The New Payments Architecture Programme:

Delivering a revolutionary new payments system for the UK

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Our New Payments Architecture (NPA) programme will revolutionise the entire current payment system. It will bring more choice, speed and security for everyone who sends and receives money in the UK.

David Pitt
Chief Executive Officer
Pay.UK

Our NPA programme will be the biggest upgrade the UK payment systems have seen in a generation. Launching in 2026, it will deliver a faster and more powerful infrastructure that will transform the financial lives of consumers and businesses.

The UK's new payments infrastructure will increase choice, boost security and reduce costs, as well as generating new market opportunities for the financial services sector by enabling banks, building societies and fintechs to create new payment products and services more easily.

We are the recognised operator and standards body for the UK's interbank retail payment systems, running the digital networks used by the Bacs Payment System, the Faster Payment System and the Image Clearing System. This critical national infrastructure enables billions of pounds of payments to be made smoothly and safely every single day, with £8.7 trillion of transactions processed in 2022 alone.

With technology evolving and customer needs changing at a rapid pace, it is crucial that the systems we use to process our payments are kept robust and resilient for years to come.

Delivering this new, innovative payment system is part of our strategic vision to be the smartest way to move money, now and in the future. The programme will enhance and build on our existing capabilities. And, by doing so, it will unlock substantial benefits to our customers, to individuals and organisations that make and receive payments, and to the UK economy as a whole.

Our pioneering venture will require significant work and investment from all players across the ecosystem. We will work collaboratively with established banks and fintechs and adopt international best practice as we deliver a programme that will allow the UK to remain a global leader in financial services.

About Pay.UK

About Pay.UK
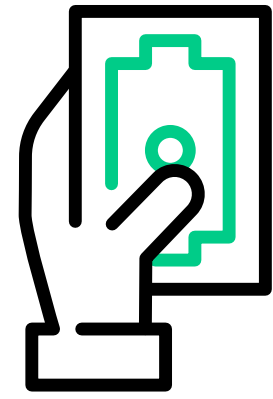
Our purpose is to power payments, champion innovation and give the UK choice in how it pays. We enable individuals and organisations in the UK to transfer money to others whenever they need to, quickly, safely and cheaply.

Our vision is to be the smartest way to move money, now and in the future.
Our systems provide our customers and end users with flexibility and choice, allowing them to make their payments in a way that best suits their needs.

Delivering the future of the UK's shared retail payment infrastructure

Interbank payments will be **simpler, faster and easier,** delivering **speed, choice** and **safety** of payments for UK plc.

What it is

Our next generation payments platform is a fundamentally new payments system that will replace the UK's existing infrastructure and give people new and better ways to pay.

For UK businesses and consumers, it will make daily transactions faster, smarter, safer and cheaper, helping them manage their financial lives.

For banks, building societies and other payment service providers, it will reduce costs, generate important data benefits, and help in the fight against fraud.

It will also open up the payment ecosystem to disruptive players, enabling innovations that will drive competition, create jobs and deliver economic benefits to the country and UK plc.

What it delivers

The platform will allow us to realise six defined strategic objectives to support the UK economy:

> **Future proofing: maintaining a robust, resilient and scalable platform**

The new technology will enhance the existing resilience in the payments system and help us manage systemic risk as the market and consumer habits continue to evolve.

> **Faster: real-time capability while maintaining flexibility**

The NPA will enable us to process real-time consumer-to-business payments while maintaining flexibility and choice for those who require alternatives.

> **Helping to fight fraud: a safe and secure environment for all users**

The new platform will deliver security features that significantly improve financial institutions' ability to combat fraud and financial crime.

> **Enhanced data: the adoption of global messaging standards**

Payments will run on a new global messaging standard (ISO 20022) which carries more data fields with each payment and gives our customers the tools to create new products and services.

> **Fostering innovation: lower barriers to entry and flexibility of choice of access**

We will reduce barriers to entry to the payments market by delivering more connectivity options through the programme. These include an automated and single settlement account model and an on-demand testing environment.

