounts at correspondent banks or participating directly in many domestic payment systems.¹¹ In addition, a platform can enable participants to readily exchange currencies by allowing funds transfers on a 24/7 basis for FX trades off the platform or by offering an FX service on the platform, that is, by becoming a cross-currency platform. The possibility of holding accounts in multiple currencies and readily exchanging those currencies may also assist participants in hedging FX risk.

As for any payment system, the funding costs of using a multilateral platform also depend on whether the platform uses deferred net settlement (DNS) or real-time gross settlement (RTGS).¹² DNS is less liquidity-intensive than RTGS but exposes the participants to credit risk and thus requires a higher level of trust between participants, which may be difficult to achieve across jurisdictions with different legal frameworks for, in particular, default events. A platform can opt to require pre-funding as a mechanism to reduce credit risk but that may increase funding costs for participants, depending on its design. For example, a prefunding mechanism could draw on assets that have already been pre-positioned but not yet pledged as collateral for intraday credit to reduce the liquidity burden. Although multilateral platforms cannot eliminate funding costs altogether, they have options to address funding issues and, as with other payment system design choices, these options depend on the trade-offs that the platform designers are willing to accept.

2.3.3 Long transaction chains

Multilateral platforms may be able to shorten transaction chains to the extent that they allow participants to send and receive payments directly instead of transmitting payments via multiple intermediaries. For example, two end users in an underserved payment corridor might be customers of PSPs that cannot reach each other directly but rely on a chain of linked correspondent banks to do so. These correspondent banks are not necessarily domiciled in the end users' jurisdictions and often use bridge currencies (eg the US dollar or the euro) to exchange the payer's currency into the payee's currency. As the length of this chain increases, so does the total processing time by intermediary banks, and additional funding is often needed to cover unpredictable fees incurred along the chain. The result is that payments become slower and more expensive.¹³ If a multilateral platform can replace some or all intermediaries and more directly connect the originating and beneficiary PSPs, it can help reduce costs and increase payment speed.

2.3.4 Weak competition

A multilateral platform may improve competition in a situation in which two PSPs are unable to send or receive payments to each other across borders (eg if correspondent banks serving that corridor are prohibitively expensive or unavailable) or do not have access to payment systems abroad. Establishing a

¹¹ A single currency platform would similarly need to achieve sufficient reach to reduce the risk of fragmented liquidity but likely on a lower scale than a multicurrency platform.

¹² For a more detailed discussion of these settlement models, see Annex D of the PFMI (CPSS-IOSCO (2012)).

¹³ Each additional intermediary in the payment chain prolonged the elapsed payment time by an average of three hours on SWIFT gpi in September 2020. However, fewer than 1% of payments involved more than two intermediaries (Nilsson et al (2022)).

multilateral platform could allow PSPs to reach each other directly and thus enable more PSPs to offer cross-border services in a particular corridor. PSPs may find onboarding a multilateral platform less burdensome than establishing separate correspondent banking relationships with multiple other banks. Similarly, PSPs may find joining a multilateral platform easier to accomplish than expanding to multiple jurisdictions and/or participating in several domestic payment systems.

On a cross-regional level, a widely used platform could serve as a single access point to a region and make it easier and cheaper for foreign financial institutions and other entities to transact with banks, other PSPs and end users in that region. This in turn may help mitigate the effects of de-risking correspondent banking relationships in certain cross-border payment corridors. Platforms should be carefully designed to create a level playing field between banks and non-bank PSPs so as not to disintermediate firms that currently provide efficient services at fair prices or raise new barriers for other platforms that seek to operate in the same region or in the same currencies. Furthermore, wider access to a multilateral platform could increase competition between payment providers, lower costs for end users and increase financial inclusion.

2.3.5 Complex processing of compliance checks

The platform could provide comprehensive monitoring and transaction screening tools to streamline compliance processes using a broader overview of the complete transaction chain to its advantage. In addition, platform operators can monitor more transactions than any single participant is able to, so they are in a superior position to detect anomalies. By offering these services, multilateral platforms could make it easier for participants to comply with AML/CFT regulation. However, identifying whether anomalies are associated with compliance breaches typically entails comparisons with relevant reference data, which participants in turn need to be able and willing to share. In some cases, platforms could streamline the AML/CFT compliance process by limiting participation to entities that are subject to tighter regulation, such as those with banking licences.

2.3.6 Limited operating hours

The operating hours of a multilateral platform must meet the needs and preferences of its participants and depend on the network model and use case. For example, if the platform is a hub entity for a hub and spoke system that is solely intended for cross-border payments within a single time zone, the operating hours of the spokes are likely already aligned, and it can suffice for the hub entity to be open during the same hours. However, if the spokes are distributed across time zones, the hub entity would likely need to extend its operating hours to ensure that a sufficiently long settlement window is available for cross-border payments among the spokes. A common platform that also settles domestic payments may need to extend its operating hours even further to align with domestic business hours. Multilateral platforms, particularly those with an intended global reach, might choose to operate close to 24/7/365 from the outset to avoid any potential misalignment of operating hours across time zones. Hence, multilateral platforms often mitigate the friction of limited operating hours, although such mitigation can increase operational costs (CPMI (2022b)).

3. Stocktake of multilateral platforms

In early 2021, the CPMI carried out a stocktake of existing and potential multilateral platforms. In late 2021 and early 2022, the CPMI engaged with platform operators and other entities to learn more about individual platforms. Collectively, these efforts revealed that, at the time the information was collected, 20 different cross-border payment systems could be classified as multilateral platforms. While this list is not

exhaustive, it forms the basis of this report's overview of the current landscape of multilateral platforms.¹⁴ The inclusion of a platform in this report does not represent and should not be construed as an endorsement of its products or services on the part of the CPMI, the BIS Innovation Hub, the IMF or the World Bank. This section describes the platforms across four dimensions: (i) their geographical scope, which is either regional or global; (ii) their market segment, which is either wholesale or retail payments;¹⁵ (iii) their type of currency arrangement, which is either single currency or multicurrency; and (iv) their network model, which is either common platform or hub and spoke (Table 2).

Of the nine regional wholesale platforms, four are RTGS systems for single currency areas that are owned and operated by the monetary authorities (including central banks) for those currencies.¹⁶ These platforms include: (i) ECCB-RTGS by the Eastern Caribbean Central Bank for the Eastern Caribbean dollar; (ii) STAR-UMEOA by the Central Bank of West African States for the West African CFA franc; (iii) SYGMA by the Bank of Central African States for the Central African CFA franc; and (iv) TARGET2 by the Eurosystem for the euro. Although they process cross-border payments between the jurisdictions within their currency areas, these four platforms share many similarities with national RTGS systems, the most important of which is that they also function as the primary systems for domestic wholesale payments.

The five remaining regional wholesale platforms were established through public initiatives to promote financial integration within their regions, and they are also owned and operated by public sector entities, though not necessarily by central banks. These include: (i) AFAQ, set up by the Gulf Cooperation Council to serve the Gulf region; (ii) EAPS, set up by the East African Community to serve the East-African region; (iii) REPSS, set up by the Central African Economic and Monetary Community to serve the Central African region; (iv) SADC-RTGS, set up by the Southern African Development Community to serve the Southern African region; and (v) SIP, set up by the Central American Monetary Council to serve the Central American region and the Dominican Republic. SADC-RTGS is a common platform run by the South African Reserve Bank, but as opposed to the four currency-area platforms, SADC-RTGS processes primarily intraregional cross-border payments denominated in the South African rand, while domestic payments are handled by the participating jurisdictions' national payment systems (eg BISS in Botswana).

