FINANCIAL CONDUCT AUTHORITY

PSR Payment Systems Regulator

Feedback Statement

FS25/1

Big tech and digital wallets – Feedback Statement

February 2025

Contents

Chapter 1

Summary

1.1 In July 2024, the Financial Conduct Authority (FCA) and Payment Systems Regulator (PSR) published a joint Call for Information (CFI) on Big Tech and Digital Wallets to understand the opportunities and risks digital wallets' increasing popularity creates. This Feedback Statement outlines what we have heard from stakeholders and we also set out our next steps. This work is an example of the joined up and collaborative regulatory approach the National Payments Vision (NPV) highlighted as important to achieving the NPV's ambition.

1.2 Use of digital wallets is growing rapidly in the UK. The proportion of card transactions using a digital wallet increased from 8% in 2019 to 29% in 2023, with a higher proportion at in-store terminals. The proportion of consumers relying on pass-through digital wallets for most of their card transactions is growing as well. In 2023, approximately 20% of card users used a digital wallet for over 50% of their card transactions.

1.3 Apple Pay and Google Pay are the two largest providers of 'pass-through' digital wallets in the UK. These digital wallets allow users to make payments from a payment card, but do not hold funds themselves. They rely on converting payment card details into a 'token' that securely links the card's primary account number (PAN) to a virtual card on a consumer's device.

1.4 The FCA and PSR are committed to taking steps to support growth and innovation. The FCA's response to the Prime Minister on growth highlighted the importance of accelerating digital innovation to enhance productivity, while the PSR's response to the Prime Minister outlined a five step plan to promote growth in 2025, including through an even greater focus on innovation. The FCA and PSR's ongoing work developing Open Banking is enabling innovation in payments, and the longer-term development of Open Finance will enable multi-sector data sharing. Our work on digital wallets is an important part of this focus.

1.5 It is clear from the feedback we received that there is plenty of opportunity in the growth of digital wallets – with some challenges and risks, which are already being considered in other jurisdictions such as the European Union (EU) and the United States.

1.6 The purpose of setting out these findings now is so they can be taken into account by the Competition and Markets Authority (CMA) under the Digital Markets, Competition and Consumers Act (DMCCA). This report also highlights some of the opportunities that could be achieved through broader adoption of other digital technologies, eg authentication and verification services emerging from the UK Digital Identity and Attributes Trust Framework and the launch of a GOV.UK digital wallet, or introduction of a digital pound.

1.7 The FCA and PSR are not planning new in-depth work, but instead will work with others, particularly the CMA and His Majesty's Treasury (HMT), to continue to monitor developments.

What the feedback tells us and our next steps

1.8 **Digital wallets represent a significant opportunity for innovation and growth.** The majority of stakeholders highlighted that consumers benefit from a more seamless and efficient payments journey, including enhanced authentication security measures and greater financial accessibility for underserved groups. Firms highlighted considerable scope for further innovation in digital wallets extending beyond payments into other financial services and digital identity.

1.9 **Digital wallets could present a significant opportunity for non-card forms of payment as they become available, particularly for retail transactions**. Increased choice of payment methods between and within wallets has the potential to benefit consumers and merchants by increasing competition between payment systems.

1.10 **However, stakeholder responses have raised potential competition, consumer protection and operational resilience issues.** Concerns have also been raised about innovation in the supply of digital wallets and the effectiveness of the current regulatory framework.

Potential Issue 1: Competition between digital wallets

1.11 Stakeholder responses have suggested that in the supply of digital wallets is not working as well as it could be. Almost all stakeholders raised competition concerns regarding Apple historically restricting access to their 'near-field communication' (NFC) technology for competing digital wallets, reserving this access for Apple Pay only. Some stakeholders were also concerned that Apple and Google benefit from being able to control their own mobile ecosystem. Particularly, that they may be able to steer consumers to use their own digital wallets (eg through pre-installation of their own digital wallet on the mobile device).

Our next step:

The CMA is best placed to consider the issues raised using its powers under the DMCCA. The FCA and PSR will work closely with the CMA as it investigates digital wallets within its Apple and Google mobile ecosystems 'Strategic Market Status' (SMS) investigations. The CMA's statutory deadline for issuing a SMS Decision Notice is October 2025.

Potential issue 2: Competition between payment systems within digital wallets

1.12 **Stakeholders suggest card schemes' position in UK retail payments could be entrenched unless consumers are able to access alternative forms of payment as they come to market.** The main pass-through wallets don't currently offer retailers or consumers a choice of payment method beyond cards. This is likely because potential

alternatives – including open banking account-to-account (A2A) payments, stablecoins and central bank digital currency (CBDC) – are not yet sufficiently developed to be used at scale for many retail transactions.

