



BANK OF ENGLAND

# Speech

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## Transforming our payments infrastructure

Speech given by

Victoria Cleland

Executive Director, Banking, Payments and Financial Resilience

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## **Transforming our payments infrastructure**

Payments are an essential part of our lives, and of the UK economy. Last year UK payment systems processed more than 26 billion transactions worth over £91 trillion, covering everything from small scale card payments and cash withdrawals to major corporate transactions.

The UK payments landscape has undergone considerable change in recent years. Increased take-up of new types of payment technology in retail and wholesale markets has been facilitated by factors including increased ease of use, the growth in e-commerce, and increased confidence in their reliability and security. Looking to the future, we expect this transformation to continue, driven by incumbents but also the growth of new Fintech firms who will continue to find innovative ways of meeting demand for faster, simpler, cheaper and more flexible payments. This wave of innovation could deliver positive outcomes ranging from better choice for consumers, to improved access to finance for businesses, to lower transaction costs, enhanced resilience and greater capital efficiency.

The Bank of England is actively researching both how technology is changing financial services today (through our Fintech Hub<sup>1</sup>) and how financial services might evolve over the next decade.<sup>2</sup> We are assessing what technological change means for users, businesses, and the financial sector, as well as the risks that this might pose to the Bank's mission. In the context of this rapid change in payments, an area of critical importance to the UK economy, the Bank is undertaking two major initiatives to strengthen core payments architecture, and to enable it to better meet the needs of the industry and the public. These initiatives are closely linked: renewing the RTGS service and bringing the operation of CHAPS into the Bank.

Before I go any further, I will define these two acronyms that might sound unfamiliar, but whose role is crucial to everyone in this room - indeed to everyone in the country.

The RTGS (Real Time Gross Settlement) service is the core payments infrastructure in the UK, providing the ultimate settlement for a number of payment systems and other financial market infrastructures, including retail systems such as Bacs. As part of this, it provides accounts for banks, building societies, and, from very recently, to non-bank payment service providers (PSPs),<sup>3</sup> which use it to settle payment obligations. It is also the platform through which monetary policy decisions to change Bank Rate are implemented. Settlement takes place across the books of the Bank, in central bank money and in real-time. This is efficient, settlement risk free and irrevocable. The Bank has recently commenced a multi-year Renewal Programme of the RTGS service, to enhance resilience and drive innovation.<sup>4</sup>

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<sup>1</sup> <https://www.bankofengland.co.uk/research/fintech>

<sup>2</sup> <https://www.bankofengland.co.uk/research/future-finance>

<sup>3</sup> <https://www.bankofengland.co.uk/news/2018/april/non-bank-ppsp-access-to-the-payments-system-announcement>

<sup>4</sup> See <https://www.bankofengland.co.uk/payment-and-settlement/rtgs-renewal-programme> and <https://www.bankofengland.co.uk/-/media/boe/files/speech/2018/real-time-gross-settlement-rtgs-renewal-enabling-the-next-generation-of-payments.pdf?la=en&hash=49E47B8951F6FD8D24E6307B36EDAFB7D214B4F5> for further details

CHAPS (Clearing House Automated Payment System) is one of the payment systems which settles over RTGS. It is the UK's high-value payment system, used for wholesale payments and known to many of you for making house purchases, but also for a range of time-sensitive or cross-border corporate payments.

### *Origins and use of CHAPS*

This month marks the first anniversary of the operation of the CHAPS payment scheme being brought into the Bank. But CHAPS is rooted in centuries of payments history. Payments systems in the UK grew out of the 1770s arrangement of clerks meeting at a tavern in the City of London and exchanging paper cheques over lunch. This was more efficient than each clerk walking around the city visiting other banks. By the end of the 19<sup>th</sup> century, around 200 years after the creation of the Bank, the operation of payment systems was formalised, with the establishment of the Bankers' Clearing House, which was owned and controlled by the major retail banks. In 1985 following a series of reviews the Association of Payments Clearing Services (APACS) was created as an umbrella organisation for three clearing companies, including the CHAPS & Town Clearing Company. It had responsibility for the CHAPS system, providing high-value, same-day settlement with a minimum value of £10,000 (equivalent to around £29,000 in today's prices).<sup>5</sup>

Today there is no minimum value, but CHAPS settles around £330 billion every working day, representing 93% of non-cash payments in the UK. Around 40% of CHAPS payments originate from organisations based overseas, reflecting the UK's strong links to the global economy.

### *Bringing CHAPS into the Bank*

When RTGS was established in 1996, it became the settlement infrastructure for CHAPS, increasing financial stability by ensuring the highest value payments were settled real time in central bank money. The CHAPS Co Clearing Company Ltd (CHAPS Co) continued to operate the CHAPS scheme from a member perspective until last year. Bringing CHAPS in-house marked an important milestone in our ongoing work to make CHAPS and RTGS safer, more secure, more accessible, and in line with international best practice.

