Making UK payments work for everyone

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Abstract

The UK is at a critical decision point in the evolution of its payments landscape, prompted by rapid technological change, growing consumer preference for digital, and the renewed policy focus of the government's 2024 National Payments Vision. While the potential of digital payments to enhance economic efficiency, financial inclusion and public service delivery is widely acknowledged, these benefits will only be realised with adoption at scale. A coherent and credible strategic policy framework is essential to move beyond the historically fragmented approach that has characterised UK payments innovation. Drawing on international comparisons and a detailed review of the UK's institutional and infrastructural legacy, we propose three interrelated principles for this strategic policy framework – Leadership, Architecture and Inclusion. These are not specific policy recommendations; rather they are principles for ensuring the new payments policy arrangements achieve the government's ambitions for UK payments innovation. Leadership means having clear roles and responsibilities, across government and private industry, in all aspects of payments innovation. Examples – such as the market-led Swedish BankID that underpins the mobile payment solution Swish, Brazil's centralbank-led Pix, and regulatory driven implementation of the UK's own open banking initiative - demonstrate the many possible arrangements for effective leadership; without such leadership, payments innovation stalls. Architecture means addressing all aspects of payments innovation: encompassing not only shared infrastructure, technical standards and data governance, but also sustainable economic models and consistent user experiences. Paym stands as a salutary lesson in the consequences of pursuing payments innovation without a cohesive strategy, stakeholder alignment or sustained government backing. Finally, *Inclusion* is a central design objective. Relying on cash, a focus of this report's sponsor LINK, as a residual safeguard is neither equitable nor sustainable. Instead, to retain political and public support, digital payments innovation must be purposefully designed to serve the full diversity of users, including the financially excluded, digitally marginalised and underbanked.

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Table of Contents

Executive summary	4
1. Introduction	8
2. UK payments and the National Payments Vision	9
The transformation of UK payments	9
Recent developments in UK payments	11
The UK payments track record: fragmented governance and oversight	14
UK government's National Payments Vision (2024)	17
Implementation of the Vision	19
3. Understanding payments	21
Definitions, innovations and risk management	21
Technological and telecommunication infrastructures	24
The role of standards and interoperability	26
A high-level payments architecture	28
4. The foundations of effective payments innovation	31
Ensuring viable business models	31
Meeting user needs	33
Coordinating change	34
Bringing public opinion on board	35
Learning from the experience of other countries	38
5. Principles for an effective payments strategy	40
Leadership	40
Architecture	42
Inclusion	43
6. The new UK payments governance arrangements	47
Case studies	50
Case study 1: Pix in Brazil	51
Case study 2: Interac in Canada	53
Case study 3: Paym in the UK v. Swish in Sweden	55
Case study 4: Variable Recurring Payments in open banking	58
References	60
About the authors	66

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This report examines the challenge of digital payments innovation in the UK. It highlights the need for a strategic policy framework, a 'roadmap' for unlocking the significant economic and societal benefits available from payments innovation. It proposes three principles – Leadership, Architecture and Inclusion – for developing this roadmap and ensuring that it is both credible and politically achievable.

The need for a strategic policy framework.

- The continuing advances in digital technology are an undisputed opportunity for improved payments solutions in the UK that both: (i) provide at low cost the convenience, security, transparency and speed of transactions needed to support a high-growth economy; and (ii) leave no one behind, fully meeting all payments needs, including of those users reliant on pre-digital cash and cheque payment instruments.
- However, it is less clear that these opportunities from digital payments will be successfully pursued. The UK's track record in payments innovation over the past quarter of a century is decidedly mixed: while there have been advances, for example in the rapid adoption of contactless payments, in other respects UK payments innovation has stalled or lagged well behind that of other jurisdictions.⁴
- The urgency and policy importance of payments innovation is recognised in the recent 2023 Garner Future of Payments Review of UK payments and in the government's response: the 2024 National Payments Vision to be pursued by the National Payments Vision Delivery Committee and supported by other changes in payment oversight.

 Together these are a much needed call to action that has made payments innovation a central part of the current policy agenda. However, they fall short of being a clear statement of where UK payment arrangements are heading over the next decade and beyond and how they will get there.

⁴ Documented in Section 2 of this report. The 13-year effort to upgrade the supporting settlement infrastructures, leading to the proposed New Payments Architecture (NPA), has collapsed without any practical achievement. The Faster Payments Service (FPS) has achieved scale, although lags behind some comparable international real-time systems and relies on legacy technology. The UK has failed to provide any mobile person-to-person payment service such as Swish in Sweden or even Venmo in the US. Open banking, while successful in other aspects, has failed to achieve scale or offer a bank account-to-account payments alternative to the global card-based payment networks of Visa and Mastercard

⁵ With a number of supporting initiatives, including: the creation of the Vision Engagement Group, to reflect the views of the wide range of stakeholders, bank and non-bank payment service providers and user groups; the consolidation of the payments regulator the PSR into the Financial Conduct Authority (FCA) (and associated new legislation) and the launch of a review of the work of Pay.UK as the industry-owned body responsible for all UK bank account-to-account payment schemes (with the exception of ATMs, a separate responsibility of LINK)

- The UK has thus now reached a critical decision point. As we attempt to realise the benefits of digital payments innovation, do we continue our old, failed piecemeal approach? Or do we instead pursue a more joined-up strategic approach?
- Such a joined-up approach requires a strategic policy framework for UK payments, a roadmap, identifying the steps needed for successful promotion of digital innovations in UK payments and who has responsibility for taking these steps. This framework will need to be overarching but also focus on achievable actions. It must adequately address the complexities of payment systems, employing as they do a combination of shared infrastructures and standards, private services provision and public oversight in both serving the needs of a wide range of users and managing the inherent risks of financial transactions.
- This roadmap must prioritise a few core goals. These will no doubt be similar to those identified in the Garner review, which recommended among other objectives: (i) improved, secure and easy-to-use, person-to-person (P2P) bank payments (which Garner envisages as built on open banking); (ii) the provision of a bank account-to-account merchant payment solution, to give retailers a choice other than card schemes; (iii) some basic forms of dispute resolution mechanism in account-to-account consumer payments; and (iv) agreement on a commercial model for open banking payments that incentivises investment in infrastructure and consumer protection (and so supports a fuller range of open banking-based payments than the currently limited scope of Variable Recurring Payments (VRP)).
- This framework will also need buy-in across the wide range of payment stakeholders (including banks and other payment service providers, households and non-financial businesses and the trade and consumer bodies that represent their interests, the financial authorities and political representatives). In particular, this means addressing the concerns of those whose access to payment services is vulnerable to the decline in use of cash, a focus for this report's sponsor LINK, while at the same time addressing, not shying away from, sometimes difficult choices.

Three principles for an effective UK payments strategic policy framework.

For this framework to be effective it must be both credible and politically achievable. Credibility requires clear leadership and a comprehensive architecture: a design that addresses all aspects of payment operations. Political achievability requires directly addressing concerns, especially those about financial inclusion, ensuring no one is left inadequately served by the inevitable continued shift towards digital payments. There are thus three principles to observe in an effective strategic policy framework for payments innovation: Leadership, Architecture and Inclusion.

With these three principles, the required strategic framework can ensure effective decision making and a coherent approach to shaping the future of UK payments.

1. Leadership

- Leadership means having clear roles and responsibilities, across government and private industry, in all aspects of payments innovation.
- International evidence underscores the critical role of such leadership in creating the incentives for change and catalysing system-wide innovation.
- In some countries industry has provided primary leadership. An example is Sweden.
 Here the leading commercial banks built on their already established public
 responsibility for providing personal digital identification (the Swedish BankID) to
 establish Swish, the successful Swedish mobile account-to-account payment solution.
 The development of the Canadian Interac payment solution is another example of
 industry leadership.
- In other countries government or the financial authorities have provided primary leadership. Two examples of such successful state-led payments innovation are Pix in Brazil and PromptPay in Thailand. These exemplify how clear policy direction, public sector incentives and coordinated infrastructure investment can deliver transformative change.
- Such state primacy does not necessarily mean detailed government or regulatory intervention in the design of payment systems and operations. This can be a last resort when commercial stakeholders are unable to effectively coordinate or address the needs of all users.

2. Architecture

- The second principle is the need for a coherent and well-considered architecture, spanning infrastructure, technical standards, data governance and business models.
- In the UK, with a competitive banking market and mature legacy payment services, a fragmented approach is unlikely to drive innovation at scale. The challenges facing open banking in achieving scale adoption provide a cautionary lesson: technical enablement alone is insufficient without viable commercial models and clear governance structures.
- A strategic roadmap must address foundational questions of common standards, interoperability, and shared value creation across the ecosystem. As we discuss, common standards, and the interoperability these can support, are an opportunity to make all forms of payment cash, cards, bank account-to-account and digital e-cash serve interchangeably across a range of payment needs and to support competitive supply of a wide variety of payment services. An example of particular importance to our

sponsor LINK is the opportunity for closer integration of cash withdrawal with emerging digital solutions. However, while the potential gains are enormous, standards adoption and their implementation in interoperable transaction infrastructure are costly and challenging to manage at a payment system level.

 Unlocking the benefits of payments innovation will be further facilitated by their integration into e-government and the payment of benefits. This though involves a wider range of stakeholder and policy concerns than other aspects of payments innovation; so, it may not be possible for this to be a central part of a UK strategic payments framework.

3. Inclusion

- Financial inclusion must not be treated as a peripheral concern. There is a risk that, in the absence of explicit policy focus, inclusion is assumed to be already safeguarded by the policies on 'access to cash' that ensure continued availability of cash. The problem is that inevitably, because of the need to be as cost efficient as possible, digital technologies are inexorably pushing both businesses and public services away from the acceptance of cash. Thus, reliance on access to cash to ensure financial inclusion is not a sustainable or equitable approach.
- A truly inclusive digital payment system requires intentional design, embedding accessibility, user diversity and affordability into both the vision and the roadmap. Only this can ensure that digital innovation leaves no citizen or community behind.
- Designing in inclusion will bring reliable digital payment services to all citizens, including the unbanked and the underbanked, or those otherwise vulnerable.
- Addressing inclusion is essential if the pursuit of the 'National Payments Vision' is not to be hampered or even blocked by political concerns about the impact of the adoption of digital payments innovation on those users who are cash reliant or face difficulties in accessing digital channels such as smartphones.

Embedding the roadmap in public policy

The concluding section of this report, assessing the new governance arrangements for UK payments announced in July 2025, stresses the importance of the forthcoming UK Payments Strategy and subsequent Payments Forward Plan, due to be published by the Payments Vision Delivery Committee in coming months, providing such a roadmap.

⁶ The regulator, the FCA, has an overarching responsibility for supporting the continued provision of cash services, implemented in its rules on access to cash. A core responsibility of our sponsor LINK is ensuring widespread access to cash through ATMs and other channels. A major reason for LINK commissioning this report is the awareness its role gives it of the critical policy need to address the challenges of financial inclusion, as acceptance of cash is eroded, and the importance of embracing new digital technologies to provide effective solutions

1. Introduction

Following the 2023 Garner review and the publication of the 2024 National Payments Vision, new arrangements are emerging for the oversight and governance of UK payments. The success of these new arrangements requires a break from the past practice of ad hoc isolated policy interventions, replacing this with a coherent strategy for payments innovation that supports growth and enhances competition and access to financial services. This paper assesses this strategic opportunity and the business, economic and policy issues that must be addressed for its effective execution.

It is written at a high level with the goal of informing all those – not just payment specialists – who are engaging with the National Payments Vision and the future of UK payments. One challenge in addressing such a broad audience is the absence of any end-to-end description of the basics of payment operations in the UK, something that sets out clearly and precisely for a non-technical audience the key elements and how they fit together, and from this identifying the possibilities for future development of UK payment systems through digital innovation to support inclusive growth.

The analysis is presented as follows. Section 2 reviews the policy issues: the digital transformation of UK payments and the issues this raises; a brief review of governance of UK payments as it has previously operated and a summary of how the new National Payments Vision addresses the opportunities and threats of innovation. Section 3 is a description of the key elements of payment operations: what actually takes place when we receive income, pay our bills, purchase goods and services or invest our savings. Section 4 discusses the resulting barriers to payments innovation: why this is much more than just technology. Section 5 concludes, setting out three principles for designing an effective strategic framework for payments innovation: (i) Leadership (ii) Architecture; (iii) Inclusion. Section 6 reviews the recently announced new governance arrangements for UK payments. There are four supporting case studies.

This report was commissioned and paid for by LINK, the provider of the UK's main ATM network. It is an independent report. We were given complete freedom in writing our text, apart from a request that we give full consideration to the payments issues, such as the declining role of cash, that most concern LINK. While historically cash focused, LINK is expanding its role beyond cash to alternative digital payments solutions. LINK aims to help those currently relying on cash when they choose to move onto other digital payment channels where they see a benefit from its advantages and wish to mitigate the increasing limitations of relying only on cash for payments. The views expressed here should not be attributed to LINK or to any other institution with which the authors are associated.

⁷ (Garner, 2023; HM Treasury, 2024)

2. UK payments and the National Payments Vision

The transformation of UK payments

The UK is undergoing a profound transformation in how value is exchanged. The dominance of digital payments, led by the rapid expansion of card payments and contactless technology, is reshaping consumer behaviour, market infrastructure and the very nature of monetary interaction. Simultaneously, cash use for payments is in long-term decline, raising critical questions about accessibility, financial inclusion and state oversight of payment systems.

The shift from cash to card in the UK is not merely technological – it is cultural, political and economic. This moment is the opportunity to interrogate the governance, ethics and consequences of payment system transformation. The debate must move beyond convenience and cost, to critically examine what is gained – and what is lost – as the use of cash continues to decline and digital means of payments are on the rise. Interoperability between traditional payments methods such as cash and ATMs and new payment methods will be vital. This form of interoperability is especially important for this report's sponsor, LINK, as it will help it manage the ongoing reduction in cash usage for payments. In particular, such interoperability will give consumers confidence that when they start to use alternative digital methods, they will retain full access to cash should they need it.

