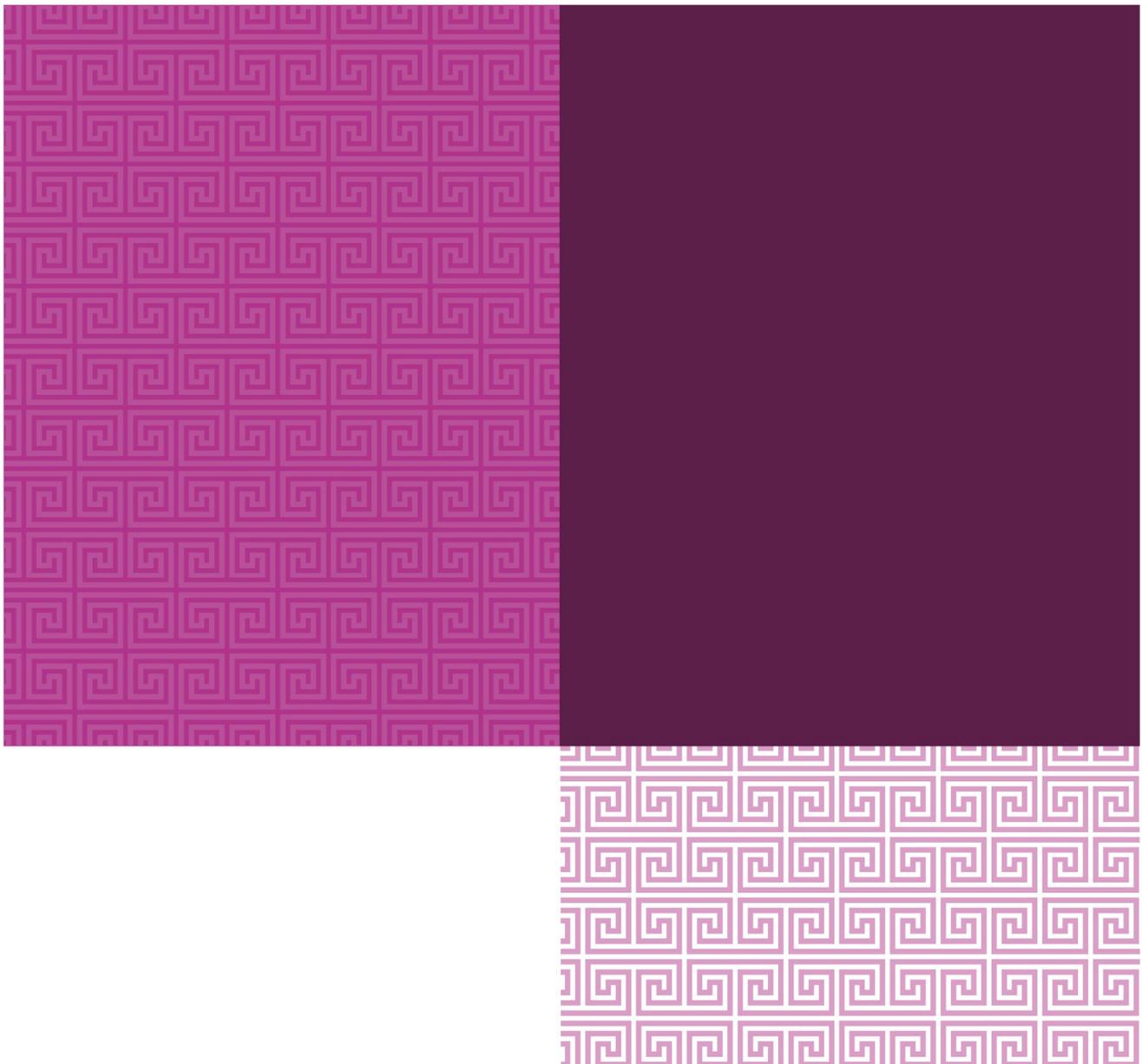


Background guide to proposed RTGS functionality: Synchronisation

June 2019





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Following an industry-wide consultation, the Bank announced in May 2017 that it would be replacing the Real-Time Gross Settlement (RTGS) service. This is a crucial piece of national infrastructure delivering final and risk-free settlement for the UK's high value and time critical payments.

The renewed RTGS service will deliver a range of new features and capabilities, including increased resilience, greater access, wider interoperability, improved user functionality and strengthened end-to-end risk management. The planned capabilities were set out in the RTGS Renewal Blueprint. **Synchronisation** is one of those planned capabilities, designed to enable the renewed service to offer access to central bank money settlement to an emerging generation of firms.

For more information on RTGS and the Renewal Programme, please see the "Further Reading" section below.

What is synchronisation?