> **Driving efficiency: better productivity and lower costs for everyone in the payments ecosystem**

We will drive will enable operational efficiencies and cost savings for banks, building societies, fintechs and everyone else who operates in the payments ecosystem.

In-depth: why the NPA matters to the UK financial sector

1 Safe, Secure, Resilient

2 NPA, a catalyst for innovation

3 Making it easier for payments companies

4 Payments service providers

The NPA will keep UK payments safe, secure and resilient.

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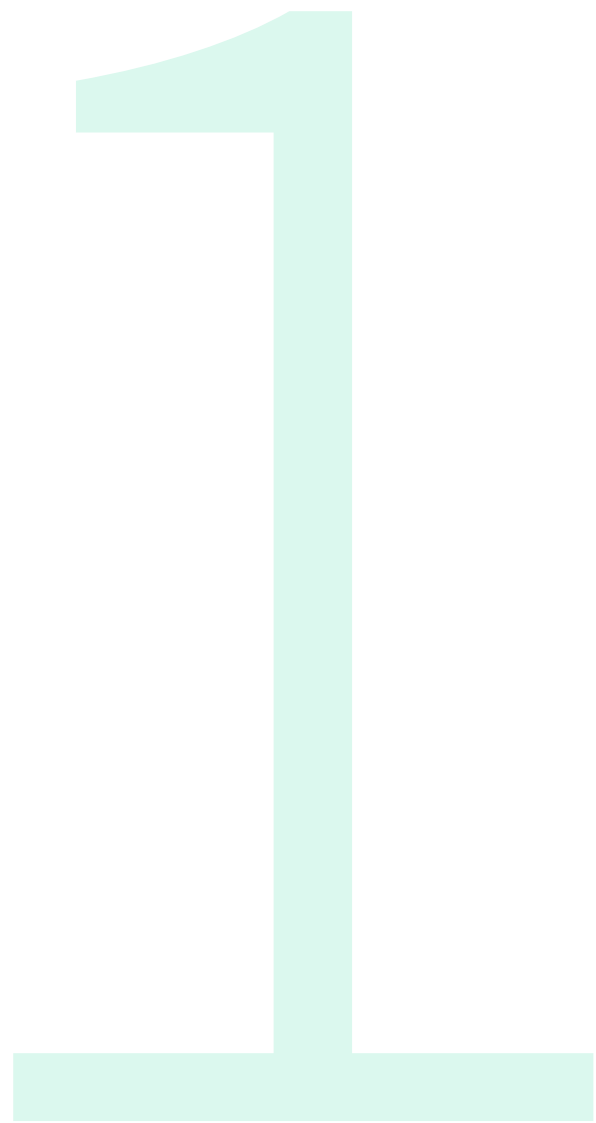
It supports the payment ecosystem with measures that enhance operational resilience at the core

The new architecture will allow us to support future volume growth of up to 9,000 payments per second, with the underlying components leveraging modern technologies to allow dynamic scaling and have the ability to build in even more capacity in future.

It bolsters resilience by using component-based architecture

We have developed the new system with resilience at the forefront of the design. This means that when payment errors do occur, they can be remediated quickly. Its core components have no single points of failure to ensure service continuity. This advanced component-based architecture also facilitates enhanced data recovery and the rapid re-starting of payments processing from its last stored state.

Today FPS is supported by two data centres; however, with the NPA, services will be deployed across multiple regions with two server sites running in an active:active configuration. This future-proof design ensures that resilience is maintained should a single site be down, with a further third server available in the event of a region-wide problem.

Crucially, the component-based architecture has the scalability and longevity to future-proof this resilience in the payments system for a generation. It also brings three new connectivity options designed to reduce concentration risk and further support overall resilience for our customers – ensuring the system continues to meet the Bank of England's resilience requirements.

Enhanced data to further mitigate fraud

Enhanced transaction data will help us in the fight against fraud and provide the foundations for many new end-user propositions

The system will adopt a new global messaging standard, known as ISO 20022. This standard will attach additional data fields to each payment that is made, providing more information to payment service providers (PSPs) every day about the type and nature of their customers' transactions.