In 2024, monthly debit card transactions exceeded 2.2 billion, with contactless accounting for 77% of debit card usage and 65% of credit card payments (UK Finance, 2024). The COVID-19 pandemic accelerated contactless adoption by shifting norms around hygiene and digital readiness, with a permanent impact as new payment habits were established.⁸ As a result Visa and Mastercard have entrenched their market power, raising concerns about platform monopolies, fee structures and regulatory capture.⁹ Embedded finance, mobile wallets and the rise of 'tap and go' culture reflect the frictionless ideology of the digital consumer economy. According to the Bank of England, cash use has fallen by 60% over the past decade, with only 12% of payments in 2023 made in cash, a figure expected to decline further.¹⁰

The infrastructure of cash, ATMs, high street banks and cash-in-transit services is under threat. This infrastructure has needed regulatory protection, implemented by LINK, to enforce the access to cash requirements of the FCA. This protection means that in the

^{8 (}Auer et al., 2023)

⁹ (Evans & Schmalensee, 2005)

¹⁰ (UK Finance and Accenture, 2024)

short to medium term there will be no collapse in cash. Still, the threat to cash is real and disproportionately affects the elderly, rural communities and low-income households.¹¹

Declining acceptance of cash is a growing problem as economic pressures push both merchants and public bodies to switch to alternative digital payments. While access to cash is protected through the actions of service providers, coordinated by LINK, loss of acceptance threatens to make cash increasingly unattractive as a payments instrument. Cash, once a symbol of autonomy and anonymity, is being recast as anachronistic, inefficient, insecure and inconvenient in a digitised economy. Yet, its decline has implications for consumer choice, resilience, privacy and financial inclusion in the payments system and cash continues to have vocal proponents among politicians and sections of the media.

The UK's National Payments Vision acknowledges that the country is now falling behind its international peers in terms of payments innovation. Pegulatory attention has shifted to open banking, account-to-account payments, and potential future with CBDCs (Central Bank Digital Currencies) and other forms of digital assets, yet these have failed to achieve scale so far. And in payments, what does not scale does not matter. The question of who benefits from digital payments growth, and who is excluded, must be placed at the centre of academic and policy discourse. Pegulatory attention has shifted to open banking, account-to-account payments, and potential future with CBDCs (Central Bank Digital Currencies) and other forms of digital assets, yet these have failed to achieve scale so far. And in payments growth, and who is excluded, must be placed at the centre of academic and policy discourse.

Policy maker attention to UK payments has also been driven by concerns about fraud and security, including the unwelcome and highly publicised rise in authorised push payment (APP) fraud losses from £236 million in 2017 to a peak of £583 million in 2021 and falling back slightly but still £451 million in 2024. A continuing priority for UK payments will be strengthening fraud protections as payments become increasingly automated and digitised.

Will the 'decline of cash' produce a fully financialised and datafied public, or provoke a countermovement towards alternative, community-based or decentralised systems (e.g. crypto, mutual credit)? What are the implications of 'invisible payments' (embedded and automated) for consent, control and citizenship in the digital economy? Especially if Agentic AI, that is 'AI bots' that automate everyday tasks achieve the dominance envisaged by some technology forecasters.

¹¹ Documented in the work of the FCA, in developing its new access to cash regime, see (FCA, 2023; Suter et al., 2023)

^{12 (}HM Treasury, 2024)

^{13 (}Maurer, 2015)

^{14 (}Finance, 2024)

Recent developments in UK payments

The combination of technological innovation (e.g. tokenisation and digital assets), changing consumer behaviours (e.g. digital wallet adoption) and an evolving policy landscape (e.g. National Payments Vision) creates a potential inflection point for UK payments sector innovation. With several key trends potentially shaping the sector and influencing UK payments policy.

Industry bodies such as The Payments Association and UK Finance suggest key trends include the continued growth of digital wallets and the potential for open banking to fuel instant account-to-account payments. They also describe fraud prevention and security (e.g. countering APP scams) as a critical area of short-term focus. Longer-term industry bodies and commentators suggest digital assets (like stablecoins and central bank digital currencies) have the potential to drive a step-change in payments innovation. Consulting firms such as PwC describe the structural shift towards digital, cashless retail payments, migrating to card payments that are increasingly contactless mobile (e.g. via smartphones and smartwatches). Advisory and consulting firms also highlight the growth in account-to-account and digital wallets.

Building on the above perspectives, several emerging or evolving trends are particularly noteworthy in the UK payments sector:

- Fintech Investment Hits a Four-Year Low. After a period of frenzied growth, investment in UK fintech has recently receded. A combination of geopolitical uncertainty, high inflation and rising interest rates contributed to a slump in fintech funding in 2024, bringing total investment down to its lowest level since 2020. According to KPMG's Pulse of Fintech report, UK fintech companies attracted £7.97 billion in 2024 a sharp drop from the £10.95 billion raised the year before. This >25% year-on-year decline reflects a more cautious investor climate and valuation pressures. Importantly, however, the UK remains the European leader in fintech by a wide margin. Despite the pullback, the UK still accounted for close to half of all fintech investment in the EMEA region last year, attracting more funding than France, Germany and other major markets combined. This suggests that while fintech funding is cooling globally, the UK's fintech sector continues to command confidence and maintains its leading position within Europe. Going forward, the question is: will investment rebound as economic conditions improve, or will public policy or other changes be appropriate to reignite the pace of fintech innovation in payments?
- *Growth of Digital Wallet Adoption.* The use of digital wallets for payments has accelerated dramatically in Britain, altering how consumers transact, as highlighted by industry

¹⁵ (KPMG, 2025)

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commentators and regulators. For example, a joint FCA and Payment Systems Regulator (PSR) report found that the proportion of card transactions made via digital wallets (such as Apple Pay or Google Pay) rose from just 8% in 2019 to 29% in 2023. In other words, nearly a third of card payments are now 'tokenised' through a smartphone or wearable wallet – a remarkable uptake in a few years. This growth is attributed to the benefits digital wallets offer consumers, including greater convenience at checkout allowing some consumers to 'leave their wallets at home'. With digital wallet usage moving into the mainstream, authorities are also examining the competitive implications of this trend. The FCA/PSR review noted concerns that the digital wallet market is highly concentrated, with the two big tech providers dominating mobile ecosystems and therefore this is an area to watch. There are also practical interoperability problems as the LINK network will need upgrading to accept contactless, a pressing problem as card use declines in favour of wallets on devices.

- Expansion of Payment Tokenisation. Payment tokenisation is increasingly at the core of secure digital payments, and its role is expanding across the ecosystem. Tokenisation refers to replacing sensitive payment data with the one-time use of a surrogate 'token' to protect payment information. The technical standards body EMVCo has developed a widely adopted framework for payment tokenisation that is now being implemented in many channels. In essence, tokenisation removes the most valuable data for fraudsters, the primary account number (PAN) of a card, from a transaction and substitutes it with a unique token that is cryptographically tied to a specific device, merchant or use case. This dramatically limits the risk that stolen payment credentials can be misused, enhancing security for in-store, online and mobile payments. Both Visa and Mastercard have issued tokenisation mandates, which may practically spell the end of fraudsters hacking retailer card on file systems. If the rate of tokenisation continues, what will be the implications for the market power of the global card schemes?
- Stablecoins in Retail Payments. The potential introduction of stablecoins as a new form of retail payment is another important trend under close observation. Stablecoins are currencies held and transferred on distributed ledgers, designed to hold a stable value in terms of another established financial asset. Much of the most widely held are stablecoins pegged to the US dollar, notably Tether's USDT and Circle's USDC, but conceivably there could, in future, be a widely held stablecoin pegged to the pound sterling. An open question is whether such stablecoins could become too widely used as a reliable medium of exchange (they are already employed for crypto trading and in some cases also for international payments, in countries where international bank payments fail to satisfactorily meet international payment needs, either because of capital controls or, in some countries, where international bank payments are still excessively slow and costly).

16 (FCA/PSR, 2025)

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• Open Banking Adoption. Since its launch in the UK in 2018 open banking has made substantial progress, with over seven million users and more than 300 authorised third-party providers now active in the ecosystem. It has enabled new consumer-facing services such as budgeting tools, real-time payments and account aggregation, and has been widely adopted by fintechs and challenger banks. However, despite regulatory backing and visible innovation, open banking continues to face significant challenges. Consumer awareness remains limited, and many individuals remain uncertain about its benefits or data security. Market concentration has also drawn criticism, as the complexity and cost of API integration often favour larger incumbents, undermining open banking's original goal of enhancing competition. In addition, concerns persist around data privacy, liability frameworks and the long-term governance of the Open Banking Implementation Entity (OBIE). While the regulator and policy makers have sought to address these issues, the question is: will open banking achieve consumer scale and its full potential?

Those who closely follow current policy and business discussion of UK payments will notice that we do not include current efforts at developing so-called 'tokenised deposits' in this list of current emerging or evolving trends.¹⁷ There are two main reasons for this deliberate omission. First to avoid employing the confusing and ambiguous term tokenised deposits, whose use serves only to hinder rather than help the key challenge of reaching a consensus on the future of UK payments.¹⁸ In payments the term tokenisation refers, as explained above, to the use in a transaction of a surrogate one-time token to replace sensitive payment data. Where reference is made to tokenised deposits what is meant is something quite different: the recording and transfer of bank deposits on a shared distributed ledger (a so-called public permissioned blockchain). Proponents of this novel architecture argue that this will lead to substantial processing efficiencies in money and payments.¹⁹

The second and more important reason for avoiding reference to tokenised deposits is that distributed ledger technologies have, to date, played no role at all in payments innovation in those many countries where payment technologies have advanced well ahead of those adopted and used in the UK, leaving, as we point out, the payment needs of UK households and businesses relatively poorly served. This is not to say that distributed ledger technologies will never have a role in mainstream household and business payments. To focus on these yet unproven developments, rather than one that has been established to work already, is to make the all-too-common mistake of pursuing an ideal rather than practical solution. An effective roadmap for the future of UK payments must

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¹⁷ There is now extensive exploration of the possibilities of so-called tokenised deposits, involving central and commercial banks around the world, for example in the work reported by (BIS, 2024; RLNUS, 2023; UK Finance, 2023) ¹⁸ For a fuller discussion of the problematic nature of references to tokenised money and other terminological problems in discussion of monetary and crypto innovation, see (Bindseil et al., 2025; Milne, 2023) ¹⁹ For an articulate and well-reasoned statement of this view see (McLaughlin, 2021)

focus on what can be shown to work, recognising that in payments innovation, often: 'The best is the enemy of the good'.

This does not mean that the possibilities of distributed ledger technologies should be entirely ignored. Stablecoins have demonstrated the use of distributed ledger technologies for fiat, primarily US dollar, transactions and this has naturally attracted the attention of policy makers, who must at the very least be ready for the possibility that these applications extend into domestic retail payments. More broadly, policy makers are also committed to supporting innovation in payments, so while they naturally wish to ensure that adoption of stablecoins does not create unacceptable risks to financial stability, they do not want to place unnecessary barriers to the adoption of distributed ledger technologies in payments.

The Bank of England has been actively examining, from this perspective, how stablecoins might be incorporated into the UK's regulated payments landscape. In a speech in May 2025, Deputy Governor Sarah Breeden discussed the next steps for a UK stablecoin regime and the principles guiding the Bank's approach.²⁰ A key concern for the Bank is preserving the 'singleness of money', the principle that one pound in whatever form (cash, bank deposit or stablecoin or even a central bank digital currency i.e. the proposed digital pound) should be freely convertible at par with another, ensuring uniform value across the monetary system. This is a challenge for stablecoins because their values do fluctuate, usually to only a minor degree, from par. Officials acknowledge this is a fast-moving space, and they are consulting with industry as they refine the rules. One of the arguments made for the issue of a digital pound is that maintaining direct public access to central bank money, as the use of cash declines, will help maintain the singleness of money. This is an area to watch, not only in consideration of potential to spur innovation, but also the evolving regulatory position for stablecoin operators.

The UK payments track record: fragmented governance and oversight

To date, developments in the application of digital technologies in UK payments have been fragmentary. There have been some notable achievements, such as faster and contactless payments, as well as a widespread adoption of digital smartphone wallets as an alternative to payment cards. There is though still no overall consensus on the future shape of UK payments, continuing concerns about the negative consequences of digitisation and a failure to match the advances in digital payment services available to government, business and household payments in many other countries.

This fragmentation is reflected in the frequent changes in arrangements for governance, oversight and regulation of UK payments. The original governance arrangement,

²⁰ (Breeden, 2025)

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continuing until the mid-2000s, was self-regulation. Until the 1990s each retail payment solution (ATM cash withdrawals, cheques, cards, account-to-account payments) was managed independently as separate bank-owned schemes. 1991 saw the creation of the bank-dominated Association for Payment Clearing Services (APACS), overseeing cheques, cards and electronic account transfers, although it lost its role in card payments when the two domestic debit card schemes were absorbed by the global card schemes, Delta in 1996 by Visa, and Switch/Maestro by Mastercard in 2002.

A second regime, with stronger powers of regulatory intervention, was established following the criticisms of UK payments as a bank-dominated cartel in the 2000 Cruickshank review of competition in UK banking. The retail payment schemes continued to operate separately, but the Office of Fair Trading (OFT) was given responsibilities for addressing this perceived lack of competition in UK payments. It pursued its own investigations and then mandated the 2008 launch of Faster Payments and also introduced regulatory caps on card interchange fees. In 2007 the strategic responsibilities of APACS were transferred to the Payments Council, created to reflect the interests of a wider group of stakeholders with consumer group and non-bank representatives; and then APACS was closed with its operational and standard-setting responsibilities transferred to the UK Payments Authority. The Payments Council developed plans for the phasing out of cheques, but this was reversed in 2011 in the face of public and political opposition. More successful was its implementation of the OFT-mandated Faster Payments and the engagement of the UK industry in the EU-wide SEPA (Single European Payments Area) project establishing the use of IBAN in cross-border payments.