Of the four regional retail platforms, Buna¹⁷ and PAPSS were established by the Arab Monetary Fund (AMF) and the African Export and Import Bank (Afreximbank), respectively. The AMF is a public sub-organisation of the Arab League, while Afreximbank is a public-private partnership. Buna has participants from 22 states in the Arab region, while PAPSS has a pan-African scope, aiming to cover the entire continent. P27 is a privately owned and operated clearing system in development for retail payments in the Nordic region. Contrary to the public sector initiatives, the P27 project was not established to pursue regional integration but rather to explore business opportunities, including cost reduction, from combining several national clearing systems.

TIPS is a fast payment system (FPS) for the euro among Eurosystem countries and might evolve from a single to a multicurrency platform. The European Central Bank, Bank of Italy and Sveriges Riksbank are currently exploring a possible cross-currency settlement service between TIPS and RIX-INST, which is based on the TIPS technical platform and operated by the Eurosystem. Depending on the design of the cross-currency service, the combined structure of TIPS and RIX-INST could also be classified as a multilateral platform.

¹⁴ The stocktake excluded international money transfer schemes as they often rely on correspondent banking arrangements for settlement. Although these schemes are multilateral in nature (eg remittance transfers from collection to disbursement often involve multiple PSPs and PSP agents), they are do not fall under this report's definition of a multilateral platform.

¹⁵ Wholesale payment systems (also known as large-value payment systems) typically handle large-value and high-priority payments, whereas retail payment systems typically handle a large volume of relatively low-value payments in such forms as cheques, credit transfers, direct debits and card payments. See the CPMI Glossary, www.bis.org/cpmi/publ/d00b.htm.

¹⁶ See World Bank (2014) for a detailed discussion, including drivers and benefits, of regional integration initiatives.

¹⁷ Buna also processes wholesale payments, albeit to a lesser extent than retail payments.

Examples of multilateral platforms¹

Table 2

Geographical scope	Market segment	
	Wholesale	Retail (including remittances)
Regional	<i>Single currency, common platform</i> <ul style="list-style-type: none"> • ECCB-RTGS (Eastern Caribbean) • STAR-UEMOA (West Africa) • SYGMA (Central Africa) • SADC-RTGS (Southern Africa) • TARGET2 (Europe) 	<i>Single currency, common platform</i> <ul style="list-style-type: none"> • TIPS (Europe)
		<i>Multicurrency, common platform</i> <ul style="list-style-type: none"> • Buna (Arab) • P27 (Nordics) • PAPSS (Africa)
	<i>Single currency, hub and spoke</i> <ul style="list-style-type: none"> • SIP (Central America) • REPSS (Central Africa) 	
	<i>Multicurrency, common platform</i> <ul style="list-style-type: none"> • AFAQ (Gulf states) 	
	<i>Multicurrency, hub and spoke</i> <ul style="list-style-type: none"> • EAPS (East Africa) 	
Global	<i>Multicurrency, common platform</i> <ul style="list-style-type: none"> • CLS • Project Dunbar^{*.2} • Project Jura^{*.2} • Project mBridge^{*.2} 	<i>Multicurrency, common platform</i> <ul style="list-style-type: none"> • Mastercard³ • Visa³
		<i>Multicurrency, hub and spoke</i> <ul style="list-style-type: none"> • Amplus^{*.4}

¹ The table includes multilateral platforms that were identified as part of the FoP stocktake survey. An asterisk (*) indicates that a platform is *not* in operation but being explored. The stocktake is not exhaustive as some multilateral platforms are excluded (eg EBA Clearing's EURO1 for wholesale payments, and STEP2 and RT1 for retail payments). The primary characteristics of each platform were used to categorise it. For example, platforms that are multicurrency per design, but only process one currency are categorised as single currency platforms, while platforms that process both wholesale and retail payments have been categorised based on their primary focus.

² Projects Jura, Dunbar and mBridge explore platforms using CBDC as a settlement asset. ³ Visa and Mastercard not only process card transactions but also non-card business-to-business (B2B) transactions, payroll and vendor payments, as well as international remittances.

⁴ Amplus explores building a global cross-border payment system targeted at remittances.

Source: CPPI survey.

The only three existing global platforms are all multicurrency common platforms. These include CLS, which settles wholesale FX trades,¹⁸ and two global four-party card schemes, Mastercard and Visa, which process cross-border and domestic payments primarily for the retail segment. CLS does not settle cross-border payments for goods and services but only the underlying payment instructions resulting from the trading of various FX products.¹⁹ Visa and Mastercard have for decades been two of the most important payment arrangements in the retail cross-border segment, processing large volumes of payments (mostly person-to-business (P2B) and business-to-business (B2B)) on their networks. Recently, these card schemes have launched services for other market segments, also based on clearing and processing (as opposed to settlement). Examples includes "Visa Direct" and "Mastercard Send", which are both intended for person-to-person (P2P) cross-border payments.

Amplus is a concept by the Deutsche Bundesbank for building a cross-border payment system targeted at remittances. The concept envisions that central banks are direct participants holding accounts in a global multicurrency system, which then enables domestic PSPs to participate indirectly and offer improved remittance services to their customers. Other key elements of Amplus are an addressability

¹⁸ See CPPI (2022c) for a comparison of CLS and other FX settlement arrangements.

¹⁹ Commonly traded FX products such as spots, forwards and swaps result in "two-way" payments, in which one party to the trade pays one currency and the counterparty pays another currency.

scheme and a know-your-customer (KYC) identifier to standardise compliance processes.²⁰ The three remaining entries are projects that explore cross-border payment systems using wholesale CBDC as their settlement asset. These are Project Dunbar, Project mBridge and Project Jura.²¹

In addition to the systems identified as multilateral platforms, the stocktake analysed other arrangements which are closely related to (but do not qualify as) multilateral platforms. Project Nexus by the BIS Innovation Hub Singapore Centre is a global-scale project that proposes linking the existing FPS of multiple jurisdictions using APIs rather than by establishing a common technical infrastructure.²² The stocktake also analysed MFS Africa, which enables PSPs (eg mobile money operators, money transfer operators, banks and other financial service providers) to leverage a single relationship with MFS Africa to send and receive cross-border payments to and from multiple jurisdictions via domestic or regional payment rails.²³

The stocktake provided anecdotal evidence on the uptake of some multilateral platforms. Apart from CLS, Mastercard, Visa and four platforms that serve single currency areas, the levels and growth rates of payment volumes on many multilateral platforms are low compared with the size and growth rate of the global cross-border payments market. This implies that most multilateral platforms have yet to reach their full potential. Increased public sector support and international coordination could help extend the geographical reach of existing platforms, for example, by introducing regional integration initiatives that create an impetus for new or expanded platforms.

4. Risks, barriers and challenges

Like other payment systems, multilateral platforms face a multitude of risks that they need to manage to operate safely and efficiently. Multilateral platforms that become systemically important (in one or more jurisdictions) also pose financial stability risks. The PFMI outline these risks and the measures to mitigate them as well as the responsibilities of regulators, supervisors and overseers (CPSS-IOSCO (2012)).