1.13 However, we consider that reduced barriers to digital wallet entry (ie addressing potential issue 1) could increase the incentives or opportunities for these alternatives to be offered through existing or new digital wallets.

Our next step:

The FCA and PSR will work closely with the CMA to understand how any interventions to address competition between digital wallets (Potential Issue 1) could impact competition between payments systems within digital wallets (Potential Issue 2). This should inform whether additional future regulatory interventions are needed.

Potential issue 3: Operational resilience and consumer rights and protection

1.14 **Stakeholders highlighted that digital wallets could impact the financial system's resilience as operational failures of digital wallets may temporarily prevent users from making payments, for both online and in-store transactions.** If consumers retain fallback options like physical cards or cash, systemic risk is minimal. However, this risk may increase as individuals potentially become more dependent on digital wallets, as indicated by the increasing proportion of card users that use a pass-through digital wallet to make payments.

Our next step:

The FCA will seek to engage with HMT to consider this issue and potential options as part of the review of the Payment Services Regulations and Electronic Money Regulations. The previous government set out its plans for this review in 'Building a Smarter Financial Services Regulatory Framework for the UK: The next phase'. We will work with HMT to support their review in accordance with timelines that they set.

Potential issue 4: Legal powers and the regulatory perimeter

1.15 **Stakeholders consider that the current regulatory framework is not fully effective to deal with consumer, security and resilience issues.** Some stakeholders have suggested that risks relating to operational resilience, unauthorised transactions, and financial inclusion could be addressed by bringing the provision of digital wallets within the FCA's regulatory perimeter. A few stakeholders warned against prescriptive regulatory measures that could hinder innovation.

1.16 From the PSR's perspective, entities that provide infrastructure used for the purposes of operating a payment system or provide services to non-participants that enable the transfer of funds using a payment system are 'participants' in that payment system under the Financial Services (Banking Reform) Act 2013 (FSBRA). Therefore, to the extent that they provide such infrastructure or services, digital wallet providers would be characterised as 'participants' under FSBRA. These services might include, for example, the storage and transmission of payment data. Each case would need to be considered on its own facts to determine whether the type of services supplied would bring their provider within the definition of a participant. The PSR has certain powers over participants in a regulated payment system.

Our next steps:

The FCA will seek to engage with HMT to consider this issue and potential options as part of the review of the Payment Services Regulations and Electronic Money Regulations in accordance with timelines that HMT set. The PSR will further engage with digital wallet providers on this issue as part of monitoring developments in the digital wallets landscape.

Chapter 2

Supply of digital wallets and trends in usage

What are digital wallets and how are they used?

2.1 Digital wallets are apps, software or online services that allow consumers to make payments using mobile phones or other electronic devices. In the UK the largest digital wallets are mainly linked to debit and credit cards. They securely store and send payment information using methods such as 'tokenisation' and can use device features such as biometric authentication to verify a consumer's identity. This allows users to make payments without needing a physical payment card. Some digital wallets have started offering additional payment options, such as buy now pay later (BNPL), where consumers can pay for goods or services in instalments.

2.2 Digital wallets can incorporate other functions besides payments. For example, they can provide access to loyalty cards and store tickets for events or travel. They may also use open banking capabilities to allow users to access other banking services, such as checking account balances and transaction history – eg as announced by Apple in 2023.

2.3 Digital wallets could offer more features and functionalities in the coming years, for example:

- **Further integration of A2A transfers** could enable users to move money directly between bank accounts through their digital wallets, providing greater choice beyond the card networks. A few stakeholders expressed the view that this could reduce transaction costs and processing times for acquirers and merchants, potentially benefitting consumers through reduced cost-pass through. A few stakeholders claim the integration of A2A transfers in digital wallets would require regulatory and technical developments such as appropriate commercial, liability and dispute resolution models. We already see the emergence of some capability in the US as it is possible to upload funds using bank transfer to Apple Cash and then to use those funds in-store or online with Apple Pay.
- **Comprehensive financial management hubs.** By leveraging open banking application programming interface (APIs), digital wallets could provide services like AI-powered spending insights, automated savings optimisation, and real-time lending decisions based on aggregated financial data.
- **Identity verification and digital credentials.** Currently, individuals are able to confirm their identity using online services provided by registered digital identity firms, eg using a smartphone to take a photo of a passport. Digital wallets could further streamline processes like age verification, professional licensing checks, and secure access to buildings or services.
- **More sophisticated integration of loyalty programs and rewards systems,** with digital wallets automatically optimising rewards across multiple programs and potentially steering consumers towards the most advantageous payment method for each transaction.