A third regime was introduced by the 2013 Banking Reform Act of the Cameron/Osborne administration (which also introduced the ring-fencing of UK retail banking) This saw: (i) the 2015 creation of the PSR along with the abolition of the Payments Council; (ii) the 2015-2017 work of the Payments Strategy Forum, an independent advisory group established by the PSR to advise on national payments strategy; and (iii) the 2017 creation from the UK Payments Authority of Pay.UK (first titled the New Payment System Operator, then named Pay.UK from 2019), an industry-funded body combining the operations and standard setting of the cheque, Faster Payments and BACS payment schemes. This regime introduced confirmation of payee and greater responsibility of banks for fraud reimbursement, to address the growing problems of APP fraud.

Pay.UK also took responsibility for developing and implementing the Payments Strategy Forum proposal for a UK New Payments Architecture, a proposed combined real-time platform for BACS, Faster Payments and large-value real-time CHAPS payments, intended to offer 24/7 operations, compliant with the ISO 20022 XML standard to support enriched payment messaging and providing API access for fintech payment service providers. Progress on the NPA has been halted – with some reports suggesting implementation is now being pushed back to 2030 and will be limited initially to the faster payments with

BACS as a subsequent optional development (What is the New Payments Architecture? | Interbacs). This period also saw the 2018 launch of Open Banking (as in the case of Faster Payments, an initiative mandated by the competition regulator, now the Competition and Markets Authority (CMA) which had absorbed the Office of Fair Trading). Open Banking though remains only partially integrated with bank payment schemes, limiting the potential for enhanced arrangements for payment initiation.

The 2023 Garner Future of Payments Review, drawing on three months of consultation with payment users and payment providers, summarises the weaknesses in past efforts to innovate UK payments thus:²¹

"We found many well-intended in-flight initiatives which all make sense in isolation, but in the course of our work, we could not find a clear agreed vision of what they are aiming to achieve in aggregate. Without question the strongest piece of feedback we received through this review is that the UK's payments landscape lacks vision and clarity of priorities. This lack of vision and strategy means that it is hard to have high confidence in achieving a coherent outcome in 5-10 years' time."

One specific but also politically challenging example of the previously fragmented approach to payments innovation in the UK, is the failure to establish an agreed approach to identity verification in UK payments. The Garner review summarises this well:

"In countries where there is a national identifier or digital ID, progress has often been made more rapidly in the payments space. The most prominent example is India, but Scandinavia and The Netherlands are also examples. It was argued quite forcefully by certain contributors to this report that the UK should progress some form of digital ID. Additionally, this issue was raised in 31% of responses. These are not necessarily IDs in a traditional way but could be a much more 'customer centric' ID than previous national attempts. There is difficult political history around national ID schemes in the UK, but there are also many use cases beyond financial services. Therefore, we do think that: a) it makes sense for the industry and government to continue to look at the opportunities in this space that emerge from new technology and b) Big Tech has the potential to play a key role in the future of digital identity or verification. Although difficult to achieve, we would suggest it would be a good idea to have one 'pan-government' stream of exploratory work in this area. History indicates that a fragmented approach is almost certain to fail."

Digital identity verification goes well beyond payments, offering potentially substantial efficiency gains across the entire range of government and business services; but the goal of establishing seamless national systems for identity verification runs into major opposition from the long-standing and deep-rooted British suspicions of identity cards

^{21 (}Garner, 2023, pg 8)

and other identity schemes as major threats to personal freedom. Bridging these wide divides of opinion on identity verification is an illustration of both: the essential role of a compelling and credible roadmap for UK payments innovation, in order to move on from the previously fragmented approaches and find a coherent and successful path to UK payments innovation; and of the challenge of achieving the necessary wide consensus across the full range of public and political opinion to then follow the path that this sets out.

UK government's National Payments Vision (2024)

A new regime, the fourth in a quarter of a century, is now being set up for the oversight, governance and regulation of UK payments. This follows the recommendations of the 2024 National Payments Vision (hereafter 'the Vision'), with the goal of establishing a more strategic, coordinated approach to transforming the UK's payments landscape in response to rapid technological innovation, evolving consumer preferences and growing competitive pressures globally. Its stated aim is to create a **trusted**, **world-leading payments ecosystem** underpinned by next-generation infrastructure, regulatory clarity and inclusive design. With key themes and objectives as follows:

Strategic Direction and Governance: The Vision responds to the Garner review (2023), which highlighted regulatory congestion, a lack of coordinated leadership and underperformance in infrastructure modernisation. It establishes a Payments Vision Delivery Committee, chaired by HM Treasury, to coordinate regulator and stakeholder activity, supported by a multi-sector Vision Engagement Group.

Strengthening Foundations: The Vision calls for a "clear, proportionate and coordinated regulatory framework", urging greater collaboration between the FCA, PSR, and the Bank of England. Subsequently, the Prime Minister has announced the intention of consolidating the PSR into the FCA. It introduces a 'joint payments remit letter' from HM Treasury to regulators to align economic growth objectives with regulatory action.

A New Approach: The Vision recognises deficiencies in current infrastructure, particularly the FPS, and signals a shift away from the troubled NPA programme towards a more agile and flexible approach.

The Vision identifies number of strategic objectives for improving payments:

- Innovation: Enabling scalable technologies such as open banking, digital ID, AI, and exploring CBDC.
- Competition: Promoting consumer and business choice, particularly in account-to-account payment systems, while fostering fintech innovation.

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- Security: Ensuring fraud prevention, resilience and consumer protections remain central to system design and policy.
- Open banking and Open Finance: open banking is positioned as a key enabler of future payments innovation, with a particular emphasis on enabling seamless e-commerce payments. The FCA will become the lead regulator for open banking under proposed legislation, with PSR support for rail-level interoperability and economic oversight.
 Work on a commercial model for open banking and consumer protection framework is prioritised, with a view to extending these to Open Finance.
- Infrastructure Reform and Interoperability: Acknowledges concerns around Pay.UK's
 governance and capability. The Committee will evaluate reforms to retail infrastructure
 governance, including potential restructuring of Pay.UK and the fuller adoption of
 international standards like ISO 20022. Explores opportunities for international
 interoperability and participation in initiatives such as the Regulated Liability
 Network (RLN).
- Exploring a Digital Pound: The Vision commits to further design-phase work on a retail CBDC (digital pound), in partnership with the Bank of England. It emphasises that any implementation would be subject to primary legislation and full public consultation, with guarantees around privacy and inclusion.
- Tackling Payment Fraud: Fraud is recognised as a critical systemic risk, costing UK
 consumers an estimated £8.3 billion annually. The Vision mandates more intelligence
 sharing, upstream prevention and cross-sectoral collaboration with tech and telecoms
 to tackle fraud at source. Regulatory clarity is being pursued, with the FCA leading
 on fraud-related policy, and reconfirms the planned review of the PSR's APP fraud
 reimbursement rules.
- Implementation and Next Steps: A Payments Forward Plan will be published by the Payments Vision Delivery Committee to sequence regulatory initiatives and clarify sectoral priorities. Broad stakeholder engagement is embedded in the governance model, with open application to join the Vision Engagement Group from across the ecosystem.

Finally, worth highlighting is the aspiration of the Vision for inclusive growth. Inclusive growth means that economic growth is distributed fairly across society and creates opportunities for all, particularly for marginalised and disadvantaged groups; while inclusive growth in financial services refers more specifically to the expansion of financial access and opportunities for all individuals and businesses, particularly underserved

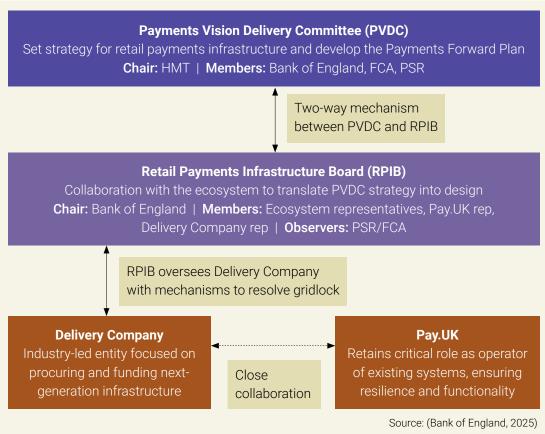
populations, to ensure equitable economic participation.²² The Vision aims to ensure that the benefits of innovation in payments reach every segment of the population, reducing inequality and fostering social cohesion.

Implementation of the Vision

Further steps in implementing Vision were announced on 15 July 2025, establishing two new bodies:²³ an industry-led Delivery Company responsible for procuring and funding infrastructure; and a Retail Payments Infrastructure Board, chaired by the Bank of England (with Pay.UK, the Delivery Company and bank and non-bank payments industry representatives) responsible for translating the agreed strategy of the UK Payments Vision Delivery Committee into practical design.

Figure 1: Pay.UK, while relinquishing its responsibilities for infrastructural innovation, retains its responsibilities for operating existing payment schemes – cheques, BACS and Faster Payments.

Figure 1. The new collaborative governance arrangements for UK payments innovation



²² Work at the World Bank provides extensive discussion of inclusive growth, especially in the context of financial services, see (Demirgüç-Kunt et al., 2017; Ianchovichina & Lundström, 2009)

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²³ (Andrew Bailey, 2025; Bank of England & HM Treasury, 2025)

The National Payments Vision Delivery Committee will work over the coming months to develop its published strategy (expected in autumn 2025) and then subsequently the Payments Forward Plan, in consultation with the Payments Vision Engagement Group.

The text of this paper was almost complete when these new arrangements were announced. Our concluding Section 6 uses our analytical framework and our three principles of Leadership, Architecture and Inclusion to identify some of the key issues that this new structure will need to address.

3. Understanding payments

This section provides an overview of payments processes, to support the subsequent analysis of the foundations for successful payments innovation (Section 4) and our proposed three principles of Leadership, Architecture and Innovation (Section 5).²⁴ This overview is provided because few of us, while familiar with payment user interfaces, have any detailed knowledge about the underlying supporting processes. We take cash from ATMs and use it for payment to merchants, without considering the processes and costs of its further circulation, in the refilling of ATMs, withdrawal and further use. We make payments online or in person, with cards or smartphone apps, without considering how money from our bank or card account is transferred to the account of the business or individual receiving our money. Unless something goes wrong, we are unaware of the many supporting arrangements for ensuring the security of these payments, avoiding fraud or loss, and providing broader transaction functionality (for example, the chargebacks onto cards to deal with returned goods or overcharging).

A basic understanding of payments and these sometimes quite complex supporting processes and arrangements is required for discussing and developing a strategic policy framework for UK payments innovation. This framework is in turn, as we argue, necessary for pursuing the government's agenda for payments innovation. Discussing payments innovation, without being acquainted with the basics of payment processes and systems set out in this section, risks repeating the UK's past fragmented approach to payments innovation and the consequent patchy and disappointing track record.

Definitions, innovations and risk management

The evolution and function of modern payment systems constitute a central concern within financial infrastructure studies. Before we present the principles for effective payment system strategy and innovation, it is essential to point out the foundational terminology and architecture that underpin the business of payments. Payment systems operate within a technically and operationally complex landscape, and the literature emphasises the need for conceptual precision when discussing innovation and reform.²⁵

Payment system definition

Payment instruments – including cash, cheques, credit cards and electronic transfers – are integral to the functioning of a market-based economy, as virtually all commercial transactions necessitate the transfer of value. ²⁶ As such, the demand for financial transactions is inseparable from the demand for payment instruments. The Committee

²⁴ For further overview of payments processes and systems see (Benson et al., 2017; de Terán & Leibbrandt, 2021)

²⁵ See (Berger et al., 1996; CPSS, 2001)

²⁶ (Berger et al., 1996)

on Payment and Settlement Systems (CPSS) of the Bank for International Settlements (BIS) underscores the systemic significance of payment systems, asserting that their stability is essential to mitigating financial contagion and maintaining macroeconomic equilibrium (BIS, 2001).

Payment systems can be differentiated from the broader concept of money. As Federal Reserve Chair Alan Greenspan articulated, a payment system constitutes a series of mechanisms – combined with rules and procedures – that facilitate the movement of funds between economic entities. This may involve simple exchanges such as cash transactions, or complex arrangements involving financial intermediaries, electronic messaging systems and settlement agents. *Payment systems thus function as infrastructures* that process financial obligations across several institutions.

Table 1. Description of payment stages

Payment stage	Description
1. Authorisation and initiation of the payment	This stage involves the submission of the payment order by the payer in order for the funds to be transferred
2. Transmission and exchange of the payment instructions	This involves the transmission and exchange of obligations between the parties involved in the transaction. This process also includes the netting (or offsetting) of the obligations where necessary
3. Settlement of the payment	This final stage entails the compensation sent from the payer's bank to the payee's bank. A third-party settlement agent is usually involved in this process

According to the payments literature, the life cycle of a payment broadly consists of three core stages:²⁸ (i) *authorisation* and *initiation*, where the payer submits the payment order (this stage includes identification and verification of stakeholders); (ii) *transmission of instructions* (also sometimes called *clearing*), where obligations are exchanged and potentially netted; and (iii) *settlement*, where final fund transfers occur, often through a designated settlement agent.

²⁷ (Greenspan, 1996)

²⁸ (Sheppard, 1996)

Based on Table 1 above, the respective infrastructure and overall payments architecture needs to be present to support the facilitation of these core stages across the life cycle of payments and respective data flows.

Risks in payment systems

As payment systems advance through these stages, they are exposed to various categories of risk, broadly divided into financial and operational risks. Financial risks include credit risk – where a participant fails to fulfil settlement obligations – and liquidity risk, arising from inadequate funding at the time of settlement. Systemic risk occurs when failures cascade through the financial system due to interdependencies. Operational risks involve system failures or human errors, while legal risks emerge from regulatory ambiguities and jurisdictional conflicts.

To address these vulnerabilities, particularly in systemically important payment systems (SIPS), the BIS has formulated ten core principles. These stipulate, among other requirements, a sound legal framework, transparent risk assessment protocols, prompt settlement capabilities, operational resilience, and central bank claims for settlement assets (BIS, 2001, pg 3).