At the heart of synchronisation is the concept of "atomic settlement". This means that the transfer of two (or more) assets is linked in such a way as to ensure that the transfer of one asset occurs if and only if the transfer of the other asset (or group of assets) also occurs. So the outcome of synchronised settlement is either all parties successfully exchanging the assets, or no transfer taking place.

Synchronisation functionality could enable the settlement of a payment in sterling central bank money to be coordinated with the transfer of one or more other assets. The other asset(s) could either be (a) another payment in sterling central bank money; (b) funds on another payments ledger, such as an RTGS service in another currency; or (c) an asset recorded on an external asset ledger.

Why is it useful?

Consider a scenario where the owner of an asset (e.g. a house) wants to sell that asset to another party. The seller doesn't want to transfer ownership of the asset to the buyer until they are certain that they will receive the payment. And the buyer doesn't want to transfer the payment to the seller until they are satisfied that ownership of the asset will be transferred. So which of these should happen first?

Currently, RTGS does not have the functionality to allow parties to make one movement conditional on another, and alternative mechanisms exist to reduce the risk of one party owning both the asset and the funds. For example, in housing transactions, funds can be transferred via conveyancers to avoid the scenario where the seller holds both the house and the payment for it.

But payments involving multiple ledgers and supporting asset transfers can be costly, complex and slow. The longer a transaction takes to complete, the more settlement and price risk may accumulate. Synchronisation could allow conditional transfer of both parts of a transaction, by enabling a third party to co-ordinate the earmarking and then release of funds when appropriate conditions have been met.

Through our engagement on this topic, firms have indicated that there are current processes where synchronisation could offer a reduction in frictions and costs - including reducing intra-day exposure in security markets, addressing the risk and cost associated with housing transactions and reducing liquidity inefficiencies associated with prefunding during corporate actions. The functionality could offer participants, service providers and end users the potential for a significant reduction in such risks as well as greater speed, efficiency and transparency of settlement. See Box 1 for detail on two potential use-cases.

Box 1. Two synchronisation use cases in focus

Cross-border payments

The development of synchronised settlement could help to reduce frictions in cross-border PvP and DvP settlement. Currently in such transactions, one party has to commit before the other, resulting in counterparty risk. Mitigations typically involve insurance mechanisms, one-sided protection or legal escrow, posting cash collateral and trust services. Synchronisation could limit counterparty risk by ensuring atomic settlement, thereby reducing the need for expensive intermediation.

Outside this synchronisation work, the Bank is actively engaging with central banks and industry partners from around the world to study current frictions and potential improvements in cross-border payments. This includes exploratory work with the Monetary Authority of Singapore. Whilst part of the work is experimental, we will incorporate any findings into the renewed RTGS service where relevant. Further updates on this work stream will be provided in due course.

Housing transactions

We have heard that significant innovation is taking place in the housing market to improve the efficiency and speed of housing transactions and reduce associated costs and risks. Much of this innovation is in the payments space.

Currently, successful property purchase relies on a number of parties coordinating fund movements to ensure that the transaction is completed on the agreed date and time. These fund movements include payments to conveyancers and HMRC as well as the payment for the property. The coordination challenge is amplified when a number of housing purchases are connected in a chain. Alongside a mechanism to deliver electronic settlement of housing assets, synchronisation could enable the implementation of a true DvP model of settlement for property transactions in the UK, reducing the level of complexity and cost in the process along with the level of risk.

Doesn't atomic settlement already happen in RTGS?

At present there are two market infrastructures that use RTGS to help achieve atomic settlement in sterling. The CLS service offers Payment versus Payment¹ (PvP) settlement of FX transactions, and the CREST service operated by Euroclear UK offers Delivery versus Payment² (DvP) settlement of sterling securities. By introducing synchronisation functionality, we are seeking to expand the benefits of atomic settlement in central bank money to a wider and more varied set of use cases.

Who will be able to use synchronisation?

The intention of offering synchronisation functionality is to cater to the demand for access to RTGS for a new generation of participants. The main parties involved in a synchronised transaction are:

- **Synchronisation operators (SOs)** which are third parties (independent of the Bank) which provide synchronisation services to settlement participants and end users. We want the functionality to be designed so that it can be used by multiple SOs with different models or use cases, rather than any single provider.
- **Settlement participants** which hold accounts in RTGS. Settlement participants will not be required to use synchronisation functionality. They will be able to opt in to using one or more SOs according to their own business requirements.
- **End users** whose transactions are being synchronised using the service.

Synchronisation should be designed to enable effective collaboration between these parties. Table 1 shows the roles we think the three main actors in a synchronised transaction would have.

¹ A mechanism which ensures that a final transfer of one currency occurs if and only if a final transfer of another currency or currencies takes place.

² A mechanism in an exchange for value settlement system that ensures that the final transfer of one asset occurs if and only if the final transfer of (an) other asset(s) occur.