Such visibility of payments will be a powerful tool for PSPs in the fight against fraud and financial crime. Fewer than 0.01% of the transactions made through the existing Faster Payment System (FPS) are fraudulent. Nonetheless, FPS remains the system of choice for fraudsters. Fraud accounts for over 40% of crimes committed in the UK. Faster Payments was used for 98 per cent of fraudulent APP scam payments.

This is a growing criminal threat with devastating consequences for victims, and now is the time to tackle it. Our analysis shows that the use of ISO 20022 and the outcome of our Fraud Programme to spot and prevent fraud, including through the Fraud Overlay Service, could help PSPs and end users reduce their collective losses by £1.6bn over the 10 years from NPA launch. Alongside this we will continue to deploy our current Confirmation of Payee provision and further expansion as directed by the PSR.

Additionally, industry losses will be reduced by our new Enhanced Fraud Data API developed in conjunction with UK Finance. We are working in partnership with the industry to enable our customers to prevent end users from falling victim to fraud and scams. The Enhanced Fraud Data API is a peer-to-peer API which will allow specific data fields to be shared between the sending and receiving PSPs pre-transaction so the banks at both ends can make an enhanced risk-based decision. This richer data will enhance the performance of fraud analytics and improve outcomes for banks and end users.

The Fraud Prevention Overlay Service: part of our Fraud Programme

**Kate Frankish,
Chief Business
Development Officer
at Pay.UK**

At Pay.UK we believe financial protection is a right. Everybody deserves to have their assets and identity protected and to live without fear of fraud. That's why we are determined to create new tools to help prevent fraud and play our part in fighting its devastating emotional and financial impact.

These tools are based on data that runs across our platform which fuels our unique position at the heart of the payments system. By working securely with our customers, regulators and other partners we can enable the market to use this data to identify and prevent fraudulent transactions.

The new platform's data store will enable new overlay services that will help us prevent fraud. In particular tackling authorised push payment (APP) fraud, where criminals deceive their victims into transferring funds, for example by posing as a trusted business or family member.

Before we roll out the new platform, we are testing a fraud prevention overlay service that will subsequently open up innovative overlay opportunities for third parties to enhance existing fraud and financial crime management tools. Using the agility of the platform design, we can ensure these capabilities are continually evolving to meet the ever-increasing challenge posed by fraud.

The work is already underway. We have launched a proof of concept to help us determine an optimal commercial and participation model that can be used to validate what can be achieved. The proof of concept explores what anti-fraud outcomes are possible using analytics provided by third party suppliers using transaction data.

This involves:

- Leveraging our unique position as a payment system operator to gain access to the required data

- Bringing industry together: third-party suppliers, including analytics and data storage providers; our customers; and regulators

- Understanding the appropriate levels of governance and control when sharing data for analysis

- Working with subject matter experts from our customers to determine objectives and assessing outcomes

Our Fraud Programme will provide the means to support our customers to better tackle fraud. It will work alongside the NPA programme to ensure additional capabilities are delivered, including enhanced data sharing capability and a Fraud Prevention Overlay Service. All of this will help ensure that UK consumers and businesses can freely take the benefits of our continuously evolving and world-leading payment system with security and confidence.

To learn more about how Pay.UK is leaning into the fight against fraud please contact **CBDO@wearepay.uk**

The NPA will be a catalyst for innovation that benefits the whole ecosystem, including end users.

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Enabling the creation of new payments products and capabilities

The NPA will allow us to support banks, building societies and other payment service providers in creating new products and capabilities which generate value for the sector, as well as consumers, businesses and the wider UK economy.

These new payment innovations include a much wider range of real-time payment products – such as account to account payments – and capabilities to serve the ever-evolving needs of end users as they shop, pay and manage their financial lives.