This section lists and discusses risks that are particularly important for multilateral platforms, including how certain risks may lead to barriers in establishing multilateral platforms and/or add to challenges in operating the platforms. The list of risks is not exhaustive; multilateral platforms face other risks, some of which also apply to payment systems in general.

4.1 Legal risk

Relative to domestic payment systems, cross-border operations of multilateral platforms may present greater legal risk due to interactions between multiple statutory and regulatory frameworks across jurisdictions. Legal risk is the risk of an unexpected application of a relevant law or regulation and can also

²⁰ For more information, see www.bundesbank.de/en/tasks/payment-systems/publications/amplus.

²¹ The potential for CBDCs to enhance cross-border payments is explored under BB 19, including by establishing CBDC-based platforms, and provides an overview of these projects, all by various BIS Innovation Hub centres, see CPMI (2022f).

²² The Nexus Scheme would still involve centralised governance arrangements, a key characteristic of multilateral platforms, and the Nexus Gateway is envisioned as a hub that connects existing FPS through payment messages or APIs. Nexus could be categorised as a multilateral platform at a later stage. BB 13 covers Project Nexus in more detail, see CPMI (2022d) and www.bis.org/about/bisih/topics/fmis/nexus.htm.

²³ MFS Africa can be characterised as a payment aggregator. Payment aggregators serve as bridges between domestic or regional payment, clearing and settlement infrastructures by acting as single access points to foreign PSPs. Payment aggregators thus facilitate interoperability and enable PSPs to gain access to large payment networks at low cost. In some cases, payment aggregators also offer value added services such as currency conversion and real-time transaction monitoring, as well as front-end solutions such as apps for remittances or business portals for payroll and vendor payments. Examples of other payment aggregators include Thunes, TerraPay and Tapsend.

arise if the application of the law is uncertain.²⁴ Multilateral platforms may find that their participating jurisdictions have differing protections for legal concepts like settlement finality and netting. In such cases, additional considerations may need to be taken into account to ensure that the platform's rules, procedures and contractual arrangements are enforceable in the participating jurisdictions.

Laws and regulations governing access to payment systems also vary across jurisdictions. In some cases, access criteria for domestic payment systems may be prescribed by law or statute, while in other cases, access for certain types of entity may be limited based on risk management considerations. A multilateral platform that relies on the access criteria of domestic payment systems may be constrained in the types of entity it can allow to participate.

Individual jurisdictions may impose additional regulatory requirements on foreign operators of multilateral platforms. These requirements may include domestic processing mandates, foreign equity caps and data residency rules that could cause uncertainty about how a platform's rules and regulations are applied and enforced domestically.²⁵

The types of legal issue described above can act as barriers to the establishment of multilateral platforms. In addition, regulatory limits or controls on foreign direct investments and residents' holdings of foreign currency may further exacerbate these barriers and/or constrain their design, particularly where multiple currencies are involved. Misaligned data frameworks (eg on data protection, privacy and localisation) may also be at odds with the value added services of multilateral platforms and could act as barriers to the development of new platforms.²⁶ However, the desire for stronger regional economic integration may catalyse efforts to align regulatory frameworks and mitigate some of these barriers.

Changes to the laws of the various jurisdictions in which a multilateral platform operates (or in which its participants are located) could change a platform's assessment of legal risk. For example, changes to domestic laws and regulations may limit the platform's ability to enforce claims on a defaulting participant's funds or may impact settlement finality in the case of insolvency of a participant. Changes in law, however, may also increase legal certainty. Close monitoring of local laws across the relevant jurisdictions, and early engagement with domestic authorities can be one way to identify legal risk.

4.2 Operational risk

Multilateral platforms operating across borders may face significant operational risks. Operational risk relates to deficiencies in information systems, internal processes and personnel, or disruptions that result in the reduction, deterioration or breakdown of services provided by an FMI.²⁷ A common platform, like any payment system, is vulnerable to a single point of failure or cyber attack causing an operational disruption. A hub and spoke system with its broader range and types of participating entity may present an even larger attack surface for cyber attacks and other operational failures. In both network models, incidents may be challenging to handle with many participants involved, so operational risks would need to be properly managed. Multilateral platforms may be able to pool the resources, skills and knowledge from multiple jurisdictions to offer better operational risk mitigation.

Any payment system that relies on third parties for certain services is exposed to the risk that its vendors, custodians, linked infrastructures or other service providers will be unable to perform as expected. Further operational complications for multilateral platforms may arise if its contracts and/or service level

²⁴ Principle 1 of the PFMI further elaborates on legal risk (CPSS-IOSCO (2012)).

²⁵ Such restrictions may also affect the ability of a "hub" to interoperate or link up with domestic "spokes" in other jurisdictions. Some jurisdictions may allow certain multilateral platforms which are authorised to operate in a different jurisdiction to operate in their own jurisdiction without obtaining additional authorisation. In the absence of such recognition, a platform may need to fulfil the relevant registration and licensing requirements in each jurisdiction in which it intends to operate.

²⁶ The interaction between data frameworks and cross-border payments is being reviewed under BB 6.

²⁷ Principle 17 of the PFMI further elaborates on operational risk (CPSS-IOSCO (2012)).

agreements are spread across many jurisdictions and are not fully enforceable in every jurisdiction. The peculiarities of operational risks for multilateral platforms can make it challenging (and potentially more costly) to operate such platforms. Identifying and assessing all potential sources of such risks (considering the interconnectedness of the multilateral platform as well as the number of jurisdictions and systems involved) during the design phase and on an ongoing basis can help mitigate this risk.

4.3 Illicit finance risks

All payment systems risk being used for illicit finance, including money laundering, terrorist financing and sanctions evasion. Multilateral platforms encompass a broad range of entities and could allow many different types of participant, which means that the specific risks and requirements that multilateral platforms face are likely to vary considerably.

Generally, sanctions compliance is broadly applied and includes responsibility for compliance by financial institutions. Respective competent authorities monitor sanctions compliance by financial institutions rather than by the multilateral platform. Separately from sanctions compliance requirements, financial institutions are required to (i) include necessary and accurate originator and beneficiary information on payments and related messages; and (ii) pass on information they receive with the transaction or related messages throughout the payment chain.²⁸ Risks in the cross-border context derive in part from the difficulties in identifying the beneficiary or the originator of a payment if they are from a foreign jurisdiction. This could be the case if the platform does not enforce consistent messaging or identification standards for its participants.

In theory, multilateral platforms have a broader view of transactions flowing between end users, and in some cases could be better positioned to identify fraud, AML/CFT violations, or potential sanctions evasion that could be difficult for a single PSP to detect.²⁹ However, in the hub and spoke model, the hub entity may not have much visibility into, or control over, activity initiated by its spokes where these spokes are independently functioning domestic payment systems. The hub entity may also not have much visibility into, or control over, indirect participants such as the end users of the spoke payment systems. Multilateral platforms could face reputational risk if they are used for payments related to money laundering, terrorist financing or sanctions evasion. Multilateral platforms would have to ensure the data integrity of payment messages throughout the payment chain to support compliance by its participants. In practice, while some platforms offer screening or other monitoring tools to support their participating financial institutions' own AML/CFT compliance (or plan to once they have sufficient transaction volumes), many platforms leave AML/CFT compliance to their participants.