- **Smart contract functionality,** which could allow digital wallets to handle complex financial arrangements automatically. This might include automated rent payments that adjust based on agreed-upon conditions, escrow services for large purchases, or automated distribution of shared expenses among roommates or business partners. The wallet could also manage subscription services more actively, monitoring for price changes and unused subscriptions.
- **Digital Assets.** Digital wallets may become central to the management of digital assets, including CBDC, stablecoin, non-fungible-tokens (NFTs) and other blockchain-based assets.

What are the benefits of digital wallets?

2.4 Most stakeholders highlighted that digital wallets benefit consumers by establishing a more efficient consumer journey, enhancing authentication security measures and promoting financial inclusion for certain individuals. The proportion of card transactions using a digital wallet increased significantly from 8% in 2019 to 29% in 2023, particularly at in-store terminals. This level of adoption demonstrates their popularity with consumers who clearly value the services they offer.

2.5 The majority of stakeholders mentioned that digital wallets offer consumers a quick and convenient way to make payments. For instance:

- Consumers can execute transactions through simple NFC technology, requiring only a tap of their mobile device against a point-of-sale (POS) terminal. This can eliminate the need to carry payment cards or cash. Biometric authentication methods, including fingerprint and facial recognition, can provide an intuitive and secure way of paying as these biological markers are difficult to replicate. These security measures mean digital wallets can support higher transaction limits for contactless payments than traditional cards, offering flexibility to consumers to make larger purchases, while maintaining security protocols. If a device is lost or stolen, multiple security barriers – including device locks, biometric authentication, and remote disable features – help prevent unauthorised access to payment functionality.
- For e-commerce, security features, such as tokenisation and dynamic security codes, may provide protection against data breaches and card-not-present fraud without requiring additional authentication steps like SMS verification or bank app authorisation.
- Consumers can also add and use new payment cards through their digital wallet before receiving physical cards, enabling instant access to credit lines or replacement cards. On some websites or web browsers, digital wallets may also reduce friction in online transactions by offering a faster checkout experience, eg by storing payment credentials, shipping addresses, and other frequently required information that can be automatically completed.

2.6 Certain types of consumers may also benefit more from using digital wallets. For instance, stakeholders raised multiple international examples of digital wallets facilitating easier access to digital financial services, including in Asia where usage of

digital wallets has significantly improved financial inclusion for rural communities. In the future, these benefits may extend beyond payments, for example, with easier set-up and access to bank accounts. However, the effective development of digital wallets for some consumers remains dependent on improving mobile network coverage and connectivity.

2.7 Card schemes and card issuers may also benefit from digital wallet usage because payments initiated by digital wallets are often underpinned by a card transaction.

2.8 Retailers may also derive several strategic and operational advantages from implementing digital wallet payment options. These advantages could include:

- Faster checkout times that improve store efficiency and reduce customer queuing.
- Higher transaction completion rates as digital wallets could minimise payment failures due to pre-validated credentials and automated card updates.
- Lower cart abandonment rates in online shopping due to simplified checkout processes.

2.9 By facilitating more efficient and secure means of making payments that benefit consumers and businesses, digital wallets also support economic growth through increased productivity and innovation in financial services, including through the future potential use cases outlined.

What are the business models of digital wallets?

2.10 A key similarity we see in the supply of digital wallets is that consumers are not typically charged for using them. However, digital wallet suppliers operate under diverse business models with distinct features and functionalities that can be categorised across several key dimensions. The features and functionalities of the most prominent digital wallets are summarised in Table 1.

Table 1: key digital wallets and their business models.

Market player	Hold funds	Charge fee	Payment instruments	Payment Types	Technology used in-store
Apple Pay	No	Yes eg card issuers	Cards	In-store and online	NFC iOS devices (using Secure Element)
Google Pay	No	No	Cards	In-store and online	NFC on Android devices (using Host Card Emulation)
PayPal	Yes	Yes eg merchants	Cards and bank transfers	In-store and online	QR codes

2.11 In more detail, the key dimensions include:

whether they hold funds: Digital wallets can be either 'staged' or 'pass-through'.