Whether it's a corporate treasurer seeking better visibility on payments flows, a shopper buying their weekly groceries, or a 16 year old receiving their first pay, the platform will enable our customers to create products and services that meet the needs of the people they serve.

We will further drive efficiency and innovation through the interbank payments ecosystem for both direct connected and agency banks.

Talk to us to find out more about the NPA products by getting in touch at **CBDO@wearepay.uk**

Faster Payments functionality upgraded and enhanced

We will deliver Immediate Payments, Standing Orders, and Future Dated Payments enhanced by richer data.

The enhanced data will help PSPs spot suspicious and erroneous transactions more easily, while continuing to provide the payments experience that consumers and businesses expect and benefit from today.

Immediate Payment:

• The standard payment product for single customer payments, usually attended by the payer end user.

Standing Order Payment:

• The payment type for overnight runs of recurring scheduled payments, usually submitted in volume and unattended by the end user payer.

• Requires most payments to be submitted between midnight and 6am so that funds are usually available to the payee by 7am that day.

Forward Dated Payment:

• The payment type that may be submitted at any time, usually unattended by the payer end user.
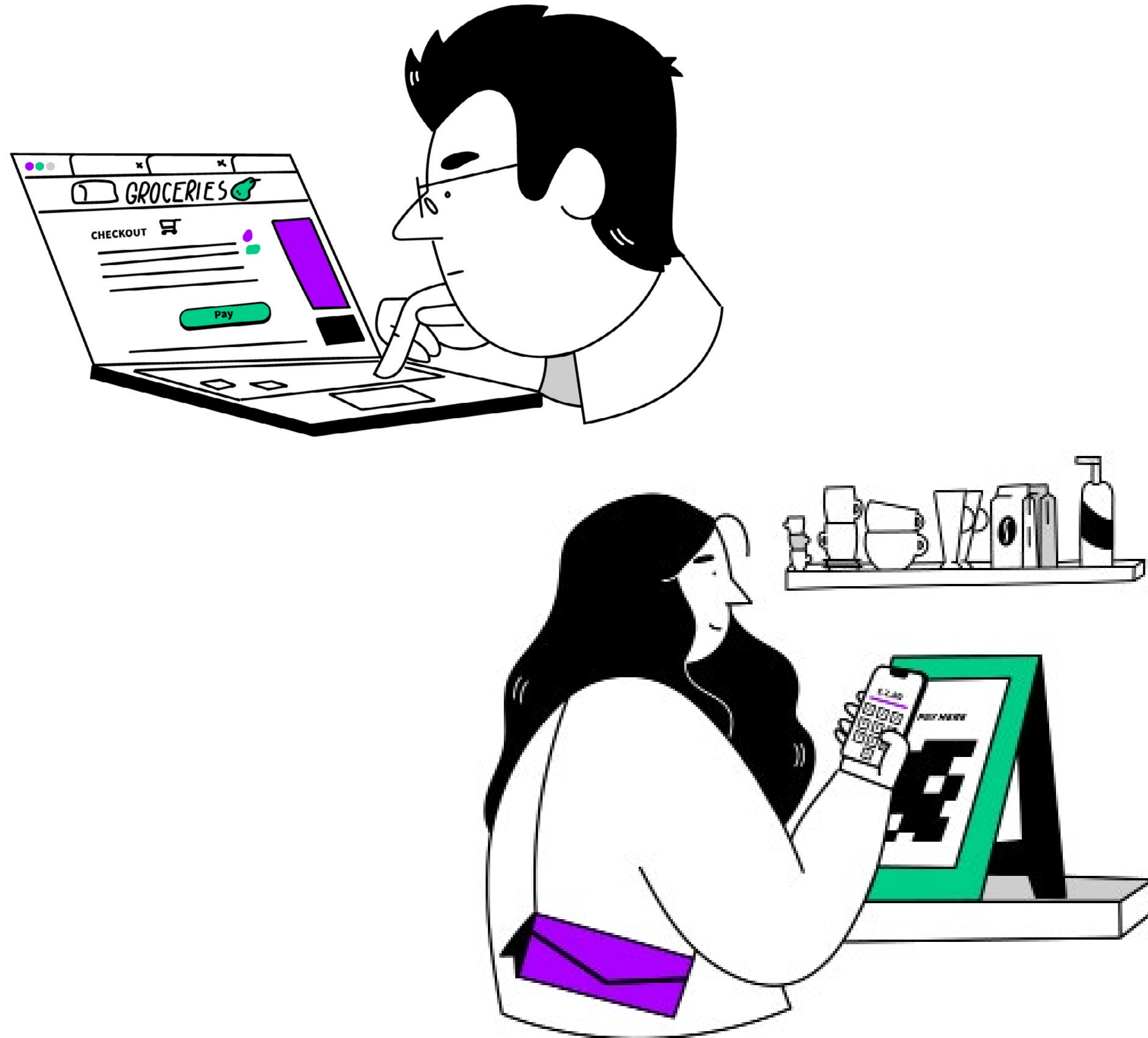
Enabling the instant economy