Payment systems and settlement modalities

The classification of payment systems is also informed by their settlement characteristics. Systems can operate on either a net or gross settlement basis. In *Deferred Net Settlement (DNS)* systems, multiple transactions are netted against each other and settled in aggregate at designated intervals – typically at the end of the business day. In contrast, *Real-Time Gross Settlement (RTGS)* systems process and settle each transaction individually and instantaneously upon initiation (Berger et al., 1996; Sheppard, 1996).

While DNS systems offer cost efficiencies by aggregating payments, they are inherently exposed to higher levels of credit and liquidity risk due to settlement delays. RTGS systems, although operationally more demanding and capital-intensive, significantly reduce systemic risk by eliminating the time lag in fund transfers. The transition of CHIPS (Clearing House Interbank Payments System) in the US from a DNS to an RTGS model in 2001 is often cited as an institutional shift in favour of real-time settlements.³⁰

However, RTGS systems are not without their challenges. They require substantial liquidity buffers, which may strain participating institutions. Central banks may intervene as liquidity providers in such cases to ensure uninterrupted operations. The trade-off between efficiency and risk mitigation continues to inform policy debates surrounding the design and governance of payment systems.

²⁹ (CPSS, 2001; Sheppard, 1996)

³⁰ (Berger et al., 1996; CPSS, 2001)

^{31 (}Flannery, 1999; Rochet & Tirole, 1996a)

Role of central banks

Central banks play a pivotal role in the development, regulation and oversight of national and regional payment infrastructures. They often own or operate large-value payment systems (LVPS) and may act as settlement agents in systems they do not directly manage (Sheppard, 1996; BIS, 2001).³² Their supervisory function includes ensuring compliance with international standards and promoting system-wide resilience. This involvement underscores the broader macroprudential objectives of central banks, linking payment systems stability to overall financial health.

Technological and telecommunication infrastructures

To understand the impact of payment system innovations – particularly in terms of efficiency, risk mitigation, cost structures and value creation – it is essential to explore the technological and telecommunication infrastructures underpinning these systems. Payment systems, as mechanisms for transferring value, rely on a complex array of technologies that facilitate secure and efficient transactions. These technological frameworks not only enable but also enhance the performance and resilience of payment infrastructures (Greenspan, 1996).

The effectiveness of payment systems is contingent on robust communication and transport infrastructures. A deficient network can lead to inefficiencies and heightened settlement risk due to delays in the transaction cycle. Conversely, real-time electronic clearing and settlement systems can virtually eliminate credit risk by ensuring instant finality. Recognising this, central banks and financial institutions increasingly invest in advanced systems that can process transactions swiftly and with minimal operational exposure. Investment in technology, however, must be commensurate with the level of risk. For example, deploying sophisticated infrastructure for a small-value funds transfer (SVFT) system with limited risk exposure may not be cost-effective. In contrast, largevalue funds transfer systems (LVFTs) and systemically important payment systems (SIPS), which face elevated settlement and liquidity risks, warrant significant technological investment.33 Recent decades have witnessed transformative effects of information and communication technologies (ICTs) on payment infrastructures.34 Enhanced computing capabilities and digital communication tools have drastically reduced transaction times, prompting the widespread adoption of RTGS systems in many large-value payment systems.35 These developments also mitigate operational risks by reducing human error and ensuring business continuity through backup systems – essential for preventing systemic 'gridlocks' during crises.36

³² (CPSS, 2001; Sheppard, 1996)

³³ (Berger et al., 1996; Flannery, 1996; Rochet & Tirole, 1996b, 1996a)

^{34 (}Sienkiewicz, 2002)

^{35 (}BIS, 2009; CPSS, 2002)

^{36 (}Sheppard, 1996)

The payment process relies on two interconnected infrastructures: the *core infrastructure* and the *complementary* (or transaction) infrastructure.³⁷ The core infrastructure comprises the hardware and software operated – typically – by central banks or designated settlement agents, while the transaction infrastructure facilitates the creation, validation and transmission of payment instructions via telecommunication services or other communication channels.³⁸ These services include agent authentication, payment authorisation, instruction processing and inter-institution communication.

As with core systems, the transaction infrastructure may be internally operated or outsourced to network providers. The configuration of communication networks varies depending on the type of system. For instance, cross-border LVPS networks require greater interoperability and compatibility than domestic SVPS setups. Market structure and participant diversity also influence infrastructure design, necessitating robust and secure systems to preserve financial stability.³⁹

Financial institutions transmit payment instructions electronically, using structured message flows – most notably the so-called 'V-shaped' architecture employed by global RTGS systems. This involves a sending bank initiating a payment message, processed through the central settlement infrastructure, which then issues a confirmation to the receiving institution. ⁴⁰ Innovations in payment networks have established complex financial ecosystems where institutions are interlinked, forming efficient value-transfer systems. The structure of these networks – shaped by the number and heterogeneity of participants – affects system performance and resilience. ⁴¹ Despite the potential for systemic risk, such networks offer reduced transaction costs and generate economies of scale through connectivity. ⁴² These benefits often outweigh the costs of expanding infrastructure and onboarding new institutions. ⁴³

The governance of financial networks can be categorised by ownership and scope. Proprietary networks, like the early ATM systems in the US, were privately established for limited regional use. 44 In contrast, national and international open networks typically emerge through collaborative efforts among banks, regulators and other stakeholders, often manifesting as jointly owned systems. 45 A good example is LINK (the sponsors of this report), a regulated not-for-profit entity, operating the UK's ATM network, which allows consumers to withdraw cash from ATMs regardless of whether or not they belong to their

^{37 (}CPSS, 2005)

^{38 (}CPSS, 2006)

³⁹ (CPSS, 2005)

^{40 (}CPSS, 1997, 2005)

^{41 (}Casson, 2010)

^{42 (}Domowitz, 1995; Hancock et al., 1999)

^{43 (}Hancock & Humphrey, 1997)

^{44 (}Batiz-Lazo, 2009; Sienkiewicz, 2002)

^{45 (}CPSS, 2001)

bank. Almost every ATM access in the UK is through LINK and the vast majority of cash withdrawals, over 95%, are free. This is facilitated by an interchange fee payable by the card issuer, a bank or building society, to the ATM operator, which may be a bank, building society or increasingly, an independent ATM deployer (IAD).

The role of standards and interoperability

Recent innovations have enabled system interoperability through technical gateways and standardisation, allowing disparate networks – LVPS, SVPS, securities systems and proprietary infrastructures – to communicate seamlessly.⁴⁶ The resulting end-to-end automation and standardised messaging significantly enhance efficiency and reduce operational dependencies. Interoperability between diverse financial systems necessitates standardised messaging formats, or 'message standards', which ensure the seamless exchange of payment information.⁴⁷ Standards, broadly defined as technical specifications adhered to by producers, may emerge via market adoption or formal agreements.⁴⁸ They are classified as unsponsored, sponsored, mandated or formed through voluntary coalitions.⁴⁹ For example, the facsimile machine exemplifies an unsponsored standard, whereas formats developed by firms for strategic gain are considered sponsored.⁵⁰

The adoption of standards enhances automation and reduces transaction costs.⁵¹ Modern syntax formats such as XML offer descriptive, platform-neutral, and flexible structures.⁵² These enable Straight Through Processing (STP), where end-to-end transactions occur without manual intervention, minimising errors and operational risks.⁵³ Message standards generally consist of two layers: syntax (data structure) and business content (transaction-specific information), which, when standardised, facilitate integration across financial systems.⁵⁴ Ultimately, standards underpin automation, enabling higher data quality, faster processing and improved customer experience across financial networks.⁵⁵ A good example in the context of payments is ISO 20022. Adopting ISO 20022 could deliver significant economic advantages by overcoming the constraints of older fixed-field messaging systems still used in BACS, LINK and Faster Payments for account-to-account transfers. By enabling more flexible and structured data exchange, ISO 20022 can greatly reduce operational costs by automating payment-related workflows – such as

^{46 (}CPSS, 2001; David & Bunn, 1988)

⁴⁷ (David & Greenstein, 1990)

^{48 (}Arthur, 1989)

^{49 (}David & Greenstein, 1990; Hills, 2000)

⁵⁰ (Economides & Himmelberg, 1995; Leibbrandt, 2004)

^{51 (}David, 1987)

⁵² (T. Khanna, 2008)

⁵³ (Huang et al., 2006; A. Khanna, 2008)

⁵⁴ (Hills, 2000; Leibbrandt, 2004)

^{55 (}T. Khanna, 2008)

supplier onboarding, purchase order handling, invoicing and collections – processes that currently depend heavily on manual intervention.

Closely related to the adoption of common standards are the development and implementation of *application programming interfaces* (APIs), facilitating the automated access by one technological system to the functionality provided by another different system. We are, as smartphone users, regular beneficiaries of APIs when they are used to transfer us, for example, from a web browser to a digital mapping app, to provide directions to a hotel or restaurant. APIs are also the foundation of open banking, supporting permissioned access to banking data by a variety of third-party service providers. As highlighted by the Garner review, the further development of UK open banking APIs is a potential foundation for providing households and businesses with convenient, secure and flexible access to bank-based account-to-account payments in a variety of payment contexts.

The adoption of standards and APIs also supports interoperability between different payment arrangements – through all the different stages of payments processing presented in Table 1. Interoperability is central to the full exploitation of the benefits from digital payment technologies. Interoperability promotes choice, convenience and speed in the initiation of payment instructions and in payment acceptance. Interoperability delivers the economies of scale available through using common, shared infrastructures across different payment arrangements, including: the cash infrastructures central to the work of our sponsor LINK; the interbank arrangements supporting account-to-account payments such as those made in the UK BACS and Faster Payments schemes; the shared messaging and instruction processing of the global schemes for debit and credit card payments; the newly created infrastructures required by new digital payments solutions such as stablecoins and central bank digital currencies; and in the underlying arrangements for final settlement across and between all these forms of payment.

The benefits from adopting shared standards and APIs are thus substantial. So, also, are the barriers to adoption. Adoption is far from cost free: it requires substantial investments in both software and hardware. Critically, this investment must be undertaken together by many private providers and also often public institutions. The consequent challenge of coordinating these investments is what makes leadership so critical for successful payments innovation. In some areas private market initiatives effectively overcome these barriers: examples are the emergence of digital wallets on smartphones, exploiting and building on the standards and APIs already embedded in smartphone technologies; and payment processors such as Stripe and Adyen in providing merchants with standardised acceptance across digital payments solutions.

Interoperability has not, though, been adequately achieved in other areas of the payment processing illustrated in Table 1 and the rise of digital wallets and payment processors raises new problems of market power and effective competition. These developments can be seen as replacing the old problems of lack of competition in bank-dominated payments with new problems of lack of competition in new digital payments.

Hence, in our analysis, without leadership – whether from public authorities or joint industry initiative – many of the proposed investments in standards and APIs lack credibility and the benefits they offer to payment users in the UK will not be fully and effectively pursued. It is this challenge, and the past failure of the UK to effectively coordinate technology adoption in payments, that makes the need for a strategic policy framework so essential to the success of the current National Payments Vision. As we argue, this framework must be overarching, covering all aspects of UK payments. Also, critically and of central concern to our sponsor LINK, it must ensure the continued provision of adequate access to payment services for those currently reliant on cash whose financial inclusion is challenged by digital payments innovations.

A high-level payments architecture

Summarising all the above, one can draw the core components of a layered payments architecture or a 'payment stack' that manages the end-to-end process of initiating, clearing and settling payments. This involves the key payment stages described above (i.e. payment initiation, the process where the payer initiates the payment; clearing, where transaction details are verified and exchanged; and settlement, where funds are transferred between institutions) and the different infrastructures used for the facilitation of the payment. Figure 2 below also shows what the payments architecture looks like in the UK.

This figure is not meant to be fully comprehensive but rather give a high-level illustration of the different layers and stages of payments in the UK that resonate with the descriptions and definitions provided above.

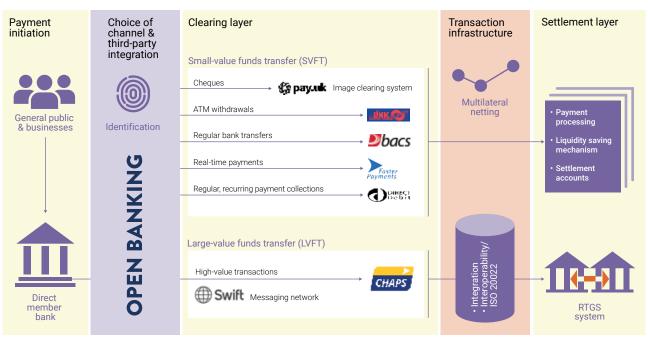


Figure 2. Core components of payments architecture in the UK

Note: This figure illustrates account-to-account bank payments. A similar overall structure also applies to card payments, but with additional interfaces between merchants and the acquiring banks through which their card payments are routed.

This discussion and its summary in Figure 2 highlight the many systems and processes that can be involved in payments innovations: the shared infrastructures through which transactions are executed and settled; the interconnections and standards that support the communication of transaction data between institutions on payment instructions and payments execution; and the interfaces between payment providers and their customers, both households and businesses. This creates fundamental challenges for innovation:

• A new bank payments solution (many examples can be envisaged, such as mobile-to-mobile, online bank payments or offline payments) requires simultaneous investments by all the banks that participate in providing account-to-account solutions, with limited commercial benefits because they gain no competitive advantage nor any new revenues. An exception is in card payments, where, as discussed in the following section, there are stronger incentives for innovation, for example more convenient initiation may encourage greater use of a bank's debit or credit cards and support increased revenues. These incentives though come at the expense of concerns about the market power of card schemes and the relatively high charges on some merchants for receiving payments.

• Users of bank payments solutions – both account-to-account and card based – are already onboarded onto bank platforms, with access to supporting apps. This limits the attraction of new competing non-bank payments solutions (such as e-moneys, stablecoins or any central bank digital currency) which are not already integrated into these arrangements. Adoption requires users, whether households and businesses, to spend resources on investing in connectivity to the alternative non-bank payments solution. This may not be worthwhile if the new alternative does not provide clear and substantial user benefits, for example convenience or fulfilling an unmet payment need.