4.4 FX and liquidity risk

Like other cross-border payment arrangements, multilateral platforms are also exposed to the risk of unexpected volatility in FX rates. This may have implications for participants' liquidity risk management if they are unable to obtain enough of a volatile currency for settlement.³⁰ A platform may choose to perform the currency conversion itself by offering FX rates that are fixed for a limited period. In this case, the platform would share the FX risk with participants and would thus need to manage the associated credit and liquidity risks.

A multilateral platform's ability to manage liquidity risk may be constrained relative to certain domestic systems. For example, due to either legal or operational constraints, there may be no monetary

²⁸ See the Financial Action Task Force's Recommendation 16 (FATF (2022)).

²⁹ Often a payment platform does not have access to details of a payment message such as the identities of the originator and beneficiary.

³⁰ Principles 7 and 12 of the PFMI further elaborate on liquidity risk and principal risk, respectively (CPSS-IOSCO (2012)).

authority that can provide intraday liquidity to the participants in either a business-as-usual or emergency scenario. Liquidity bridges between central banks and multilateral platforms may help solve this problem but they are currently unavailable.³¹ Their potential relevance to multilateral platforms depends on many factors, including how other available mechanisms are able to fulfil participants' liquidity needs as well as central bank appetite and risk management considerations.

FX and liquidity risks can make it more challenging to operate multilateral platforms relative to domestic systems, particularly if the platform processes multiple currencies. To mitigate these risks, a multilateral platform may opt to settle in a few, very liquid currencies. However, this choice could limit the usability of the platform for regional business. A platform might also require participants to fully pre-fund their accounts to initiate payment transactions or choose to settle on a deferred net basis rather than in real time to reduce liquidity demands.

4.5 General business risk

The ability of a multilateral platform to effectively address cross-border payment frictions depends, in part, on its viability as a going concern, including its ability to manage the risks and potential losses arising from its business operations. This includes the platform's ability to achieve network effects. For the most part, network effects are demand driven; PSPs may be more likely to join a platform with a greater number of participants, particularly if a significant portion of the PSPs' counterparties already participate on the platform.³² If several platforms serve a given region and are not interoperable, any single platform may find it difficult to achieve scale and realise the benefits of network effects. This form of fragmentation can be detrimental to the platforms' profitability and their effectiveness in enhancing cross-border payments.

Platforms that achieve economies of scale tend to have lower operating costs per transaction. Many of the largest costs of establishing and operating a platform are fixed and up-front, such as the initial investment in the payment infrastructure. These costs would vary depending on the platforms' model and specific design. For example, building a new centralised multilateral platform from scratch may be a significant project that can require large development and setup costs. Whereas, setting up a hub and spoke system might be a less significant undertaking, particularly within regions where payment infrastructures and legal frameworks have already started to converge. Large up-front costs and a lack of a large network of participants could make it difficult for a new multilateral platform to launch. This issue could be particularly acute in a market with a single or a few well established competitors, as participants of those competitors may be unlikely to want to switch platforms.

5. Considerations for increasing the role of multilateral platforms

Multilateral platforms have the potential to enhance cross-border payments but involve more complicated legal and operational issues that may exacerbate certain risks relative to domestic payment systems. Thus, any decisions or actions to increase the role of multilateral platforms should be based on prudent consideration of all relevant trade-offs, including not only the added risks relative to domestic systems but the full scope of benefits and risks relative to existing cross-border payment arrangements. These considerations vary depending on the current state of cross-border payment arrangements in a specific geographical region or for a specific payment system function, as well as on the purpose and chosen approach for expanding the use of multilateral platforms.

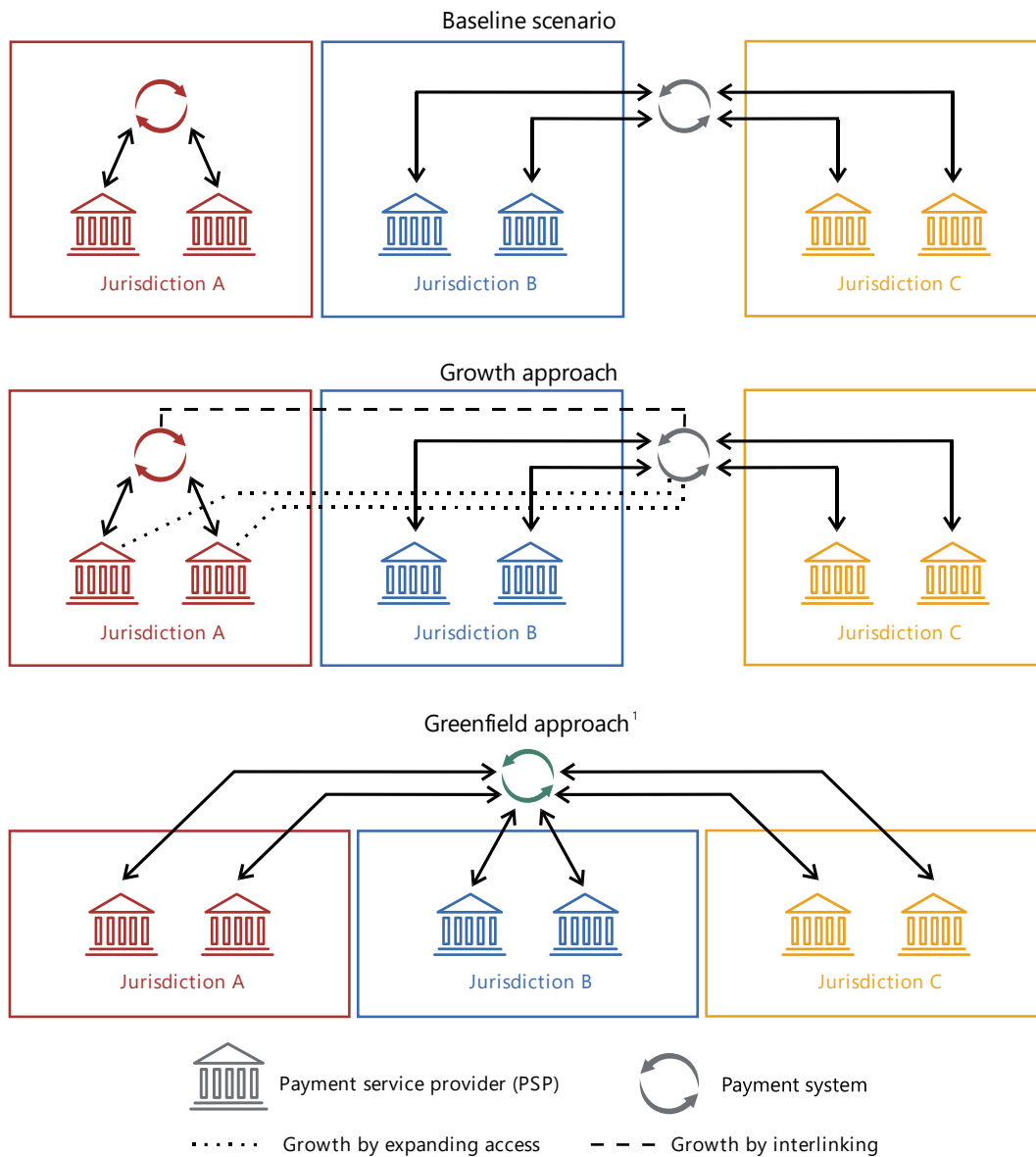
³¹ A liquidity bridge is a cross-currency intraday liquidity arrangement between two or more central banks. Liquidity bridges are further explored under BB 11, see CPMI (2022e).