Where speed is of the essence, we will offer our fastest payment type, instant payments.

The new technology will enable account-to-account payments, such as shoppers paying for goods in store, that come straight from your account and give consumers and merchants choice in how to pay and be paid. To this end we can provide certainty of payment and status confirmation for retailers so they can be sure that the funds have been received.

We are working with industry, regulators and the broader payments ecosystem to collaborate on the development of rules, standards, protections and the commercial model that need to be in place to enable this use case at scale.

The instant payment will be activated after we have completed migration from Faster Payments as an industry.

Submission options

Two submission options enabled by the platform are Bulk Submission and Multi-Payments Message.

Bulk Submission is a file-based service which allows users to submit large payment files.

Multi-payment message is a single payment message with multiple individual credits, one debit, which should allow us to improve processing efficiency for our customers and may enable early Bacs Credit migration.

Both of these submission options allow more efficient payments submission for use cases where facilitating large payment volumes is a priority.

Account-to-account payments: creating a new way to pay for the UK

We are committed to developing and enabling customer products and services that improve the financial lives of consumers and businesses in the UK.

To this end, through the new platform we will be able to facilitate account-to-account style 'pay by bank' payments (A2As), which could be revolutionary in the consumer-to-business space, particularly in shopping and retail.

What are A2A payments and how do they work?

An A2A 'pay by bank' payment is a combination of our Instant Payments product and overlays (such as Open Banking standards) that allows a consumer to pay via their bank account at an online or physical retailer. Card fees are a significant burden on the payments ecosystem and are often passed on to consumers through higher prices for goods and services. A2A payments, however, could provide a cheaper and faster alternative.

For A2A payments to work in high-volume retail shops and mass transit, the payment needs to be almost instant and provide confirmation to the store that it has been successful. The current Faster Payment System usually does this in seconds but in some circumstances it can take up to two hours, making it impractical in a retail environment.

Through the new platform we will be able to provide shoppers with the ability to make fast, simple and secure A2A payments to businesses in real-time – offering a real alternative to debit cards.

What are the benefits of A2A?

- **Speed:** our system will clear account-to-account transactions almost instantly, providing significant cash flow benefits to merchants.
- **Price:** as a not-for-profit payment system operator, we will be able to drive significant value to the market through A2A payments.
- **Network effect:** practically every individual and business has an account that will be able to send or receive payments through our platform.

Our research has found that over 80% of consumers say they would be interested if their bank introduced instant payments. This sentiment is also shared by retailers who want lower charges than cards and fewer hidden costs. Meanwhile banks have suggested that consumers will benefit from managing their money well via A2A payments, particularly when inflation is increasing.

Next steps

We need to fully understand the demand and requirements that our customers have for potential A2A solutions. Following this, we will create initial proof of concepts for sharing with the wider industry to begin validating and refining the A2A enablers that we and the market need to deliver to join up all parties in the payment journey.

We are actively engaging with the retail payments value chain to innovate new ways to pay for the UK.