Table 1: Roles in a synchronised transaction

	Synchronisation operators (SOs)	Settlement participants (SPs)	End-users
What?	<ul style="list-style-type: none"> Third parties which connect to and use synchronisation functionality in RTGS. There may be multiple SOs offering different services. 	<ul style="list-style-type: none"> Banks and other financial institutions which hold accounts in RTGS. 	<ul style="list-style-type: none"> Those companies or individuals who wish to instigate synchronised transactions.
Access	<ul style="list-style-type: none"> The Bank would grant an SO access to synchronisation functionality in RTGS in line with stated policy. SOs would be required to operate within agreed parameters and policies. The SO would decide which types of transactions can be made using its services. 	<ul style="list-style-type: none"> SPs would grant and revoke SOs access to their settlement funds. 	<ul style="list-style-type: none"> The SO (and SP) would determine which end-users can access synchronisation as a service.
Interactions	<ul style="list-style-type: none"> The SO would confirm the identity and timing of transactions to be settled with SPs and end users. The SO would introduce transactions to RTGS and control their release. It would confirm settlement to all parties and including the receiving SPs to enable onward remittance of the funds to the end user. The SO would be responsible for all interactions with any other ledgers that were being synchronised with sterling. 	<ul style="list-style-type: none"> SPs would agree a relationship with SOs, including on messaging and transaction permissions. SPs would receive messages (e.g. on earmarks placed) from the Bank. The SP acting for the sending end user would confirm the availability of funds to the SO ahead of any transaction being submitted. The SP acting for the receiving end user would pass on received funds to that customer. 	<ul style="list-style-type: none"> End users (or their agent) would have an account holding relationship with the SP and may also directly introduce transactions to the SO. The Bank would not interact directly with end-users.
Funds	<ul style="list-style-type: none"> The SO does not need to hold funds at any point during the transaction and would not hold a settlement account in RTGS. Settlement is directly between SPs' accounts in central bank money. 	<ul style="list-style-type: none"> The SP must hold funds at the Bank. These do not need to be set aside in advance of the transaction, but must be available when the earmark is requested. 	<ul style="list-style-type: none"> The end user (or their agent) would hold funds with a SP that was an active user of the SO.
Earmarks	<ul style="list-style-type: none"> SOs would have the ability to place earmarks on settlement funds for a transaction. SOs would have the ability to revoke earmarks (and cancel settlement) where they were unable to achieve synchronised settlement across ledgers, or an end user had revoked permission to proceed. 	<ul style="list-style-type: none"> SPs would be able to set appropriate controls on the value of earmarks permitted (per SO and/or across all SOs) at any moment and/or over a day. SPs would not be able to cancel an earmark once placed (funds would be held until the earmark was released or until end of day). 	<ul style="list-style-type: none"> SPs would either debit or earmark the funds of an end user ahead of settlement to ensure sufficient resources were available to support the synchronised settlement.

What is the Bank doing now?

To inform our proposals, we have undertaken extensive engagement with a wide range of organisations³. In response to the feedback from this engagement, we are now:

- Continuing with policy and design work. This will include work that clarifies the relationship between the SO, the Bank and the settlement participant, looking at earmarking protocols, and other functional considerations. More work will take place from 2020 to understand what regulatory and supervisory requirements would need to be met by potential SOs.
- Explore how we can continue to grow a community of interested organisations to discuss synchronisation functionality and understand the use cases for the UK. This will include considering the benefits of offering a

³ See <https://www.bankofengland.co.uk/-/media/boe/files/payments/rtgs-renewal-programme/rtgs-renewal-synchronisation-engagement-update.pdf> for more information.

test system to enable prospective users to assess how synchronised settlement could support their business models.

This “Background Guide” will be updated as that work progresses.

What we want to hear from industry

We want to continue to receive feedback from all parts of the payments chain. If you or your organisation are interested in this functionality, and you are not one of the 40+ firms who registered interest via our 2018 Call for Interest, please contact RTGSEngagement@bankofengland.co.uk. To help steer our discussions, we would be grateful if you could provide some background information on where your interests in synchronisation lie, including (where relevant):

Use cases	What use case(s) for synchronisation are you interested in exploring with us? Within that context, what are the problems or risks associated with current settlement models and how would synchronisation help alleviate those?
Functionality	Do our current proposals work for your business model? Are there any other features that you think this service needs to include?
Direction	What aspects of synchronisation are the highest priority for the Bank and industry to focus on in the next 6/12 months? E.g. functionality inside RTGS or our access policy. What additional information does the Bank need to share to maintain momentum and ensure adoption of this concept?