Until last year, the UK was unusual in that a private sector company (CHAPS Co) was responsible for the governance and rulebook<sup>6</sup> of the high-value payment system, while the Bank provided the underlying settlement infrastructure. In 2017 the Bank's analysis concluded that there were structural constraints in this model. Given the status of RTGS as critical national infrastructure, CHAPS Co could not be given the full range of information on RTGS that it would need to identify and manage risks across the whole payment system. These constraints meant that, while CHAPS Co had made important enhancements to its existing model, it was unable to fully meet regulatory expectations to act as an effective end-to-end systemic risk

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<sup>5</sup> <https://www.bankofengland.co.uk/monetary-policy/inflation/inflation-calculator>

<sup>6</sup> The rulebook (or 'CHAPS Reference Manual') sets out the requirements that a member needs to adhere to as a participant in CHAPS. The rules are designed to deliver a safe, secure, and resilient CHAPS payment system.

manager for the CHAPS payment system. Put another way, the Bank understood and mitigated the risks within RTGS, and CHAPS Co looked at risks in its participants but it was hard to join the two views together. Bringing these two views together could benefit financial stability.

This is not to say that the Bank and CHAPS Co stood still in their joint operation of the service. Two key improvements to the resilience of CHAPS in recent years were the implementation of a Liquidity Saving Mechanism (LSM) and establishing a third site for RTGS to ensure settlement could continue to operate in the very unlikely event that the Bank's data centres suffered a simultaneous outage. And CHAPS Co took important steps to streamline its governance arrangements, strengthen its rulebook, and improve how it sought assurance of compliance.

The resilience of the CHAPS system is about more than just the central RTGS infrastructure or management of its Direct Participants<sup>7</sup> in isolation. Weaknesses in security or operations at any point in the payment chain could threaten stability and trust in the whole system. It is vital to have a holistic view of CHAPS as a network, through which financial or operational risk can be transmitted. Addressing this was particularly important given the increased sophistication of risks faced by the payments system including, for example, cyber-attack.

It was therefore agreed to bring the operation of CHAPS in-house. The transfer took place on 13 November 2017, and was smooth with no disruption to the availability of CHAPS for the banks or their customers. I'd like to thank the staff across the Bank, CHAPS Co, the participating banks and other organisations who made it possible.

#### *Effective risk management for CHAPS*

But that was just the first step and the Bank continues to enhance its approach to managing risks in CHAPS. As the systemic risk manager for CHAPS, we seek to ensure that end-to-end flow of payments is safe, secure and stable.

We are now increasingly able to draw on the broader set of tools and resources available to the Bank to: identify, assess, mitigate, and respond to the full range of risks to the delivery of the CHAPS system. Our approach is to assign responsibilities for these risks according to where they can be most effectively managed and to coordinate with the owners of these risks (such as Direct Participants and Critical Service Providers) in order to seek assurance that the payment system is operating within our risk tolerance.

We also work closely with colleagues in the Prudential Regulation Authority (PRA), Financial Conduct Authority (FCA) and Payment Systems Regulator (PSR), who have relationships with

CHAPS participants and a shared interest in the operation of the payments chain. A recent example is the July 2018 Discussion Paper, 'Building the UK Financial Sector's Operational Resilience', which the Bank, PRA and FCA published together. We are increasingly working with supervisory colleagues to:

- Identify and manage risks to and from the payments function for the Direct and Indirect Participants that they supervise; and
- Deploy expert cyber resources in order to manage the threats posed to the CHAPS system.

It goes without saying that, the RTGS Renewal Programme is also putting resilience at the heart of its design and scope.

#### *Widening access to CHAPS and RTGS*

In addition we are working to improve access to CHAPS and to RTGS.

In 1987, CHAPS only had 14 direct participants - a number which remained broadly unchanged twenty years later in 2007. This created increased risk to financial stability through operational reliance on a small number of banks, creating credit exposures between Direct and Indirect Participants (who could only access CHAPS via a Direct Participant). In response, the Bank took three steps to facilitate direct access to CHAPS:

**De-tiering.** In 2011 the Bank identified the six largest indirect participants<sup>8</sup> who presented a systemic risk through indirect access. We engaged with them to discuss these risks and how "de-tiering" could alleviate them. Each of these banks now accesses CHAPS directly. Over the last year, they accounted for 17% of total CHAPS values, demonstrating a clear and measurable reduction in risk, which in turn, benefits the wider payments ecosystem and all of its participants and end users. In April 2012, after consultation with all CHAPS participants, formal tiering criteria were introduced to CHAPS based on a presumption that Indirect Participants that breach the criteria should transition to direct access. The Bank will continue to analyse the financial stability risks presented by indirect access and further refine if we consider there is an unacceptable level of risk.

**Expanding eligibility to non-banks.** Where it can be done safely without compromising our mission to maintain monetary and financial stability, we also seek to promote efficiency, innovation and competition through our operation of RTGS and CHAPS. We have therefore recently widened the access criteria for RTGS and CHAPS to enable non-bank PSPs to join. Key to this was working closely with the FCA, HM Treasury and the PSR to develop a supervisory regime that would allow non-bank PSPs to access settlement in RTGS and participation in the CHAPS payment system without increased risks. In April 2018 Transferwise was the first non-bank PSP to join RTGS and was followed by iPagoo who in August 2018 was

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<sup>8</sup> i.e. those which the Bank's analysis identified as being systemically important to the CHAPS system in terms of the total value of payments they send and receive.

the first non-bank PSP to join CHAPS directly. Direct access allows non-bank PSPs to reduce their operational dependence on the banks they are trying to compete with. Over the longer term, this should also create a more diverse payments sector with fewer single points of failure.