³² Put differently, in early stages the value of the platform may increase with the number of participants, but these participants do not internalise the effect they have on the network and may not join.

As an illustrative example, consider a baseline scenario in which a domestic wholesale payment system exists in one jurisdiction A and a regional multilateral platform, also for wholesale payments, connects another two jurisdictions B and C (Graph 2). If the aim is to enable all participants across the three jurisdictions to reach each other via the payment systems (as opposed to via correspondent banking), two general approaches involve expanding the use of multilateral platforms, namely the growth approach and the greenfield approach.

Two approaches for increasing the role of multilateral platforms

Graph 2



¹ The greenfield approach is illustrated as replacing Jurisdiction A's domestic payment system. However, the greenfield approach could also retain the domestic payment system as illustrated in the growth approach.

Source: CPML.

The growth approach involves increasing the reach of an existing multilateral platform either by providing direct access to participants based in Jurisdiction A (Graph 2, middle panel, dotted lines) or by interlinking with the domestic payment system of Jurisdiction A via a direct access point or bilateral link (Graph 2, middle panel, dashed lines). The greenfield approach involves establishing a new multilateral platform either as a hub entity to create a hub and spoke system with the existing infrastructures as spokes

or as a common platform to replace the existing infrastructures and provide direct access to all participants (Graph 2, bottom panel).

The two approaches also apply in principle to other baseline scenarios and purposes (eg to enable fast cross-border retail payments within a region or to reduce risks in wholesale FX transactions for EMDE currencies). The rest of this section outlines general considerations for multilateral platforms, as well as considerations that pertain specifically to each of these approaches, and suggests possible roles for the public sector in promoting the development of multilateral platforms.

5.1 General considerations

The opportunities for multilateral platforms to enhance cross-border payments differ between the wholesale and retail market segments. Broadly speaking, existing multilateral platforms tend to process wholesale payments between jurisdictions in economically integrated areas, whereas new initiatives for multilateral platforms tend to focus on retail payments. The presence of other cross-border payment arrangements, and how they would coexist with a multilateral platform in each market segment, are important factors in the success of a multilateral platform. Some geographical regions may, in turn, be characterised by higher barriers and challenges than others.

New technologies may provide an impetus for existing multilateral platforms to improve their services and for new multilateral platforms to be established, thus enhancing competition. At a global level, only a few private sector-led multilateral platforms exist, which leaves significant room for new global competitors to enhance cross-border payments, specifically by achieving greater reach in EMDEs, offering payments processing in EMDE currencies and focusing on unbanked users.

Public sector entities could consider establishing a settlement infrastructure for cross-border payments as a public good. For instance, the Amplus proposal envisions an international retail payment settlement infrastructure operating as a hub, with central banks serving as spokes linking different regional payment systems in order to reduce costs and processing times for remittances.

By expanding the choice of settlement currency and settlement bank (central banks or designated commercial banks), a platform could enable PSPs to send and receive payments in local currencies as well as international currencies through a single relationship between the multilateral platform and the settlement bank. Cross-currency capabilities could further increase the attractiveness and efficiency of multilateral platforms. For thinly traded EMDE currencies, liquidity may continue to be an issue, as private liquidity providers may be hard to find and/or may charge a large premium. Central banks could become active as liquidity providers of their domestic currencies (as envisioned in the Amplus initiative) but may be reluctant to take on FX risks for some currencies. A multilateral platform could also implement liquidity optimisation mechanisms to maximise intraday liquidity in all supported currencies.

Multilateral platforms may aim to operate as close to 24/7/365 as possible to ensure settlement among participants across many time zones. However, this objective may have to be reconciled with the operating hours of the RTGS systems of participating countries and adjustments may be necessary, particularly in the case of a hub and spoke system with domestic RTGS systems as the spokes. Operating across multiple sites (possibly in multiple regions) may be necessary in order to provide sufficient contingency in case of blackouts or natural disasters. However, this could increase operating costs.

A platform may also offer ancillary services that go beyond mere clearing and settlement, such as proxy lookup databases and pre-validation services. These services enable service levels and user experience that match those of domestic payments, thereby helping to reduce the gap and create a seamless experience. However, each additional service may lead to additional complexity and costs, as well as potential regulatory adjustments in the participating countries (eg data protection for proxy lookup services etc). Access to the platform via APIs could also be part of the considerations. Furthermore, AML/CFT monitoring could be offered by the platform, although this would depend on the ability and willingness of the direct participants to share relevant data with the platform operator.

5.2 Considerations specific to the growth approach

The growth approach is premised on the notion that existing multilateral platforms provide a foundation to address current gaps and leverage new opportunities in cross-border payments. To realise the full potential of existing platforms, their reach could be extended to PSPs in previously unconnected jurisdictions, in addition to enhancing their design and operations. Extended reach can be achieved by integrating with new markets or adopting new currencies, but this might be challenging in certain institutional setups, so the growth approach also includes simply granting PSPs access to the platform even if they are based in jurisdictions that normally fall outside the scope of the public or private sector entity that owns or operates the platform. A special case of this approach is that TIPS, the Eurosystem's instant payment system, provides the technical platform for RIX-INST, Sveriges Riksbank's instant payment service. RIX-INST has settled payments in Swedish krona using the TIPS platform since May 2022.³³

Another way to grow a multilateral platform is by interlinking to other platforms or domestic payment systems. A potential solution based on the single access point model (ie through an entity directly participating in the platform) may only have a limited impact on increasing global reachability but could contribute to addressing corridor-level inefficiencies. Bilateral links are being actively explored and implemented. For example, Buna and TIPS demonstrated in a feasibility study how innovative capabilities (eg real-time processing) can be supported through the interlinking of their platforms. Furthermore, Buna signed memoranda of understanding with JoPACC (Jordan) and NPCI (India) to further enhance cross-border payments. Although not strictly multilateral platforms, payment aggregators provide scalable solutions that effectively extend the reach of domestic and regional payment systems without incurring new development costs for participants (and leveraging APIs to reduce operating costs).

5.3 Considerations specific to the greenfield approach

The greenfield approach involves building a new common platform or a hub entity to form a hub and spoke system, where the spokes might be domestic payment systems and/or other multilateral platforms. In addition to establishing a technical infrastructure, the greenfield approach may foster the alignment of aspects such as settlement finality, liability regimes and participant onboarding through common rules or a scheme managed by a single governing entity.

In working with many stakeholders, a new multilateral platform may have to consider models that ensure broader representation in decision-making and the inclusion of all relevant stakeholders. When determining the overarching governance structure, diverse and potentially conflicting legislative and regulatory frameworks must be considered, including PSP authorisation/licensing frameworks, and any constraints regarding the choice of governing law.³⁴ Divergence in implementation of AML/CFT standards across participating jurisdictions may limit the openness and reach of a multilateral platform initiative. While the implementation of technologies or other solutions to streamline compliance processes may increase the global reach of platforms, it is possible that without alignment in implementation of AML/CFT standards, PSPs in jurisdictions with diverging frameworks may not be able to participate in such global platforms.