Reference documents

- RTGS Renewal Blueprint (May 2017)⁴
- Synchronisation Call for Interest (August 2018)⁵
- Synchronisation engagement update (June 2019)⁶
- On the role of the Bank’s RTGS infrastructure, including how it operates and how it reduces risk in the UK financial system⁷
- On the RTGS Renewal Programme, including the vision for the renewed service and the Programme’s current priorities⁸

⁴ See <https://www.bankofengland.co.uk/paper/2017/a-blueprint-for-a-new-rtgs-service-for-the-uk>

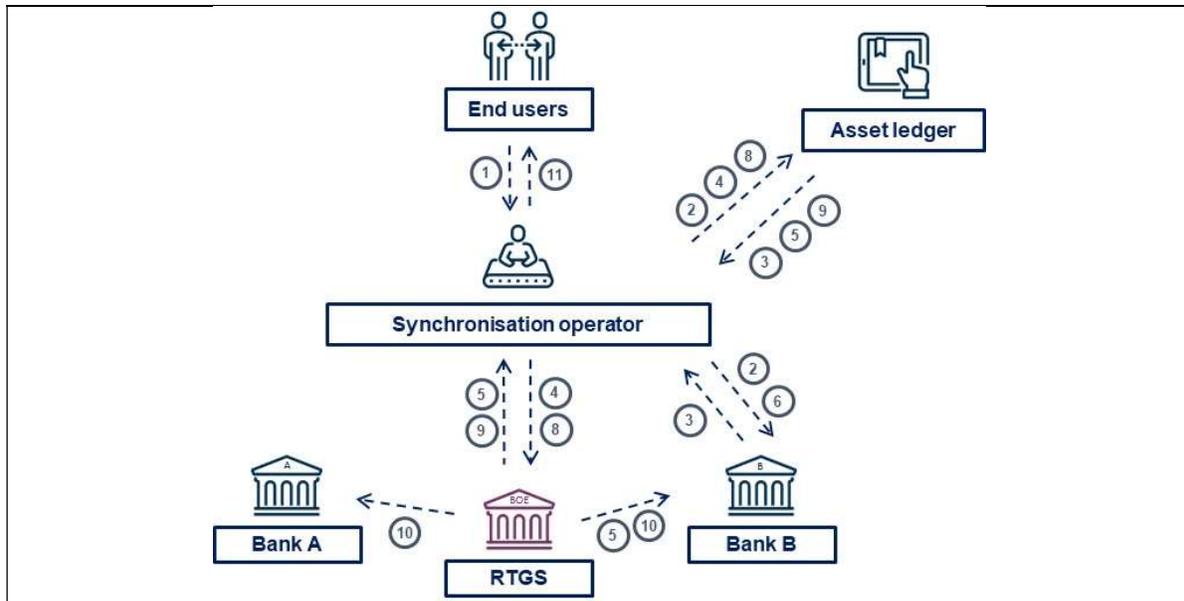
⁵ See <https://www.bankofengland.co.uk/news/2018/august/rtgs-renewal-programme-call-for-interest-synchronised-settlement>

⁶ See <https://www.bankofengland.co.uk/-/media/boe/files/payments/rtgs-renewal-programme/rtgs-renewal-synchronisation-engagement-update.pdf>

⁷ See <https://www.bankofengland.co.uk/-/media/boe/files/quarterly-bulletin/2012/the-boes-real-time-gross-settlement-infrastructure.pdf>

⁸ See <https://www.bankofengland.co.uk/payment-and-settlement/rtgs-renewal-programme>

Figure 1. How synchronisation could work



1		A agrees to sell an asset to B and tells SO to synchronise the payment with the asset transfer
2		SO checks that B has sufficient funds and that A owns the asset
3		B's bank confirms that B holds sufficient funds
		Asset ledger confirms that A currently owns the asset
4		SO receives confirmations, then asks for funds and asset to be earmarked
5		Bank of England earmarks funds in B's bank's settlement account (note that these funds have not been set aside in advance) and informs B's bank and confirms to the SO
		Asset ledger earmarks asset and confirms to SO
6		SO receives confirmation of both earmarks
		B's bank receives confirmation of an earmark on its settlement account
7		SO checks that all other conditions for settlement have been met
8		SO asks Bank of England to release funds and the asset ledger to transfer ownership
9		Bank of England moves funds from B's bank's settlement account to A's bank's settlement account and informs SO
		Asset ledger transfers ownership of the asset from A to B and informs SO
10		SO receives confirmation that funds have moved and asset ownership has been transferred
		A's bank and B's bank both receive confirmation of the fund movement
11		SO informs A and B that the payment has been made and the asset ownership has transferred
		B is informed that they now own the asset. They can see this record on the asset ledger and they can see the decrease in funds in their bank account. A is informed that they no longer own the asset. They can see this record on the asset ledger and they can see the increase in funds in their bank account.