**Reducing the cost of access.** We continue to seek to avoid the costs of direct access being prohibitive to prospective and existing participants. We have enabled third-party aggregators to provide technical connectivity to RTGS for smaller CHAPS direct participants, reducing the upfront costs of direct access without reducing overall resilience.

The RTGS Renewal Programme will further reduce the barriers to direct access. Its technical architecture will be designed to support several hundred Direct Participants in CHAPS; allowing for a significant increase from the current 33. We also intend to introduce automated testing to streamline the joining process. We will build simulators to help new joiners better familiarise themselves with CHAPS and provide broader RTGS functionality before going live. The renewed RTGS will also feature enhanced functionality (e.g. enhanced liquidity management and the capability to extend opening hours), facilitating innovation by both established participants and new joiners. This should, in time, ultimately lead to a situation where it is simple and cost effective for any eligible participant to become a direct participant in CHAPS.

#### *Improved governance*

In bringing CHAPS in-house it has been important to develop a strong and robust governance framework and retain the strong ‘user voice’ that CHAPS Co facilitated. At the heart of this was the establishment of the RTGS/CHAPS Board (the Board) chaired by the Bank’s Deputy Governor for Markets & Banking and comprising four non-executive members selected for their experience and expertise, together with a number of the executive, myself included.<sup>9</sup> The Board provides a strategic focus with particular attention to the Bank’s role as a systemic risk manager to the CHAPS system, broader financial stability remit and other public interests. The Bank’s operation of CHAPS is subject to the Bank’s full ‘three lines of defence’ risk management model and close engagement and oversight on relevant matters from the Governors, the Bank’s Court of Directors and the Financial Policy Committee.

In its capacity as Payment System Operator, the Bank’s delivery of CHAPS is supervised by the Bank’s Financial Market Infrastructure Directorate<sup>10</sup> to the same standards as other systemically important payment systems.

It is also essential to understand the views of industry, and we have established forums to facilitate an open dialogue with a variety of key stakeholders. This includes the CHAPS Strategic Advisory Forum (SAF) and the RTGS Renewal Programme’s External Advisory Body (EAB). Both forums involve attendees from a

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<sup>9</sup> Information on members of the RTGS/CHAPS Board can be found at <https://www.bankofengland.co.uk/payment-and-settlement>

<sup>10</sup> <https://www.bankofengland.co.uk/financial-stability/financial-market-infrastructure-supervision>

range of organisations to ensure input and challenge from a diverse range of stakeholders across the payments landscape, from the major, established banks through to innovative Fintechs and end-users.

### *Looking ahead to RTGS Renewal*

This is an important time for the UK payments industry. In addition to the RTGS Renewal Programme, Pay.UK<sup>11</sup> is working to build a New Payments Architecture for retail payments. There are synergies between these programmes and while we operate independently we are working closely to ensure that we co-ordinate where there are benefits to doing so, and where this will best support the payments industry.

An example of our close cooperation is planning the introduction of messaging standards based on ISO 20022. The Bank and Pay.UK are working together on the introduction of a Common Credit Message (CCM) for CHAPS, Faster Payments Service (FPS) and Bacs. The Bank published a joint consultation with Pay.UK and the Payment Systems Regulator (PSR) in June.<sup>12</sup> This set out how we propose to develop the new messaging standards to create a harmonised language for retail and wholesale payments in the UK. We will shortly be publishing our response to that consultation, which will set out our next steps. We have also created the [Standards Advisory Panel](#) (SAP)<sup>13</sup>. We are seeking participants from beyond payments and financial services but also from the companies who initiate and receive payments, and software providers and others who may want to take an active role in shaping the technical standards which will underpin elements of that project.

### *Conclusion*

The Bank is committed to strengthening the UK's payments services, and we will continue to work closely with the industry to ensure we create services not just for existing users but for prospective participants too, including those with innovative business models such as Distributed Ledger Technology. Our vision is to develop an RTGS service which is fit for the future, increasing resilience and access, and offering wider interoperability, improved user functionality and strengthened end-to-end risk management. Our changes will help to increase competition and innovation in the wider banking and payments markets. The upcoming enhancements will benefit from a two-way dialogue between the Bank and the payments industry. As we continue this exciting journey I look forward to working with all of you as we innovate and strengthen the UK's payment services for the future.

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<sup>11</sup> <https://www.wearepay.uk/>

<sup>12</sup> <https://www.bankofengland.co.uk/news/2018/june/iso-20022-consultation-paper-a-global-standard-to-modernise-uk-payments>

<sup>13</sup> <https://www.bankofengland.co.uk/-/media/boe/files/payments/sap-terms-of-reference.pdf?la=en&hash=104B67B7AF846BF7837BF6762BDB7000C6B06A6F>