These barriers to innovation could in principle be substantially reduced by moving these payment arrangements – those illustrated in Figure 2 – onto common shared standards and processing arrangements, reducing the costs and barriers to innovation. A single set of rules and operations employing standardised data communications and open to existing participants and new entrants. Doing this, in effect making the 'clearing layer' a further shared but open transaction infrastructure, would facilitate innovation both of client interfaces and of payments solutions.

Such far-reaching standardisation of UK payments standards and processes would require prohibitively large financial investment by banks and other payment providers; so a 'great leap forward' of this kind is not something that can simply be imposed on the industry. More realistic will be a careful exploration of what elements of such crossindustry standardisation are most cost-effective for realising direct customer and indirect economic and social benefits. This might be a sequenced change with a gradual extension to a wider variety of payment contexts.

Lessons on how to do this can be drawn from a careful study of the experience of other countries. The failure to advance the UK new payments architecture seems, in retrospect, to have been because it was an overambitious wish list, an attempt to integrate all the different arrangements for small-value payments within the clearing layer of Figure 2. More appropriate may be something akin to the more limited but more successful efforts of this kind pursued in other jurisdictions, for example the new payments platform in Australia or Pix in Brazil.

4. The foundations of effective payments innovation

Section 2 documents the substantial potential economic and social benefits from continued digital innovation in UK payments. Section 3 sets out the elements of the system that can be transformed through innovation and practical difficulties of making radical change. This section sets out the required foundations for effective payments innovation: ensuring viable business models; meeting user needs; coordinating change; bringing public opinion on board and learning from the experience of other countries.

Ensuring viable business models

As discussed in the previous section, the UK payments landscape encompasses a range of infrastructures and business models, each underpinned by distinct economic incentives and institutional arrangements. Broadly, the two dominant paradigms can be characterised as: (i) card-based payment systems; and (ii) account-to-account (A2A) payment systems, including BACS and Direct Debit. These models differ not only in technical structure and governance but, more fundamentally, in their underlying business logic.

1. Card-based Payments: Brand-led, Two-sided Markets

Card payment systems in the UK, dominated by global schemes Visa and Mastercard, operate as two-sided platforms. These systems mediate interactions between cardholders (consumers) on one side and merchants (retailers and service providers) on the other. The strength of these platforms derives not from the infrastructure alone, but from the market power and global reach of the card brands, which act as orchestrators of the ecosystem.

The economic model underpinning card schemes is principally merchant funded. When a customer makes a card payment, the acquiring bank (merchant's bank) pays an interchange fee to card issuers. This fee structure incentivises card issuers to promote card usage by offering rewards or convenience to consumers, while acquirers compete to offer cost-effective solutions to merchants. The card schemes, positioned centrally, levy scheme fees on both sides. In Europe regulatory intervention substantially limits the transfer of revenue from merchants and acquirers to issuers. ⁵⁶

2. Account-to-account Payments: Infrastructure-led, Utility Economics

In contrast, account-to-account payment systems – such as BACS, direct debit, and Faster Payments in the UK – follow a utility-style, user-pays model. These systems are governed or overseen by entities such as Pay.UK and are characterised by open access and interoperability.

⁵⁶ The UK applies the limits on interchange fees, stricter than in other countries such as the US, of the EU Payments Services Directive 2: 20 basis points (0.2%) for debit cards and 30 basis points (0.3%) for credit cards. The purpose is to reduce payment costs that can be passed on as merchant service charges

Unlike card networks, account-to-account systems do not involve intermediaries with brand dominance and rarely pursue consumer-facing incentives.⁵⁷ Rather, banks interact directly via centralised infrastructure to process payments between customer accounts. In this model, users, whether banks, businesses or consumers, bear the cost of sending and receiving payments, for businesses through per-transaction fees or service charges levied by the payment service provider, but also for households the implicit revenues from holding of transaction account balances offering low or zero interest rates.

The account-to-account model emphasises cost efficiency, reliability and standardisation. BACS, for example, processes high volumes of payments at low unit cost, making it well suited for regular, recurring transactions such as payroll or household bills. However, its lack of built-in revenue streams for issuing banks and absence of strong consumer incentives (such as rewards) can limit its commercial appeal compared to card payments. Changes to A2A arrangements, those illustrated in Figure 2, require investment in business processes by all the bank participants, but the lack of revenue generation and the challenge of getting agreement to large-scale coordinated change mean that the commercial case for pursuing innovation is typically weak.⁵⁸

Implications and Frictions Between Models

The divergent economics of these systems give rise to tensions and strategic trade-offs. From the perspective of financial institutions, card payments offer a revenue-generating opportunity via interchange and associated products, while A2A systems are typically low margin and infrastructure focused. For merchants, the opposite is true: A2A payments offer the potential to reduce transaction costs and reclaim control from card networks, but lack the ubiquity and consumer engagement that card payments provide.

This can explain the lack of traction with open banking and (Non-Sweeping) Variable Recurring Payments (VRPs), which despite significant investment is perceived by some in the industry as a 'white elephant' (on VRPs see case study 4 at the end of this report). Shifting to new A2A services requires not only technical capability but also a rebalancing of economic incentives across the ecosystem. There needs to be a more level playing field between account-to-account and cards, so that account providers see commercial benefits from investment in innovation (though achieving this will not be uncontentious: if there is a revenue stream for banks it has to be paid by payment users).

Another illustration of the stronger incentives for innovation in card payments, relative to account-to-account, is fraud protection. As discussed above, since 2022 both Visa and

⁵⁷There are exceptions where centralised infrastructures develop consumer solutions: a UK example is the UK banking industry investment from the 1970s onwards in the BACS direct debit branding and the associated consumer promise (the Direct Debit Guarantee)

⁵⁸ These weak economic incentives for innovation in shared A2A infrastructures are highlighted by (Milne, 2006; Weinberg, 1996)

Mastercard have been prioritising the introduction of 'payment tokenisation', the security process that replaces sensitive payment credentials e.g. a personal account number, with a unique one-time token issued by the card network. This reduces fraud because a token intercepted by a third party is meaningless. The card schemes are introducing mandatory tokenisation for both chip-and-pin and stored 'card-on-file' transactions. The industry-wide measures to address fraud in UK account-to-account payments have been largely regulatory driven, for example the PSR requirements for reimbursement of APP fraud.

Meeting user needs

Any successful innovation in payment arrangements requires adoption at scale – otherwise the fixed costs of a new payment are not sustainable. If users do not perceive benefits, then adoption will not scale. Case study 3, comparing Paym with Swish in Sweden, illustrates how poor user experience and limited adoption were critical problems for Paym.

There are several related issues. In a mature payments market such as the UK, there are no obvious gaps in payment needs. A combination of (debit) card and account-to-account solutions addresses most household payment requirements. There are still niche needs, for example in person-to-person payments. Mobile-based person-to-person payments are still not established in the UK in the way they are in several other countries. Providing an innovative technological solution for such niche needs though may not be enough: convenience and safety must be clear both for payers and payees. Without this, adoption will be limited and the innovation will fail to scale.

Where a payments innovation offers convenience, adoption can then be rapid in the UK as in other countries. The UK adoption of now ubiquitous contactless card payments provides an example, with a substantial boost from its use alongside the Oyster card in London transport and then further acceleration of adoption during the COVID-19 pandemic.

Effectiveness in meeting user needs is closely tied to the incentives created by the supporting payment business model. In the case of Paym the lack of revenue from account-to-account payments, with app development left as the responsibility of individual banks, meant that there were weak incentives to create a high-quality user experience. The adoption of contactless benefited from this being a card product, with the associated support of the card arrangements given to two-sided platform adoption. As cardholder use of contactless spread, merchants could be persuaded to offer contactless both to encourage consumer purchase and to reduce the costs of taking cash payments.

The situation has been different in many emerging and low-income countries, where lack of penetration of bank account holding and of card acceptance has created the opportunity for the rapid adoption of non-bank e-money solutions such as MPesa, AliPay,

WeChat Pay and those supported by UPI in India. This illustrates an important point – that the situation and prospects for payments innovation adoption are different in every country, so while the UK can learn from the experience of other countries, successful innovation will have to be tailored to the specific circumstances of the UK.

User adoption is also about safety and confidence. An important support for card payments, much more extensive than that available for account-to-account payments, is customer protection. The chargeback arrangements of the card schemes allow consumers to seek a refund through their card provider when goods or services are not provided as agreed. This effectively operates as an insurance covered by the payment of interchange fees – and in addition for larger purchases made using a credit card the protections of Section 75 of the Consumer Credit Act 1974, which makes the credit card issuer jointly and severally liable with the supplier for breaches of contract or misrepresentations in transactions valued between £100 and £30,000. Debit card transactions are also covered by the EU Payment Services Regulations 2017, which provide limited protection in cases of unauthorised transactions, including an obligation on payment service providers to refund unauthorised payments promptly.

Coordinating change

A fundamental challenge for any payments innovation is coordinating change – since much of the processing and supporting standards and infrastructure is shared among banks and other payment service providers.

This creates a basic problem of incentives – changes in the shared element of the payment processing create no competitive or first-mover advantage for payment service providers. ⁵⁹ Thus, the business case for the required supporting investments is inherently weak – a substantial contrast from, for example, mobile phones where the leading brands such as Apple and Samsung compete relentlessly on product innovation.

This does not mean that change is impossible – but an agreed and announced programme of change, and the timetable for its implementation, must be credible and believed, otherwise participating institutions have an incentive to hold back on making the necessary supporting expenditures.

Incentives may be further eroded if the proposed innovations are a threat to the market position and revenues of incumbent firms.

This is, in the economics terminology, a problem of 'network externalities': the benefits for payment users from investment in payments innovations are not captured by additional

⁵⁹ (Milne, 2006; Weinberg, 1996)

revenue streams for the providers of payment services. There are several possibilities though for coordinating the necessary investments.

- One is 'for-profit' coordination, exemplified by the payment card schemes Visa and
 Mastercard. While the scheme charges are only a small share of overall payment
 costs, their for-profit business model creates strong incentives for them to coordinate
 innovation in both credit and debit card payments, especially when this can increase
 card transaction volumes. In addition, as two-sided platforms, the schemes can adjust
 economics to incentives participants. For example, the adoption of contactless was
 driven by the global card schemes paying issuers to add this facility onto cards (they
 initially refused the additional cost).
- Another is mandated government-led change. An example in the UK in account-to-account payments is the 2008 initial establishment of Faster Payments, a payment arrangement required by the Office of Fair Trading (which had then been given responsibility for addressing the payments competition concerns of the Cruickshank report into UK banking published in 2000). However, the adoption of Faster Payments was initially extremely slow, in part because of the limited commercial incentives for banks to support the service.
- A third possibility is for the industry to work together to pursue innovation, as a broadly beneficial social benefit rather than on narrow commercial grounds. This approach has worked fairly effectively in Sweden, possibly in part because Swedish banking is dominated by three large commercial banks that see the benefits of collectively pursuing innovation. As documented in our case study 3 of Paym and Swish, the Swedish banks first pursued the opportunity of providing an officially recognised market-led electronic ID solution, BankID. Then they were able to build on this to provide, at comparatively low investment cost, an attractive mobile-to-mobile payment solution Swish that is now widely adopted across the country.

However this leadership is provided, it will be key to the adoption of common standards and of shared APIs. This will in turn support the interoperability across the different stages of payment processing, that is essential to the ease of use and scaling required for successful innovation in UK payments.

Bringing public opinion on board

Section 2, in outlining the successive arrangements for oversight, governance and regulation of UK payments, highlights the critical importance of public opinion and

⁶⁰ (Milne, 2006) notes the relatively stronger incentives and resulting more frequent innovation in payments arrangements in smaller countries with few banks

political backing for effective payments innovation. An illustration is the failed initiative of the UK Payments Council for phasing out cheques, reversed in 2011 in the face of strong public and political opposition. There are many countries, for example the Nordics, where cheques are no longer used but this reflects their different history of payment arrangements and habits. Seeking to phase out a payment instrument, even one that is in decline, without providing an alternative payment solution that attracts broad public support, is not a credible plan for future payments innovation.

This also relates to ease of use – rapid adoption of digital payments solutions depends on customer experience. For example, the almost seamless transition offered from physical cards supported the rapid adoption of the Apple Pay and Google Pay digital wallets. Any digital substitute for older non-digital instruments, such as cheques or cash, should provide a near flawless user experience to avoid backlash.

Even if there is no outright opposition, a lack of public and political support can weaken commitment to change. This is particularly true for 'back-end' improvements such as the proposed New Payments Architecture, where the benefits of API and ISO 20022 are not easily grasped by non-specialists. The potential economic benefits from implementation of ISO 20022 are large because of the limitations of the fixed field messaging standards still used in BACS and Faster Payments account-to-account transfers. A relaxation of these limits, using ISO 20022, could unlock substantial cost savings, allowing the automated integration of payments in the routine business processes of managing vendor onboarding, purchase order, invoicing and collection which currently requires substantial manual processing. However, such back-end innovation is a coordinated change; as already discussed, revenue gains alone will not be sufficient to motivate the required investments by individual banks on commercial grounds.

This combination – the weak business case for individual banks to support ISO 20022 adoption in the NPA together with low parliamentary and public awareness of the benefits of the project – substantially weakened the credibility of the NPA. There are neither commercial nor reputational penalties for delay. This is one explanation why progress on the implementation and delivery of the NPA has been so disappointingly slow.

This credibility problem will have to be addressed in the implementation of the National Payments Vision. Public views will continue to be an important determinant of UK payments innovation strategy in the years ahead. Both politically and commercially, there is a danger that the road followed is that of least resistance: changing as little as possible, paying the required lip service to the benefits of industry-wide digital innovation while in practice (as with the NPA) delaying practical implementation as far as possible into the future. This is the natural outcome if innovation decisions are left entirely to having a commercial business case for change. Combined with public and political concerns about digital payments innovation leading to 'the death of cash' and creating vulnerabilities

to fraud, the delivery of the NPV may similarly fall short. A lot of discussion but little practically achieved to promote digital innovation in UK payments.