While new technologies may entail different degrees of decentralisation of both a payment system's operations and governance, current international standards set expectations for the governance arrangements of systemically important FMIs, which must provide clear and direct lines of responsibility and accountability, and clearly specify the roles and responsibilities of the board of directors (or equivalent)

³³ Instant payments in Danish kroner may also be available by November 2025 at the latest, when Danmarks Nationalbank is scheduled to join TIPS.

³⁴ See paragraph 3.1.11 in the PFMI: "The FMI and its participants should be aware of applicable constraints on their abilities to choose the law that will govern the FMI's activities when there is a difference in the substantive laws of the relevant jurisdictions" (CPSS-IOSCO (2012)).

and its management. Furthermore, depending on their design, new technologies may increase a multilateral platform's reliance on (a greater number of) service providers/third parties for its operations (while at the same time potentially reducing dependence on any single provider). New initiatives would need to govern the relationship with these providers adequately and remain accountable.

A multilateral platform aspiring to achieve global reach would likely entail complex governance arrangements. While regional multilateral platforms are usually spearheaded or even operated by regional institutions, it might be more challenging for global platforms to obtain the same level of support from international organisations.

Furthermore, offering PSPs the opportunity to access multiple markets via a regional or global platform can improve the market for international remittance services. International remittances are among the large-volume use cases that can be leveraged to advance financial inclusion, which is especially relevant for EMDEs that tend to be net receivers of remittances (CPMI-World Bank (2016)).

Establishing a global infrastructure from scratch would entail relatively high costs, which include expenses for coordinating the participating parties. The costs and coordination efforts could increase with the size of the platform and its reach. For a global platform, such costs may be significant, and a hub and spoke solution could represent the more cost-effective option due to the reduced number of parties initially involved.

The choice of currency arrangement is a critical input to the establishment of a global platform, and it would likely involve global reserve currencies such as the euro or US dollar given the availability of these currencies in most regions. Furthermore, with the emergence of digital forms of money, both public (eg CBDCs) and private (eg stablecoins), a new multilateral platform may need to settle not only in multiple currencies but in several types of assets. A hypothetical global infrastructure would coexist with other multilateral platforms and cross-border payment arrangements as well as a variety of domestic payment systems. Interoperability would therefore be central to the design of such a platform. Finally, a global multilateral platform should not harm competition and should ensure access to its services by a wide range of national and international PSPs and support a variety of payment schemes.

5.4 Potential roles for the public sector

Public sector entities have traditionally performed three roles in payments, namely as (i) catalysts; (ii) regulators, supervisors and overseers; and (iii) operators. This subsection describes how the public sector in each role can promote and support the development of a multilateral platform regardless of its technical design or ownership structure.

An environment that enables or catalyses innovation is a key factor in the success of a multilateral platform. This is the main responsibility for the public sector in its role as catalyst. Multilateral platforms have often benefited from broad political support and/or market incentives across jurisdictions to successfully launch and operate. Public institutions could help foster development of multilateral platforms, should that be desirable, by developing a global vision and formulating their expectations through guidelines or mandates for multilateral platforms. Furthermore, the public sector could actively coordinate market incentives and welcome new initiatives. For example, central banks can leverage existing public-private industry groups to convene a broad selection of stakeholders. Furthermore, the public sector could assist in attracting enough participants for the platform to reach a scale that enables it to take advantage of network effects.

Efficient cross-border payment arrangements may have positive externalities that their private sector providers do not fully internalise. For example, multilateral platforms would benefit from network effects but achieving the necessary scale takes time, and so private sector providers may face challenges in fully recovering their costs in the short or medium term. Public sector seed financing for developing multilateral platforms could make their provision more attractive for private sector stakeholders. As with

the public-private cooperation that helped launch CLS, public-private partnerships or public sector involvement in the governance structure may help to overcome inertia.

As regulators of payment systems, public sector authorities are in a position to frame the vision of multilateral platforms within regulatory standards. As noted above, a multilateral platform may require a high degree of legal and regulatory coordination (including on data frameworks) as well as coordination to develop a well founded and enforceable legal basis. The public sector could assist in setting up that framework including possibly adjusting domestic regulation accordingly. This may in turn increase the overall costs and lengthen the timeline for the development of the new multilateral platform.

Furthermore, risks can arise for the operation of such a platform if the supervisory complexity is not appropriately addressed, and responsibilities are not clearly defined. However, greater transparency for the oversight authorities due to processing via a central platform or hub and the movement of remittance settlement from unregulated to regulated channels, possibly leading to enhanced data quality, could provide benefits for public authorities and decrease risks.

A multilateral platform requires comprehensive oversight that takes into consideration the fact that a disruption in the multilateral platform's operations may affect participants and central banks in several jurisdictions. Thus, a multilateral platform may require establishing new cooperative oversight and supervisory arrangements, and there are precedents for such a setup. For example, CLS is overseen by the CLS Oversight Committee, an international cooperative oversight arrangement comprising the 18 central banks whose currencies are settled in CLS, as well as five national central banks from the euro area.

The complexity of these arrangements would be commensurate to the number of relevant jurisdictions involved. While the specific details of the oversight arrangement would vary, participating authorities would likely need to agree on which jurisdiction or authority would serve as lead overseer and identify a mechanism for sharing information. Depending on the multilateral platform design, determining authorities' interest in the oversight and regulation of a global multilateral platform may pose challenges.

Due to the network effects in payments and high initial costs forming a market entry barrier, a multilateral platform may develop a high degree of market concentration. In addition, it might also crowd out other arrangements. Therefore, it would be critical for the public sector to closely monitor its establishment and evolution, to ensure that participation requirements and pricing policies support fair and open access, and governance arrangements uphold policy objectives of fair competition and interoperability.

Finally, a multilateral platform may affect the operational role of the public sector. In the case of a hub and spoke platform with central bank systems as spokes, central banks may need to adjust some combination of their operating hours, messaging standards and access criteria. This could in turn affect the costs of these systems, possibly creating a disincentive for public operators to join a global platform. If the public sector is to operate a global multilateral platform, more significant changes in central banks' operational role may be required (including risk tolerance and risk management), which authorities may be reluctant to undertake. In addition, the public sector should always continue to follow the overarching principle that public initiatives should avoid crowding out private ones if sound governance and fair competition can be guaranteed.

Public sector platform operators may also explore setting out the rationale, conditions and safeguards that could enable PSPs of a non-member jurisdiction to access the services of a multilateral platform, in cases where legislative and regulatory frameworks allow this possibility. Depending on the design of the multilateral platform, central banks may also play a role as settlement agents, providers of accounts and other banking services and/or may provide liquidity bridges to ensure the flow of sufficient liquidity in the supported currencies.

6. Conclusion

Multilateral platforms could play a key role in alleviating the frictions of cross-border payments and achieving the global targets for cost, speed, transparency and access (FSB (2021)). However, risks, barriers and challenges could limit their potential or even hinder their establishment in the first place. While this report does not present a blueprint for a new multilateral platform, it provides an overview of the key considerations around establishing such a platform.

Although several multilateral platforms are in operation or in development today, most are regional in scope and may face challenges in extending their reach for a variety of reasons. This report shows that business model considerations, lack of demand for services and/or weak public sector support for establishing multilateral platforms are among the barriers that could limit multilateral platforms' potential to enhance cross-border payments.