To join the conversation, please contact **CBDO@wearepay.uk**

Making it easier for payments companies to join our network as directly connected customers

3

Reducing barriers to entry and increasing access

Through the new platform we will continue to reduce historical barriers to entry to the interbank payments system so that challengers can bring new products and services to consumers and businesses. This is critical for helping the UK maintain its international leadership in financial services.

Market demand to join the dynamic and evolving payments ecosystem is growing. Joining the UK retail banking payments systems will become easier and faster for new customers. This is thanks to a new rulebook and more streamlined connectivity options.

Simplifying operational documentation

Our goal is to host the programme's rules in a digital channel to improve ease of access and search options. We also aim to deliver a rulebook that is proportionate to customers' use of and activity on the platform. This will provide an improved user experience by reducing the amount of documentation to that which is relevant to each customer and making that information easier to consume.

Increasing connectivity options

The current Faster Payments System only offers Pay.UK managed connectivity, requiring a final leg on-premise connection. Through the NPA programme, however, we will offer three connectivity options. Providing additional backup connection options to large customers, and leaner connection options to smaller customers, it affords a greater level of choice and control.

We are providing three different connectivity options. The options are not mutually exclusive and any combination of one or more may be included.
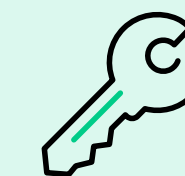
Customer managed connectivity

> Enables customers to extend their own Wide Area Network directly into the NPA data centre, using their own preferred method and their own existing service providers

> Delivers simplified network design and commercial advantages for our customers

Cloud connectivity

> We are deploying a managed Cloud Point of Presence, working with multiple major cloud providers. Customers will have the option of using the cloud providers' backbone to connect directly to NPA Core Infrastructure.

> No circuits are required

> Native network resilience

IPsec VPN over public internet

> Allows for IPsec VPN over the public internet

> Delivers reduced setup complexity for smaller customers

Extended benefits of a new connectivity option

We will offer greatly-increased connectivity and channels to payment service providers as well as more automation in the payments system.

This enhanced connectivity will deliver operational efficiencies, including use of peer-to-peer communication, enhanced data benefits and auto-reconciliation functionality.

Direct corporate access to a secure, UK-hosted network for the exchange of authenticated and structured messages provides a platform for improved automation for all UK businesses.

Funding*

The new platform will use a single pre-funded settlement account

Our new platform will use a single, pre-funded settlement account at the Bank of England which will remove this 'double-funding' obligation for customers.

This benefits existing customers' ability to fund other activities, reducing opportunity costs. It also lowers the barrier to entry for institutions unable to fund both a General Settlement Account (GSA) and Reserve Collateral Account (RCA), increasing access for new customers to directly join our platform.

Under NPA, funding and de-funding of the customer's NPA Settlement Account will be available at any time that the BoE RT2 system is open. RTGS will also be automated thanks to the continual, real-time tracking of the central Service Available Balance which is synchronised with the funds held in the customer's NPA Settlement Account at the BoE settlement completion cut off. This replaces the manual and time-consuming management of Net Sender Caps.

We will realise further reconciliation efficiencies as NPA clears payments on an individual net basis with a clean settlement cycle only containing Fated payments.

'In flight' payments are not considered Fated in the NPA and are not included in that settlement cycle unless they have a final received outcome. This significantly removes potential errors and transient reconciliation issues compared to FPS.

Increased flexibility will enable new Settlement Sponsorship models

New reference data functionality and the NPA settlement model will enable commercial proposition innovation for the market. It will be possible for financial institutions wishing to provide access to liquidity and settlement services to non-settling participants to do so whether or not their clear they own payments on the platform. This decoupling of payment message authorisation and settlement also supports existing and new billing models to enable innovation. Contact **CBDO@wearepay.uk** to find out more.