If this is the outcome, it will be a failure of public communication, since lack of progress on digital payments innovation will create the most severe problems for those currently dependent on cash. Commercial and cost considerations will continue to weaken the case for acceptance for cash. The financially excluded and financially vulnerable will face increasing problems not better solutions for executing payments.

The successful pursuit of the NPV therefore requires four elements not set out in the Vision itself and that have not yet been adequately explored:

- 1. Establishing an evidence base for assessing the benefits of digital payments solutions, in terms of convenience, price, speed and security, in households' regular payments with businesses and governments; and also in business-to-business and government payments.
- 2. Identifying and exploring how digital technologies can provide new solutions, meeting the needs of the financially excluded and financially vulnerable.
- 3. Developing as part of the Vision a publicly and politically acceptable strategy for countering digital payments fraud, making full use of data and cryptographic tools.
- 4. An effective programme of communication, to ensure broad public understanding of how digital payments solutions can safely deliver these broad societal benefits and adequately substitute for and work alongside cash.

These elements are all necessary to cement public support for the NPV, hence ensure its credibility and bring the industry on board with the required investments and operational changes.

It should also be clear that this approach does not require a commitment to any particular digital solution. Returning to the example of ISO 20022 – it may well be that there are more cost-effective ways than making BACS and Faster Payments ISO 20022 compliance for integrating business payments into business supply chain and sales operations. An alternative might be based on enhanced payments functionality for open banking, allowing the necessary information to take place outside of the payment processing, linked only at the initial initiation stage. The NPV delivery committee will though have responsibility for developing industry and public consensus on the appropriate digital solutions.

Learning from the experience of other countries

As already acknowledged, the UK has been falling behind in payments innovation, relative to both advanced countries such as the Nordics and to many emerging markets that have embraced mobile-based payments solutions.

Successful adoption of payments innovations in countries other than the UK has though depended, to an important degree, on their unique circumstances. The most prominent example of rapidly adopted payments innovation, in terms of the number of users shifting to a new payment instrument over a fairly short period of time, is the adoption of the AliPay and WeChat Pay in China. This rapid adoption was fuelled in part by the lack of penetration of the global card scheme debit and credit for merchant payments in China, compared to the UK and other advanced countries. The mobile payments in China thus addressed an unmet payment need and so were rapidly adopted.

The supporting case studies for this paper provide a number of other examples of country-specific factors supporting the adoption of payments innovation. One is the rapid adoption of Swish in Sweden, especially when compared with the failure of Paym the most closely related payments innovation in the UK. Swish was facilitated by, among other factors: the prior establishment of BankID, the secure Swedish national electronic identification system; the comparatively small number of banks in Sweden, making it easier to coordinate and launch under a common brand; and commercial incentives through bank revenue when customers make Swish payments.

Another example of how specific country circumstances have shaped payments innovation is the development of Pix, the Brazilian account-to-account payment system, which has grown rapidly since its 2020 launch, supporting payments worth some 225% of Brazilian GDP by 2024. Pix has been underpinned by the strong political and legislative mandate given to the central bank, the Banco Central dos Brasil (BCB), in the 2013 law giving it responsibility for payments regulation with the goals of promoting efficiency, interoperability and financial inclusion. The BCB spent seven years preparing for the launch of Pix, with both extensive consultation among Brazilian users and payment service providers and detailed review of payments innovation in other countries around the world. Pix initial functionality supported mobile-initiated payments based on a choice of payee 'aliases' (mobile number, email or tax ID), with QR code support for payment authorisation and initiation. Pix though is intended to support all forms of account-toaccount payments, and usage is expected to continue growing strongly, with further functionality either already introduced or planned for the future. A notable feature of Pix is the strong mandates imposed by the BCB: Brazilian banks are required to participate but it also supports payment accounts and payment initiation, all without any charges for personal customers and low costs of businesses. While this open and competitive

arrangement was not welcomed by Brazilian banks, they have benefited from the increase in their potential customer base as many Brazilian households and businesses have shifted from cash to digital payments since the launch of Pix.

Canada and Australia, with their Anglo-Saxon cultures and legal inheritance, may be considered a closer parallel to the UK than China, Brazil or even Sweden. Their experiences should certainly be explored fully in developing the required strategic framework for effective UK payments innovation. Our Canadian case study of its Interac bank account-to-account payment solution (case study 2 at the end of this report) provides an alternative to the global card schemes for payment of merchants. This rides on existing card rails for payment initiation, but subsequent clearing and settlement is then passed over for completion, at lower cost to merchants, within their established bank-to-bank systems. What our case study does not answer is why Canadian but not UK banks have been able to cooperate on developing such a solution. One explanation can again be the size of the domestic banking market, with relatively few large players being more willing to cooperate on such a scheme. UK government initiatives such as Faster Payments have, in contrast, been government and regulatory rather than industry led.

Such comparisons need to be taken further, to ensure that the UK payments strategy is fully informed by the lessons to be drawn from other countries. This will never be a simple matter of direct copying of solutions that have succeeded elsewhere; the context for payments innovation differs markedly from one country to another. These cases though illustrate the key role of leadership as well as illustrating opportunities for coordinated change that may also be available to the UK. To give three examples of cases that we were unable to follow up on: we understand that South Korea has an open banking solution modelled on that of the UK, but has gone beyond the UK by more successfully exploiting open banking for scaled adoption of bank account-to-account payments; in Australia the New Payments Platform, the outcome of a focused national dialogue on payments innovation, has offered another route to improved account-to-account payments; PromptPay in Thailand, the world's most rapidly and fully adopted instant payment solution, also merits close attention. These and other cases need to be examined carefully.

5. Principles for an effective payments strategy

Developing a policy framework that is both credible and capable of commanding broad consensus is essential if the UK is to fully realise the potential of payments innovation for supporting national economic growth. Given that digital payments increasingly underpin the functioning of a modern economy, impacting everything from retail transactions to government disbursements and financial inclusion, it's vital that strategic decisions are not only ambitious but also coherent and grounded in fully articulated long-term goals. The complexity of the payments ecosystem, stakeholder diversity, entrenchment of legacy services and evolving technology make the creation of this required road map challenging.

This paper proposes three principles to guide the development of an effective and credible payments policy for the UK. These are not policy prescriptions or recommended decisions. Rather, they are intended to provide a framework through which policy makers and regulators can align efforts and evaluate trade-offs, helping to make decisions to deliver on both economic growth and public benefit. There are many different paths to achieving payments innovation and modernisation; this paper aims to help ensure those paths are chosen with clarity of purpose and a clear understanding of the conditions that foster success. The argument is that good policy decisions are more likely if three interrelated principles of Leadership, Architecture and Inclusion are given full attention.

Leadership

Reflecting on both UK history and international experience in payments innovation indicates that strong leadership – by which we mean establishing clear roles and responsibilities, across government and private industry, in all aspects of payments innovation – is essential for successful innovation.

As discussed in our third case study, in Sweden, cooperation among the leading banks provided crucial leadership, first in the creation of the widely used e-identity solution BankID and then in the integration of BankID into the bank-led mobile payments solution Swish that supported its successful scaling. In contrast, Pix in Brazil and PromptPay in Thailand exemplify how clear government policy direction, public sector incentives and coordinated infrastructure investment can deliver transformative change. The UK has seen successful innovation, but only when leadership has been structured and purposeful, for example the initial creation of Faster Payments and Open Banking, both of which were driven by regulatory initiatives, the former by the Office of Fair Trading, the latter by its successor as a competition regulator the Competition and Markets Authority.

The experience with oversight of UK payments, summarised in Section 2, highlights the key role of **governance** and the necessity of establishing credible future plans for digital innovation in UK payments. The structure introduced by the National Payments Vision,

with the Payments Vision Delivery Committee and the supporting Vision Engagement Group, provides oversight and the necessary channels of communication. But these alone will not ensure the appropriate leadership for effective development and execution of the Vision.

This leadership challenge can be assessed using the criteria for payments innovation set out in Section 4. One potential danger is that the forthcoming Implementation and Next Steps: A Payments Forward Plan moves quickly to identifying a series of specific digital and regulatory initiatives, without first fully addressing business models and user needs, two of the requirements for effective innovation identified in Section 4. One lesson from the successful Pix initiative in Brazil is the importance of preparation and planning. The successful 2020 launch of Pix followed seven years of preliminary assessment (see case study 1 at the end of this report). The BCB engaged in careful and detailed study of the successes and failures of payments innovation in other countries. It then developed Pix not just as a faster payments solution, but as an overarching framework, which it continues to develop incrementally, addressing the full range of payment needs for Brazilian households and businesses.

There are also lessons to be learned for business models and user needs, from innovation initiatives in other countries with institutional arrangements closer than of Brazil to those of the UK. The pursuit of payments innovation in both Canada and in Australia hold promise as comparators for UK policy. As our case study of the Canadian Interac debit system indicates, a bridging of card and bank rails, with card infrastructure is a possibility well worth considering.

Leadership is also critical to addressing further barriers: the required coordination of payments innovation. There is a balance to be struck between mandating change – as has been done successfully using competition law in the UK to launch Faster Payments and Open Banking – and getting the industry to voluntarily agree to and adequately resource the required development of new payment services. Moreover, it is essential to the Vision that the stasis of the NPA is avoided; so there may need to be, in the background, an expectation that the regulatory authorities will impose a mandated and potentially costly programme of development and implementation where innovation is not pursued on a voluntary basis by the industry.

The Garner review provides an important test case, arguing as it does for the enhancement of open banking to facilitate account-to-account payments as an alternative to cards and so support greater competition in payments services. The judgement that Open Banking rather than the existing Faster Payments rails are best suited to this task seems a reasonable one, but there will still be a major challenge: getting a consensus on how exactly this is to be implemented and industry brought on board with carrying this through to delivery. The point is not that this is necessarily the best

solution for supporting account-to-account alongside card payments, but rather that the alternatives need to be fully explored, and then a consensus reached on the most appropriate solution.

Finally, there is political leadership. Effective pursuit of the National Payments Vision must address the further requirement identified in Section 4, building public and political support for future innovation, with concerns about fraud and financial inclusion fully addressed.

Architecture

The second principle is Architecture, encompassing **economic**, **technical** and **consumer experience** design. Innovation at scale requires a coherent approach, taking account of the market context of payments, where trust and ease of use are vital and fragmentation often leads to failure. In the UK, given the competitive banking market and established legacy payment services, a fragmented approach is unlikely to drive innovation at scale.

First, **economic** architecture, because without viable business models, new systems struggle to scale, even when technically sound. For example, the challenges facing open banking in achieving scale adoption provide a cautionary lesson, that technical enablement alone is insufficient without viable commercial models and policy incentives. Globally there are many examples where the government has mandated or otherwise driven change (UPI in India, PromptPay in Thailand or Pix in Brazil); however, innovation will thrive when there are sustainable commercial incentives. Where business models are weak or unclear, as with aspects of open banking, the risk is that adoption stalls and the benefits fail to materialise.

Second, **technical** architecture, as effective payment systems rely on shared standards (e.g. ISO 20022). As discussed in Section 3, a payment system implies the existence of core, complementary and other technological infrastructure in order to facilitate the transmission of payment instructions. 'Getting infrastructure right' is perhaps the first and foremost priority when it comes to effective and resilient payment systems in an economy. However, as data is becoming of strategic importance in digital economies, the **uniformity of payments data and messages** (e.g. through the creation of data and messaging standards such as ISO 20022) and the establishment and **standardisation of communication interfaces** (e.g. such as open banking APIs which allow for the portability of data and payment initiation) are becoming equally important elements of the 'payment stack'. Finally, the identification infrastructure, which allows for the effective authentication of users and the verification of their individual characteristics necessary in a transaction. Complementary to this are all the processes and systems that manage consent when it comes to the sharing of consumers' or businesses' data with licensed third parties (e.g. AISPs or PISPs that follow the PSD2/PSR regulation).

In the past couple of decades, there has been progress on all the above aspects of the broader payment infrastructure or 'stack': the introduction of new RTGS systems that broaden access and introduce messaging standards (e.g. ISO 20022); new payment rails such as the UK's Faster Payment System, which allows for a near-real time settlement; the issuing of open banking APIs that standardise the data communication between financial systems and allow for payment initiation by third parties in the payment process; and the introduction of legal entity identifiers (e.g. the Global LEI Foundation infrastructure) and other plans to issue consumer ID verification. However, all the above initiatives have been disconnected from each other and progress independently without a central orchestration or coordination that will 'connect the dots' across the sector and create a coherent payment infrastructure in the UK. Lack of coordination has resulted in slow progress and ineffective planning, with authorities and regulators pointing fingers at each other regarding the responsibility to either upgrade or develop new solutions for the industry.

Communicating the important practical outcomes achievable from these sometimes abstruse technicalities of data and infrastructures will not just be an industry concern. It is also critical to addressing the fourth barrier to innovation, bringing public opinion on board in support of the Vision. It will be important to demonstrate how much the perceived problems of security and fraud in digital payments can be addressed with a coherent architecture of data and infrastructure.

Finally, good architecture includes good **consumer experience**. Global success stories of payments innovation typically include thoughtful and standardised experiential (e.g. user interface consistency) and branding. Swish is a highly ranked brand in Sweden, even above the globally renowned Ikea. This contrasts strongly with Paym in the UK, a broadly comparable person-to-person payment system that failed to reach scale and was closed. The Paym customer experience implementation by UK banks was fragmented and brand investment was minimal. (See case study 3.)

Inclusion

Finally, for a successful strategic policy framework for UK payments, financial inclusion must not be treated as a peripheral concern. There is a risk that, in the absence of explicit policy focus, inclusion is assumed to be safeguarded solely by the continued availability of cash, which LINK is obliged to provide. Reliance upon cash is not a sustainable or equitable approach. This is not abstract: where are cash-dependent consumers supposed to park legally, when in many areas of the UK ticket machines only accept card payments? A truly inclusive payment system requires intentional design, embedding accessibility, user diversity and affordability into both the Vision and the roadmap. Only then can the UK ensure that digital innovation leaves no citizen or community behind and hence have widespread political support. Interoperability, from ATM through to wallet, will be

important here and this is already a feature of the Bank's thinking on the digital pound. Cash-preferring consumers will need the confidence that they can return easily to cash should they want to or need to and that means interoperability with the major ATM network LINK, including an upgrade to support contactless devices with wallets and not just cards.