There are two possible approaches to increasing the role of multilateral platforms in global cross-border payments. The first approach is to extend the reach and enhance the functionality of existing regional platforms. This approach could entail broadening participation in the platform either by extending access to foreign entities or through interlinking with other domestic systems or regional platforms. The second possible approach entails developing new platforms with extended reach from the outset, leveraging the latest technology and common standards. In either case, increasing the role of multilateral platforms should consider a broad range of issues, including the types of friction that could be addressed, as well as the risks and other barriers that would need to be overcome.

Increased public sector involvement can help address some of the risks, barriers and challenges discussed in the report under both scenarios. Especially in the startup phase, a new multilateral platform will require decisive public leadership. As existing platforms evolve and new platforms emerge, platform operators and authorities are likely to face new questions about the potential of multilateral platforms and how best to harness it. Payment system innovation, such as increased adoption of FPS and the development of CBDCs, could increase the public sector's interest and involvement in multilateral platforms.

In anticipation of future opportunities, authorities could conduct further analytical, experimental and policy work on new payment arrangements. This could improve their understanding of the potential technical improvements that such arrangements can bring, while considering the challenges they face and risks they pose to existing payment arrangements. This may help guide the efforts of payment system operators and authorities contemplating the establishment of multilateral platforms in specific scenarios. Scenarios could include, for example, expanding an existing multilateral platform to additional jurisdictions, currencies and participants, or building a new multilateral platform for cross-currency fast payments or CBDC payments in a specific region or globally.

The exchange of information and experiences could provide relevant stakeholders with practical perspectives, along with a more in-depth understanding of the key elements that need to be considered among interested parties (including central banks) that are upgrading existing or developing new multilateral platforms. Importantly, this exchange could inform planning decisions given the potentially high startup costs, and lay the foundations for aligning divergent legal, regulatory and oversight frameworks, AML/CFT compliance and governance arrangements.

References

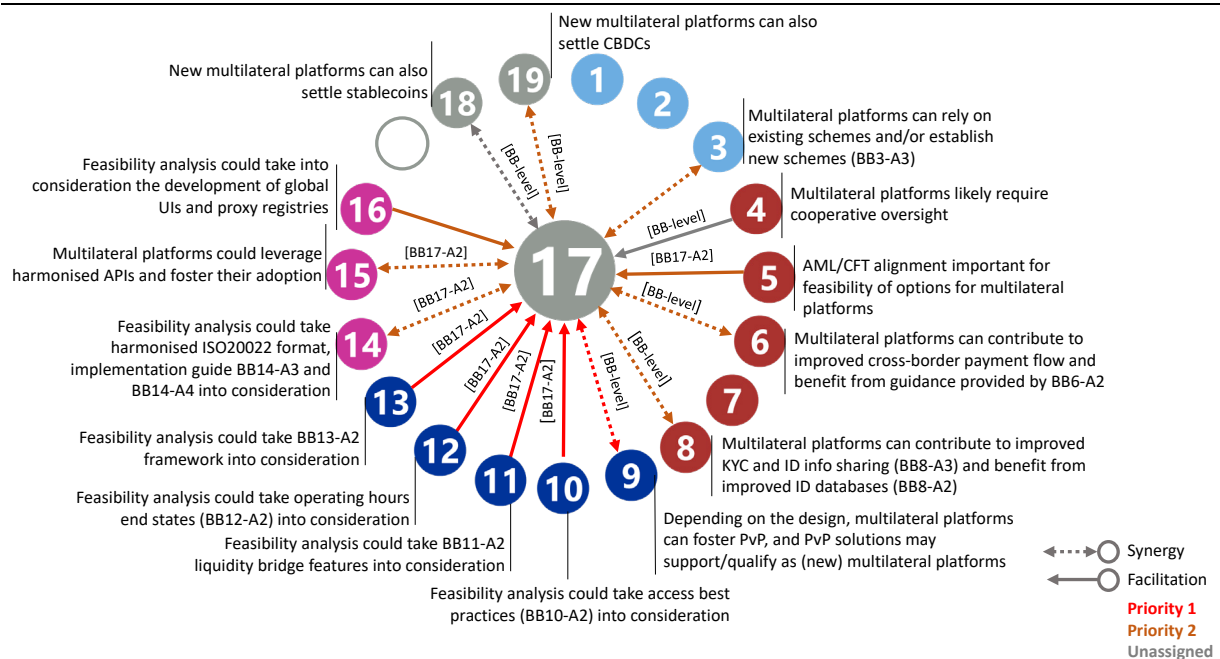
- Committee on Payments and Market Infrastructures (CPMI) (2018): *Cross-border retail payments*, February.
- (2020a): *Enhancing cross-border payments: building blocks of a global roadmap*, July.
- (2020b): *Enhancing cross-border payments: building blocks of a global roadmap – technical background note*, July.
- (2022a): *Can multilateral platforms improve cross-border payments?*, July.
- (2022b): *Extending and aligning payment system operating hours for cross-border payments*, May.
- (2022c): *Facilitating increased adoption of payment versus payment (PvP)*, May.
- (2022d): *Interlinking payment systems and the role of application programming interfaces: a framework for cross-border payments*, July.
- (2022e): *Liquidity bridges across central banks for cross-border payments*, September.
- (2022f): *Options for access to and interoperability of CBDCs for cross-border payments*, July.
- Committee on Payment and Settlement Systems and Technical Committee of the International Organization of Securities Commissions (CPSS-IOSCO) (2012): *Principles for financial market infrastructures*, April.
- Committee on Payments and Market Infrastructures and World Bank (CPMI-World Bank) (2016): *Payment aspects of financial inclusion*, April.
- Financial Action Task Force (FATF) (2022): *International standards on combating money laundering and the financing of terrorism & proliferation – the FATF recommendations*, March.
- Financial Stability Board (2020a): *Enhancing cross-border payments – Stage 1 report to the G20*, April.
- (2020b): *Enhancing cross-border payments – Stage 1 report to the G20: technical background report*, April.
- (2020c): *Enhancing cross-border payments: Stage 3 roadmap*, October.
- (2021): *Targets for addressing the four challenges of cross-border payments – final report*, October.
- Nilsson, T, R Bouter, M Van Acoleyen and L Cohen (2022): *SWIFT gpi data indicate drivers of fast cross-border payments*, February.
- World Bank (2014): *Guidelines for the successful regional integration of financial infrastructures*, January.

Appendix 1: Key interdependencies with other building blocks

The various building blocks underpinning the five focus areas of the G20 cross-border payments programme have interdependencies. This means, in addition to bringing notable improvements to cross-border payments individually, the contributions of the building blocks are likely to become most significant when deployed in a coordinated manner. BB 17 has interdependencies with most of the other BBs in the programme (Graph A1).

Overview of interdependencies between building blocks

Graph A1



Source: CPML.