* Subject to Bank of England agreement - Settlement Service Provider Agreement between BofE and Pay.UK

Payments service providers will have the opportunity to benefit from greater interoperability and efficiency

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Consolidating payment types: the future of Bacs and the platform

Our long-term goal for the platform is to deliver a single, central infrastructure that supports multiple payment types. This consolidation will allow us to create flexibility for the payments industry, for end users and drive efficiency benefits for our customers, including cost savings and economies of scale.

Our NPA platform design gives a natural route for the further organic migration of Bacs Direct Credit volumes to the NPA, which we are already seeing on FPS. However, specific functionality to support Direct Debit and Bacs Direct Credit payment outcomes will be subject to an industry consultation. There are a range of smaller services running over the Bacs platform that will also be considered.

While we develop the future of Direct Debit and Bacs Direct Credit payment outcomes,we will consult with industry, and work alongside our regulators to meet their directives for this vital UK payments system which processed £5.3trnof payments in 2022.

We will continue to support and enhance the Bacs payment system during this process and no transition will be started until the full FPS to NPA migration has been completed and the programme is live.

Direct Debit and Bacs Direct Credit will be the next key products to be considered, though there are a number of legacy products we run that we anticipate may use the new infrastructure, too. To this end we have invested in Same Day capability to support the Bacs Payment System transition. By taking a phased approach, we will ensure we drive volume onto the platform, take away multiple platform costs, and drive efficiency whilst managing risk for our customers and platform innovators.

Success in overlay services: Confirmation of Payee

Confirmation of Payee (CoP) is a world-class name-checking service for UK-based payments, launched by Pay.UK in 2020. It has now been implemented by most UK banks, building societies and other PSPs. Today, volumes of Confirmation of Payee requests average more than one million per day.

Confirmation of Payee allows a payer to check that the account name they give for a new payee is the same as the account name and type held by the payee's PSP – reducing the risk of sending money to the wrong account.

Before the service was implemented a payer would provide their PSP with all the payee's details, including their bank sort code and account number, together with the name of the person or organisation they were intending to pay. The sort code and account number were then used to route the payment

in accordance with the instructions given, however, there was no facility for the payer to check and confirm the name on the account being paid ahead of the payment being sent.

Confirmation of Payee is a way of giving payers greater assurance that their payments are being routed to the intended recipient and therefore are not being accidentally or deliberately misdirected. In particular, it addresses certain types of authorised push payment fraud by providing a platform for PSPs to provide effective warnings to payers about the risks associated with progressing with a payment to an account where the name does not match. The solution is so successful that we are working with other payment system operators across the globe to share best practice.

The CoP check starts when the payer begins setting up a new payee.

The payer provides the account name, sort code, account number, and indicates the account type (personal/business).

The information given is then checked.

There are four possible outcomes that can be returned to the payer:

No – the name is a close match, the name on the account is 'Joe Bloggs'

Yes – the name and account type you supplied matches the details on the account

No – the name doesn't match the name held on the account

Unavailable – it has not been possible to check the name because: timeout, account doesn't exist etc…

The checking result helps the payer make a more informed decision as to whether or not to proceed with the payment

Opening up a world of overlay innovation

Finding the next 'killer app': opening up a world of overlay innovation

The new platform will enable industry players to create new payments overlay services: tailored products that are 'added on' to the existing payments infrastructure to create a new product or generate benefits for the sender or recipient of the payment (or both).

A great example of an overlay product is Confirmation of Payee, the name-checking security service that has been rolled out across the UK and now helps protect millions of transactions each day from error and fraud.

Opening up the payments system to allow the broader market and ecosystem to develop new products and experiences will stimulate innovation and enable a whole new world of opportunities for our customers and end users.

To explore potential overlays partnerships, connect with our innovation team at **CBDO@wearepay.uk**

Connect with Pay.UK

We want to hear from organisations across the payments ecosystem to help the UK realise the benefits that our new platform can bring. Whether you are directly connected today, an agency bank looking to understand more, interested in innovation overlays on the platform, or just want to understand more about how we deliver value, please get in touch. We look forward to working with you to continue to improve how the UK sends and receives money every day. **CBDO@wearepay.uk**