Designing in inclusion, will bring reliable digital payment services to all citizens, including the unbanked and the underbanked, or those who are otherwise vulnerable. It ensures that innovation uplifts, rather than bypasses, the most vulnerable. As discussed in Section 4, a necessary ingredient of a successfully executed National Payments Vision is new digital solutions, substituting for or used alongside cash, that meet the needs of the financially excluded and financially vulnerable.

Exclusion affects broad and diverse group of citizens. It includes the underbanked who may have a savings or checking account but prefer non-bank financial services for cash transactions and borrowing (World Bank, 2020). The 2022 report by PwC and TotallyMoney estimated that approximately 20.2 million UK adults are financially underserved, equating to about one in three adults. This group includes individuals who may have difficulty accessing credit from mainstream lenders, often relying on alternative financial services. The FCA reported in 2022 that around 1.1 million adults in the UK, or 2.1% of the adult population, are unbanked, meaning they do not have a bank account. There are then those who are financially vulnerable for many reasons, perhaps because of ill health or a physical or learning disability, but with responsibility for managing at least part of their financial outgoings. Finally there are those, perhaps just by habit, who prefer cash and are not comfortable with digital payments.

Financial inclusion requires overcoming the constraints of **opening and operating accounts**. The underbanked or underserved are constrained in their ability to first open, that is initiate and sign up, for bank or other financial products. Opening a new bank account requires passing know your customer (KYC) checks, which require proof of identity and address, that that the disadvantaged may not have, or may not be able to easily access (e.g. printing a digital utility bill without access to a printer). More obviously homeless do not have utility bills, 17% of UK residents do not have passports and approximately 25% of UK residents do not have a driving licence. In addition, easily operating most financial services products requires access to a smartphone and mobile data plan.

In addition, there are those with limited capacity for **financial management**, who might use cash payment as a discipline – £40 to cover the regular food shopping – or need other help, for example restrictions on online payments during late night hours when poor financial decisions are often made. Managing the complex and intentionally difficult security controls requires confidence plus digital skills. While over 90% of UK residents

have a smartphone, the practical operation of most financial products requires a digital literacy and online access that is beyond many people.

The public and policy support required for delivering a credible National Payments Vision, with industry buy-in, requires that the Vision offers digital solutions to support these needs. There are several possibilities that can be explored.

- Reducing barriers to 'opening an account' through regulation with tiered KYC systems
 where low-income customers can open basic accounts with minimal documentation
 or practical in-person services for vulnerable consumers at Post Offices or Community
 Banking Hubs. This might be supported by effective digital identity verification tools,
 something which may also help reduce the operational and other costs of government
 payments such as Universal Credit, on which many of these users will also be reliant.
- Increasing utility to help consumers 'operating an account' with low-cost 'basic banking'
 accounts/wallets and money control features. Alternatives for digitally excluded (i.e.
 consumers without a smartphone), for example, card-based accounts and display cards.
 Appropriate money control features, for example, money wallets for 'jam jarring' and
 push payment alternatives like open banking VRPS to traditional pull-pay direct debit.
- There may be a case for developing a basic stored value card solution, perhaps with offline functionality, that can be used for low-value payments where coin payments are disappearing, for example, for public parking or public toilets. This is not to argue that such solutions are necessarily part of the National Payments Vision, but the development of easy-to-use digital alternatives to notes and coins will support the public case for digital innovation in UK payments.

Effective inclusion also needs **viable business models** to ensure sustainability and future development. Options range from public subsidy to sharing of digital payments seigniorage, as a funding source for universal access.

One option, in this context, is that is that the issue of a digital pound could be made in a form that supports basic bank/wallet accounting with a product that is offered through charitable purpose rather than on a for-profit business model (see Milne, 2024 on such niche applications of a digital pound). A problem here, or indeed with any 'basic banking' account/wallet product where balances are always likely to remain low, is covering costs. While the current Bank of England plans for the digital pound do not envisage any payment of interest, to make such products business viable, it might be necessary to offer the account provider some payment on balances held to cover the costs of providing payment services.

A related possibility might be making the proceeds of 'seigniorage' from the creation of a central bank digital currency such as the digital pound available to support such basic bank and payment products. Seigniorage is usually a reference to the profit a central bank earns from issuing currency. This profit arises because the cost of producing coins and banknotes, especially larger denomination banknotes, is significantly lower than their face value. For example, it may cost only a few pence to produce a £20 note, but when issued into circulation, the central bank effectively receives £20 in assets (usually government bonds or commercial bank reserves) in exchange. The difference – face value minus production and distribution costs – constitutes seigniorage. This income is typically remitted to the government and can contribute to public finances. In economic terms, seigniorage reflects the monetary authority's ability to generate revenue by expanding the monetary base, and in a fiat currency system, it represents a key fiscal linkage between central banking and the state. There is a similar seigniorage opportunity in state-issued digital currency.

Again, to be clear, our point is not to argue for any particular digital solution. Determining what is viable and appropriate needs extensive further investigation and debate, addressing the goals of public policy and the commercial constraints on private industry. However, the credibility of a national payments strategy depends on providing inclusive digital solutions, so this task cannot be left as an afterthought.

⁶¹ This is the modern context. Historically, seigniorage referred to the difference in market value between money coined at the mint – owned or licensed by the sovereign – and its constituent metal. For discussion of the history of coinage and currency see, for example, (Desan, 2014)

⁶² Emphasised in some analysis of the economics of central bank digital currencies, for example by (Barrdear & Kumhof, 2016)

6. The new UK payments governance arrangements

As we were finalising this report, the Bank and HM Treasury announced details of payments governance arrangements for the UK (summarised above in Figure 1 and the final subsection of Section 2). This final section briefly assesses these new arrangements, applying the analytical framework developed in this paper and in particular our three proposed principles, those of Leadership, Architecture and Inclusion, for supporting technological innovations in UK payments. While the new arrangements are promising, many implementation challenges are yet to be addressed.

Leadership

The new governance arrangements align well with our principle of Leadership, giving the Bank of England a central coordinating role as the chair of the Retail Payments Infrastructure Board. Other responsibilities are also clarified, so the new arrangements match well with our definition of Leadership offered above as "establishing clear roles and responsibilities, across government and private industry, in all aspects of payments innovation".

There are potential limitations to the effectiveness of these new leadership arrangements. While the coordination responsibility is clear, this may not on its own ensure adoption. There could be resistance from some major payment service providers, when the costs to them of adopting and using new infrastructures exceed the benefits in terms of reduced operating costs and new revenue streams, especially if the new arrangements create a more open and competitive landscape for payments services. There is no legislative framework giving the Bank powers to mandate payments innovation, so they cannot directly replicate the market orders of the Office of Fair Trading (creating Faster Payments) and of the Competition and Markets Authority (for the development of open banking APIs). Instead incentivising the adoption of the Payments Vision relies on 'soft power', the status of the Bank in persuading market participants to adopt the new infrastructures and other arrangements.⁶³

This issue relates closely to our second principle of Architecture: as emphasised above, a key challenge for payments innovation is supporting viable business models for new payments solutions. For example, the proposed enhancements of current variable recurring payments (see our supporting case study 4) or the provision of bank account-to-account payments at point-of-sale. This will require both revenue streams e.g. from merchant charges and adoption at scale to cover fixed costs. Adoption at scale can be supported by other acts of leadership, for example mass migration of government payments to new services.

⁶³ This harks back to the old traditions of 'moral suasion' employed by the Bank in the exercise of its monetary and financial responsibility up to the 1970s; see (Hadjiemmanuil, 1996) for a discussion of that older approach

Something of a gap in these recently announced arrangements is the absence of any announced arrangements for cross-party political engagement with the National Payments Vision. There will of course be parliamentary scrutiny but arguably this engagement could be more proactive, with the engagement of parliamentarians from the outset.

Architecture

The new governance arrangements are less obviously well aligned with our principle of Architecture. Our analysis suggests some broad challenges that the new governance arrangements will have to address. None are unsurmountable but all require attention:

• The new arrangements distinguish strategy (the responsibility of the Payments Vision Delivery Committee) from design (the responsibility of the Retail Payments Infrastructure Board), but this is a somewhat artificial distinction.

Our analysis suggests that payments strategy cannot be clearly distinguished from payments design, so this distinction is one that will need careful management as the National Payments Vision is pursued. Design in our analysis is the fabric of payments strategy. The current formulation brings with it a danger that the committee will deliver broad statements of strategy, focusing on ends rather than means and as a result not successfully deliver.

An example is its description of the Vision being founded on the "pillars of innovation, competition and security".⁶⁴ The choice here of the word 'pillars' is problematic, because it suggests that innovation, competition and security are fundamental architectural elements, when they are instead objectives, ends that should be achieved through good design.

Design choices are the choices about the arrangements for payments processing, as summarised in our Figure 2 and Section 3 above, the arrangements that support: (i) payment initiation; (ii) the various channels for payment service integration; (iii) the clearing arrangements; (iv) the supporting communications infrastructure; and (v) the ultimate final settlement. These all need to be at the heart of the delivery committee's thinking.

 A second related concern is that the Payments Vision Delivery Committee now seems to be focusing on the relatively narrow challenge of delivering new 'next-generation' infrastructure.

This focus is necessary and important and the proposed arrangements for this seem appropriate, given the Bank of England's strong track record as the provider of the core

^{64 (}Bank of England & HM Treasury, 2025)

RTGS payments infrastructure for settlement of both retail and wholesale payments. It is natural that the Bank takes a lead role in retail payments infrastructure. Payment architecture and design is though about far more than infrastructure. It is also inter alia about standard setting, initiation arrangements, e.g. support for pull initiation by either third parties or by payees (Open Banking VRPs discussed in our case study 4 is an example of this) as well as simpler push initiation and about revenue models.⁶⁵

 A final issue, one recognised in the new governance arrangements but not yet resolved, is the role in UK payments of new 'digital assets' especially of the emerging possibilities for distributed ledger-based stablecoins.

In our analysis, while these new digital assets are promising, they are not so novel or obviously important to the future of retail payments as some suppose. As we have pointed out, none of the impressive advances in retail payments around the world, advances to date only partially achieved in the UK, are based on digital assets or distributed ledger technologies.

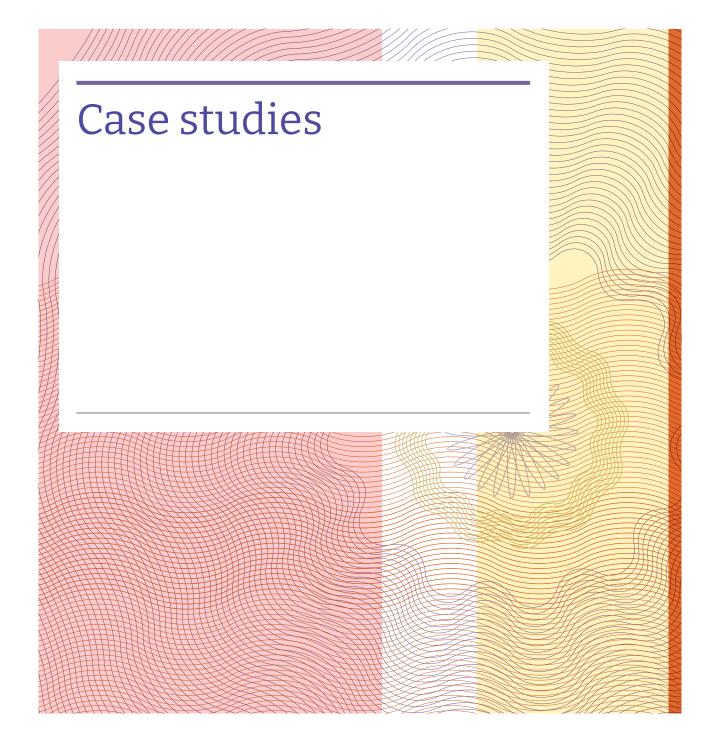
While digital payment assets employ new technologies for secure recording of holdings and asset transfers, these are simplifications of, not fundamental changes to, the underlying architecture as described in our Figure 2. These new arrangements, by putting all holdings and transfers on to a single ledger, make settlement a purely internal operation. To the extent that new digital assets are adopted in mainstream payments, these will still have to support clearing and settlement between ledgers. So, the overall architecture does not change.

This suggests that while digital assets can and should be incorporated into the new emerging architecture for UK payments, this is a supplementary not central challenge, just one part of the overall objective of supporting innovation and competition.

Inclusion

The announced new governance arrangements say nothing about inclusion. From the perspective of our analysis this is a concern. Inclusion needs to be central to the committee's payment strategy, when announced in the autumn, and in the new Payments Forward Plan that will emerge from this strategy. If these next steps in the implementation of the Payments Vision do not provide a clear roadmap to guide future developments and ensure that the new architecture leaves no one behind, then this latest effort at modernising UK payments could, like its predecessors, be hindered by lack of political engagement and public support; and as a result the payments vision only partially achieved.

⁶⁵ Raising further questions: e.g. does Pay.UK retain its role as the Standards Authority for UK payments (see Pay.UK, 2025)?





1. Pix in Brazil

Pix was launched on 16 November 2020 for instant account-to-account funds transfer and then later in 2021 QR code initiation was introduced. The annual value of Pix transactions climbed rapidly after launch, to R\$5,204 billion in 2021, R\$10,981 billion in 2022, R\$17,179 billion in 2023 (BIS red book) and rising further to R\$26,403 billion or some 225% of GDP in 2024 (Pix Statistics). In 2025 Pix is used by the majority of the Brazilian population, with 150 million registered users from a total of 180 million adults (Pix Statistics).