While BB 17 (and the other building blocks under focus area E) is exploratory in nature, it largely builds on the same foundations as existing payment infrastructures and arrangements (focus area C). Not only can multilateral platforms leverage improvements to existing payment infrastructures, but they may also provide a multi-jurisdictional solution to achieve common objectives. Focus area C building blocks are either instrumental to building block 17 or there are mutual synergies, for example:

- Multilateral platforms can benefit from existing and new/proposed PvP arrangements (building block 9) or may themselves provide such arrangements particularly in retail use cases, including remittances, and expand PvP in EMDE currencies.
- The design of multilateral platforms can incorporate best practices for jurisdictions and payment system operators conducting a self-assessment with the aim of expanding access to key payment systems (building block 10).
- Multilateral platforms could increase industry appetite for facilities that allow surplus central bank liquidity to be rotated between currencies more easily (including liquidity bridges, building block 11). Under certain circumstances, liquidity management in multilateral platforms can also benefit from the availability of liquidity bridges.
- Overlapping/extended operating hours across multiple jurisdictions (building block 12) can pave the way for increasing the efficiency and time period for settlement in new or existing multilateral platforms. New global multilateral platforms would be expected to operate 24/7 or, as positive

network externalities accrue through the addition of more currencies in different time zones, adopt an incremental approach to a 24/7 operating schedule.

- Interlinking arrangements (building block 13) could act as enablers of new multilateral platforms, to the extent that they may represent a first step on an integration path leading to a common infrastructure and set of rules.
- Furthermore, the potential benefit of (new) multilateral platforms will be enhanced by the progress made in other focus areas (particularly A and D) to the extent that this leads to removing or mitigating barriers to the emergence of new multilateral platforms as well as paving the way for safer and more efficient multilateral platforms. For instance:
 - Alignment of regulatory, supervisory and oversight frameworks across jurisdictions (building block 4) can contribute to lowering institutional barriers and mitigating legal risks as well as enable approaches to increasing the role of multilateral platforms. Safe and efficient multilateral platforms require cooperative oversight arrangements.
 - A consistent and comprehensive application of AML/CFT standards (building block 5) can facilitate transaction processing in the context of multilateral platforms and enhance their efficiency. The design of multilateral platforms can incorporate features/services to streamline AML/CFT compliance.
 - The design of multilateral platforms needs to take into account restrictions on cross-border data flows and data storage (building block 6). The adaptation of current frameworks and business rules to facilitate improved cross-border data flows and information-sharing can contribute to enhancing multilateral platforms' operations.
 - Shared or interoperable customer due diligence (CDD) infrastructures (under building block 8) that are made available to the participants in multilateral platforms would allow them to meet their CDD obligations in a cost-effective way, thereby contributing to increasing the attractiveness of multilateral platforms.
 - Harmonised API protocols (building block 15) can enhance multilateral platforms' network arrangements by facilitating technical connections, and can be leveraged for additional functionalities.

Regarding building blocks under focus area A, although building block 17 is likely to be on a longer trajectory to implementation as compared with other building blocks, if and when implemented – and subject to adequate reach – it might have a direct impact on agreed targets (building block 1). Also, the design of multilateral platforms can incorporate common features of cross-border payment service levels (building block 3).

Finally, interdependencies may also occur within focus area E (building blocks 17, 18 and 19). These interdependencies are embedded in the definition of a multilateral platform, which is agnostic as to the settlement asset(s) and, in the future, may result in some degree of convergence between (the scope of) BBs under focus area E (ie multilateral platforms are able to settle in CBDCs). More broadly, the degree and forms of coexistence between these arrangements in the future cross-border payments landscape will require further exploration.

Appendix 2: Composition of the Future of Payments Working Group (FoP)

Chair

Sveriges Riksbank	Cecilia Skingsley [until July 2022]
-------------------	-------------------------------------

Members

Central Bank of Argentina	Luis D'Orio
Reserve Bank of Australia	Chris Thompson Cameron Dark
National Bank of Belgium	Filip Caron [until October 2021] Axel Van Genechten [since October 2021]
Central Bank of Brazil	Lucio Oliveira Emerson Schmitz
Bank of Canada	Alejandro Garcia Umar Faruqi* Scott Hendry
People's Bank of China	Changchun Mu Yuan Lyu
European Central Bank	Andrea Pinna Arnaud Mehl
Bank of France	Claudine Hurman Anne-Catherine Bohnert
Deutsche Bundesbank	David Ballaschk* Inga Schultze
Hong Kong Monetary Authority	Nelson Chow Yvonne Tsui Jessica Szeto
Reserve Bank of India	Paresh Chauhan Pritam Kundu
Bank of Italy	Giuseppe Bruni** Michela Tocci* Ferdinando Del Vecchio
Bank of Japan	Masami Inoue Naoto Shimoda
Bank of Korea	Jaemin Ryu Sang Hyuk Lim
Netherlands Bank	Peter Wierts Marc van der Maarel

Central Bank of the Russian Federation***	Anastasia Yanovskaya [until February 2022] Boris Minin [until February 2022]
Saudi Central Bank	Mohannad Alshehri Khalid Alotaibi
Monetary Authority of Singapore	Tze Hon Lau Chan Shu Ying
South African Reserve Bank	Annah Masoga Pearl Malumane
Bank of Spain	José Manuel Marqués
Sveriges Riksbank	Dilan Ölcer Johanna Stenkula von Rosen André Reslow
Swiss National Bank	Benjamin Müller Loriana Crasnic
Central Bank of the Republic of Türkiye	Büşra Ercan Baran Aytaş
Bank of England	Christina Segal-Knowles [until July 2022] Emma Butterworth
Board of Governors of the Federal Reserve System	David Mills Jacqueline Cremos* Jean Flemming
Federal Reserve Bank of New York	Joey Patel John Rutigliano
Observers	
Bank for International Settlements	Raphael Auer
Basel Committee on Banking Supervision	Stefan Hohl
Financial Stability Board	Jefferson Alvares Kieran Murphy
Financial Action Task Force	Ken Menz
International Monetary Fund	Tommaso Mancini-Griffoli Gabriel Soderberg
World Bank Group	Maria Teresa Chimienti* Ahmed Faragallah
BIS Innovation Hub	Codruta Boar

Secretariat

CPMI Secretariat

Anneke Kosse
Thomas Nilsson*
Martynas Pilkis
Carlos Sosa*

The FoP's work has also benefited from the contributions and support provided by Victoria Appia*, Thomas Argente, Sonja Davidovic*, Ben Dyson, Marc Glowka*, Federico Grinberg*, Agnija Jekabsone*, Thomas Lammer, Sishush Maru*, Ilaria Mattei, Anders Mølgaard Pedersen*, Harish Natarajan and Gynedi Srinivas.

* Member of the drafting team

** Lead of the drafting team

*** The Central Bank of the Russian Federation's access to all BIS services, meetings and other BIS activities has been suspended.

Appendix 3: Acronyms and abbreviations

AML/CFT	anti-money laundering and combating the financing of terrorism
AFAQ	Arabian Gulf System for Financial Automated Quick Payment Transfer
AMF	Arab Monetary Fund
API	application programming interface
BB	Building Block of the G20 cross-border payments programme
BIS	Bank for International Settlements
CBDC	central bank digital currency
CDD	customer due diligence
CPSS	Committee on Payment and Settlement Systems
CPMI	Committee on Payments and Market Infrastructures
DNS	deferred net settlement
EMDE	emerging market and developing economy
FATF	Financial Action Task Force
FMI	financial market infrastructure
FSB	Financial Stability Board
FoP	Future of Payments Working Group
FX	foreign exchange
IMF	International Monetary Fund
KYC	know your customer
IOSCO	International Organization of Securities Commissions
PSP	payment service provider
PvP	payment versus payment
PFMI	Principles for financial market infrastructures
RTGS	real-time gross settlement
REPSS	regional payment and settlement system
SADC	Southern African Development Community
STP	straight through processing