Pix's development was driven by strong policy action by the central bank, the BCB, supported by the 2013 Law No 12,865/2013 which assigned payments regulation to the BCB with responsibility for promoting efficiency, interoperability and financial inclusion (Duarte et al., 2022). The BCB remains both developer, operator and manager of the Pix technical infrastructure. Contrasting with the UK where infrastructural responsibilities are divided, for example Faster Payments is regulated by the PSR (now part of the FCA), operated by Pay.UK with infrastructure from Vocalink.

Pix features (Pix management report, 2023):

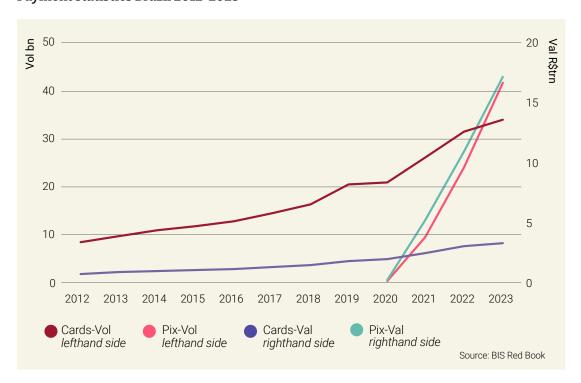
- An open solution, allowing a wide range of institutions to offer payment services in a competitive, interoperable environment.
- Developed for convenient smartphone usage with aliases (mobile number, email, or tax ID) held in a central directory DICT (and a random key alias to support payments without revealing personal or transaction details).
- Integration of transaction information along with the payment to facilitate transaction automation.
- A robust security framework.
- Free for individuals and low cost for businesses, with accessibility for all citizens, including those with specific needs a priority.

- · Mandatory bank participation.
- Support for third-party payments initiation service providers (who do not provide user
 accounts or receive funds), hence providing a link between Open Finance and Pix. Used
 for authentication of a payment online or at point of sale.
- · An active brand and communication strategy.

As highlighted by (Brandt, 2024) Pix is intended as a complete framework for managing digital payments "regardless of value and use case", not just a single payments solution, with deferred payments now available and further work to support recurring payment (integrated in BNPL payment) and extension from QR code to NFC.

Pix provides a competitive alternative to the long-established card payment arrangements in Brazil. Despite the robust historic growth trajectory of card payments, Brazil's Pix has rapidly gained popularity and has overtaken card payments in both value of transactions in 2021 and in volume in 2023. Although card payments in Brazil continue to grow steadily, the emergence of alternative payment methods like Pix is reshaping the country's payment landscape, offering consumers more choices and fostering a competitive environment among payment providers.

Payment statistics Brazil 2012-2023





2. Interac in Canada

Interac represents a foundational component of Canada's payment infrastructure, serving as a nationwide interbank network that facilitates secure and efficient electronic financial transactions. Established in 1984 by a consortium of five major Canadian financial institutions, Interac was designed to provide interoperable debit services (including the ATM network) and has since evolved into a comprehensive digital payments platform (Interac, 2023). It thus provides a case study of great relevance to the UK: adapting older infrastructure, including the cash infrastructures of central concern to our sponsor LINK, to support interfacing with new initiation processes.

At its core, Interac enables direct access to consumer deposit accounts for the execution of point-of-sale (POS) payments, electronic transfers and contactless transactions. The Interac Debit system remains one of the most widely adopted forms of retail payment in Canada, allowing users to make real-time payments directly from their bank accounts without the use of credit (Bank of Canada, 2020). This infrastructure relies on personal identification number (PIN) authentication and chip-based technology to mitigate fraud risks, and is considered among the most secure debit systems globally (CPSS, 2012).

One of the most transformative services under the Interac umbrella is Interac e-Transfer, which facilitates near real-time P2P payments via online or mobile banking platforms. By utilising email addresses or mobile phone numbers as proxies for bank account information, the service reduces the friction associated with traditional money transfers. According to Payments Canada (2023), Interac e-Transfer is now among the most preferred methods for P2P and small business payments in Canada, with over one billion transactions processed annually.

Interac also supports contactless payments through Interac Flash, which enables tapand-go functionality for low-value transactions. This service enhances consumer convenience while maintaining compliance with stringent encryption and anti-fraud standards (Interac, 2023). The introduction of Flash has further contributed to the shift towards cashless payment modalities in Canada.

Regulated under the Canadian Payments Act, Interac operates under a legal and supervisory framework overseen by the Bank of Canada, the Department of Finance, and Payments Canada. Its governance model is designed to uphold the principles of transparency, efficiency and innovation within the national payments ecosystem (Bank of Canada, 2020). Recent developments have seen Interac investing in real-time payments infrastructure, digital identity frameworks, and API-based solutions in support of broader financial modernisation efforts (Payments Canada, 2023).

What makes Interac interesting as a case study is that, in Canada, the 'Visa Debit' cards that are issued by most of the banks are actually linked to the Interac Debit network, which is the domestic debit network. Consequently, most of the card transactions avoid using the Visa Debit payment network (or the Mastercard equivalent) which charges a transaction fee plus the interchange fees (approximately 1.2-1.4%). Interac fees are generally much lower, being roughly \$0.05 to \$0.10 per transaction. This means that Visa Debit cards are only used as an identification and authentication medium for the payment initiation at the point-of-sale rather than an integrated payment solution that processes the payments between consumers and merchants.



3. Paym in the UK v. Swish in Sweden

Ostensibly, Paym and Swish both addressed similar consumer needs, that of P2P payments. For example, if a group of friends have dinner together, one person pays the total bill and the others need to pay back for their share.

However, the market context and execution of the services were very different. And consequently so were the outcomes.

Paym

Paym was a UK mobile payment service (person-to-person) launched in April 2014 by the Payments Council (now Pay.UK), enabling users to send money using just a recipient's mobile phone number, eliminating the need for sort codes or account numbers.

Paym consumer experience:

- Users registered their mobile numbers with their bank, linking them to their current accounts.
- Payments were initiated through existing mobile or online banking apps.
- The sender's bank would retrieve the recipient's account details via the Paym directory and process the payment through the Faster Payments Service.

At its peak, Paym was supported by 15 major UK banks and building societies, covering over 90% of UK current accounts. Despite this initial adoption, Paym usage declined after launch, with registered users dropping by 14% in 2022. Pay.UK and participating banks decided to discontinue the service, and Paym was closed on 7 March 2023.

Swish

Swish in Sweden is a mobile payment service (person-to-person) launched in 2012 as a collaboration between major Swedish banks and Bankgirot, with oversight by Getswish AB (owned by the participating banks). Swish enables real-time money transfers using only

a mobile phone number, and has become deeply embedded in Swedish consumer and business payment behaviour.

Swish consumer experience:66

- Users register by linking their Swedish bank account to their mobile phone number using their bank's app and BankID, a secure national electronic identification system.
- Payments are initiated via the Swish app or through integrated banking apps. The sender enters the recipient's mobile number and the amount, confirms via BankID, and the transfer occurs instantly.
- Transfers are cleared in real time via Bankgirot and the recipient's bank. Funds are available within seconds, even across different banks.
- Swish is available for individuals, businesses, organisations and even public services.
 QR code functionality is supported for face-to-face payments.

As of 2023, Swish had over eight million users, more than 75% of Sweden's population. The service continues to be used for P2P payments as well as payments to SMEs and increasingly for Swedish-centric e-commerce (e.g. the majority of online rail ticket purchases).⁶⁷

Swish built on the established BankID system, which itself built on the established previous paper-based ID systems employed in Sweden and other Nordic countries.⁶⁸ In 2001 the Ministry of Finance and Tax Authority of Sweden decided that it would pursue a market-based model for the development of an e-identity solution, inviting private providers to offer solutions. Grönlund (Grönlund, Å., 2010) describes the motivation:⁶⁹

"The market model was chosen for several reasons. First, it was assumed that competition among providers would make costs as low as possible. Second, as the eIDs were seen as an important driver for e-service development, the use of existing providers, i.e. the banks, would be the quickest way to reach a large number of people as all bank customers would get an eID at no cost. Third, this solution would avoid a large upfront investment by government. As stated by the Parliament (Trafikutskottet 2005/06; translation by the author), the role of government should be to 'support the use of e-legitimations, stimulate competition between providers of such legitimations and remove obstacles related to infrastructure, market and

⁶⁶ The Swish webpages provide an overview (Swish, 2025)

^{67 (}Sveriges Riksbank, 2025)

⁶⁸ (Husz, 2018) critically reviews the history of identity documents and financial identity in Sweden

⁶⁹ (Grönlund, 2010, pg 196)

competition ... work for the development of technology-neutral standards for electronic signatures'. Not only the eIDs themselves but also the control structure, the certification system, was left to the providers."

As it turned out BankID, a collaboration between the Swedish banks building on their existing identity verification, proved the most successful taking four fifths of the market. Swish was then built on the foundation of this initial industry cooperation.

Paym v. Swish comparison

It's useful to consider the case studies of Paym v. Swish using the Technology Adoption Model (TAM).⁷⁰ The Technology Adoption Model describes how individuals and markets adopt new technologies over time. There are many variations and extensions to this model, but in summary adoption is argued to be a function of *perceived usefulness* and *perceived ease of use*.

Swish had a higher perceived ease of use and usefulness. Consumer signup was easy because of BankID Integration. Consumer ease of use was driven by strong customer experience design and common standards across banks. In comparison, Paym implementation by UK banks was fragmented, deprioritised and generally rather poor. The usefulness of Swish was enhanced by lack of real-time alternatives (compared to Faster Payments and other consumer apps in the UK), wide acceptance (compared to fragmentation in the UK), a strong customer brand (compared to next to no marketing investment in Paym and no consistent branding by banks) and the consumer trust from BankID integration. Finally, the commercial model of Swish offered economic incentives for participating banks, compared to the utility cost model of Paym.

While there are criticisms of Swish, including its domestic focus and also security and fraud concerns, the large-scale adoption in Sweden contrasts starkly with the failure of Paym in the UK.

Swish is now a leading brand in Sweden (ahead of Ikea and Volvo, according to a YouGov 2025 survey) and a model of payments innovation in Europe, showcasing how investment in branding and consumer experience, combined with a national ID system, can drive widespread adoption. Unlike the UK's now-retired Paym, Swish has become a cornerstone of Sweden's move towards a cashless society.

⁷⁰ The TAM framework due to (Davis, 1985, 1989)



4. Variable Recurring Payments in open banking

Variable Recurring Payments (VRPs) are an advanced form of payment authorisation enabled by open banking. They allow authorised payment providers, such as fintech apps or digital platforms, to initiate payments from a customer's bank account on a recurring basis with flexible amounts and schedules. Unlike traditional recurring payments such as direct debits, which are usually fixed in terms of value and timing, VRPs offer consumers more control by allowing the amount, timing and duration of payments to vary within limits defined by the customer at the time of consent.

The process involves customers giving explicit, informed consent to a third-party provider. This consent typically includes setting rules such as the maximum amount that can be withdrawn, how often payments can occur, the length of time the agreement is valid, and the identity of the merchant or service provider authorised to initiate these payments. Once consent is granted, the customer's bank – often referred to as the Account Servicing Payment Service Provider (ASPSP) – enables the third-party provider to access payment initiation services through secure, regulated APIs. These APIs are built in compliance with data protection laws and financial regulations, including Strong Customer Authentication (SCA) requirements under PSD2 in Europe and the UK.

VRPs differ from traditional direct debit mandates in several key ways. With direct debits, payment instructions are generally initiated and controlled by the merchant, and changes to the payment schedule or amount often require additional steps and processing time. In contrast, VRPs are user driven and can be managed, paused or revoked at any time by the customer directly through their banking app. This gives users a much higher level of transparency and autonomy over their finances.

Common use cases for VRPs include services with variable charges such as utility bills, telecommunications, ridesharing, and usage-based subscription services. VRPs also play

⁷¹ More information on VRPs can be found on the Open Banking webpage here: https://www.openbanking.org.uk/variable-recurring-payments-vrps/

an essential role in 'sweeping' or 'me-to-me' payments – a process where users authorise automatic transfers between their own bank accounts to optimise interest earnings, prevent overdrafts or manage savings strategies. This is particularly useful for individuals with multiple accounts who want to automate financial routines without giving up control over their money.

The benefits of VRPs can be significant. They arguably empower users by giving them more control over recurring payments, enhance transaction security through open banking protocols, improve transparency by offering real-time insights into payment history and mandates, and open new opportunities for fintech innovation. These payments are ideal for building smart financial services like automated budgeting tools, savings apps and dynamic subscription management platforms.

While VRP successfully supports payments of these kinds, initiated by financial and non-financial service providers with the payer's consent, there are also obvious limitations. These are highlighted in the 2023 Garner review, which describes VRP as being essentially limited because of the lack of commercial incentives for banks to develop and support VRP and other payment services. As the report states:⁷³

"With open banking, the regulations compel all providers of payment accounts to provide the current services without charge, although there is provision to charge for premium APIs. The impact on the market of this dual priced proposition is likely to be negative for end users. When faced with a choice, merchants (who are not able to pass costs directly onto customers) may be tempted to use the free basic open banking proposition as compared to propositions such as VRPs ... that may provide better customer functionality. Furthermore, decisions on premium APIs appear to be taking a long time.... Furthermore, if the banks cannot charge for the current API provision, as volume grows, the commercial imbalance will worsen. As such, if open banking is structurally loss making to those that provide it indefinitely, it is almost certain to fail over the long term. If the government wants open banking to thrive and consumers to be adequately protected, we need to put open banking onto a commercially sustainable footing."

For example VRP is an open banking payment solution that works well to provide for a 'sweeping service' (e.g. funds can be automatically transferred to top up the balances of the loyalty cards of well-known coffee chains to ensure no loss of customer benefits). However, as currently structured, open banking is not well suited to addressing other substantial payment needs identified by Garner, such as the lack of an alternative to the global card schemes for retail merchant payments or a convenient mobile-based personto-person payment solution.

⁷² For a more detailed definition of VRPs for sweeping see the CMA's response here: https://assets.publishing.service.gov.uk/media/622ef71fd3bf7f5a86be8fa4/Sweeping_clarification_letter_to_be_sent_14_March_2022_.pdf
⁷³ (Garner, 2023, pg 72)



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