- Pass-through digital wallets: Digital wallets, such as Apple Pay and Google Pay, allow users to make payments from a payment card, but do not hold funds themselves. They rely on converting payment card details into a 'token' that securely links the card's PAN to a virtual card on a consumer's device. They often have contractual relationships with card issuers and card schemes.
- Staged digital wallets: Other types of digital wallets, such as PayPal, can offer a way to pay that follows a two-stage process, where funds are first added to the digital wallet as e-money and later, at the point of purchase, transferred from the payee's digital wallet to the recipient's digital wallet. These are sometimes referred to as e-wallets. They typically enter into contractual relationships with merchants similar to traditional acquirer models.

whether they charge commissions to merchants and/or card issuers

- Commission-based digital wallets: when a customer uses a digital wallet to make a card payment, typically either (1) their card issuer will pay a commission to the digital wallet provider, or (2) the merchant will pay a fee to the digital wallet provider. Usually, pass-through wallets engage in the former model, while staged wallets engage in the latter.
- Non-commission digital wallets: These operate without charging fees, eg to merchants or card issuers.

the payment instruments they work with

- Card-based integration: Generally, debit and credit cards across many banks, both large and small, are widely available for consumers to add to the largest digital wallet providers. Availability is more limited across smaller challenger digital wallets. Some wallets may operate under exclusive partnerships or network-specific limitations that restrict which cards can be added.
- A2A capabilities: Some digital wallets can connect directly to a bank account and facilitate A2A transfers using regulated open banking payment methods This allows wallets to facilitate immediate transfers using Faster Payments.

the retailers that accept them

- Digital wallet merchant acceptance networks vary significantly in their scope and reach. Some wallets operate on a universal acceptance model, maintaining availability of their digital wallet on an extensive network of merchants. In contrast, other digital wallets may restrict the number of merchants consumers can use to pay using their digital wallet. For example, some are designed as retailer-specific solutions, such as the Tesco Payment Wallet, which functions exclusively within that retailer's ecosystem.

the types of use cases they enable

- Some digital wallets facilitate retail transactions, some allow peer-to-peer payments, and others do both. The retail payments that they can enable may include in-store contactless payments (as below, these can use NFC technology) and/or online retail payments made using a mobile phone or other electronic device.

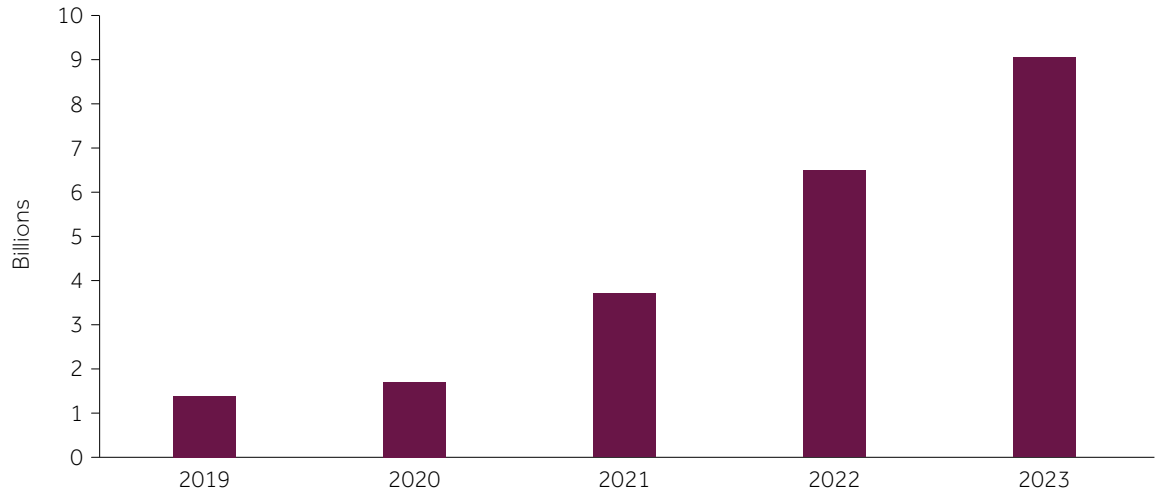
the technology that they use

- NFC technology, i.e., hardware in a phone that is controlled by the phone's software, communicates with POS terminals in the same way contactless cards do. Making NFC payments can involve 'Host-Card Emulation' (HCE) technology and/or the 'Secure Element' (SE). The key difference between HCE and SE for NFC is that HCE relies on payment details being stored in the cloud, while SE ensures this data never leaves the device.
- Alongside NFC, digital wallets can employ various alternative payment methods to facilitate transactions. These include QR code and barcode-based solutions that have gained prominence in certain overseas markets such as China and India. Some mobile payment systems may use Bluetooth or beacon technology to facilitate hands-free payments in-store.

Trends in usage of digital wallets

2.12 In 2023, over 9 billion transactions were made using digital wallets in the UK, marking a significant increase from over 1 billion transactions recorded in 2019 and reflecting broad customer adoption. This can be seen in Figure 1.

Figure 1: Card transactions via a digital wallet (2019- 2023)[1]

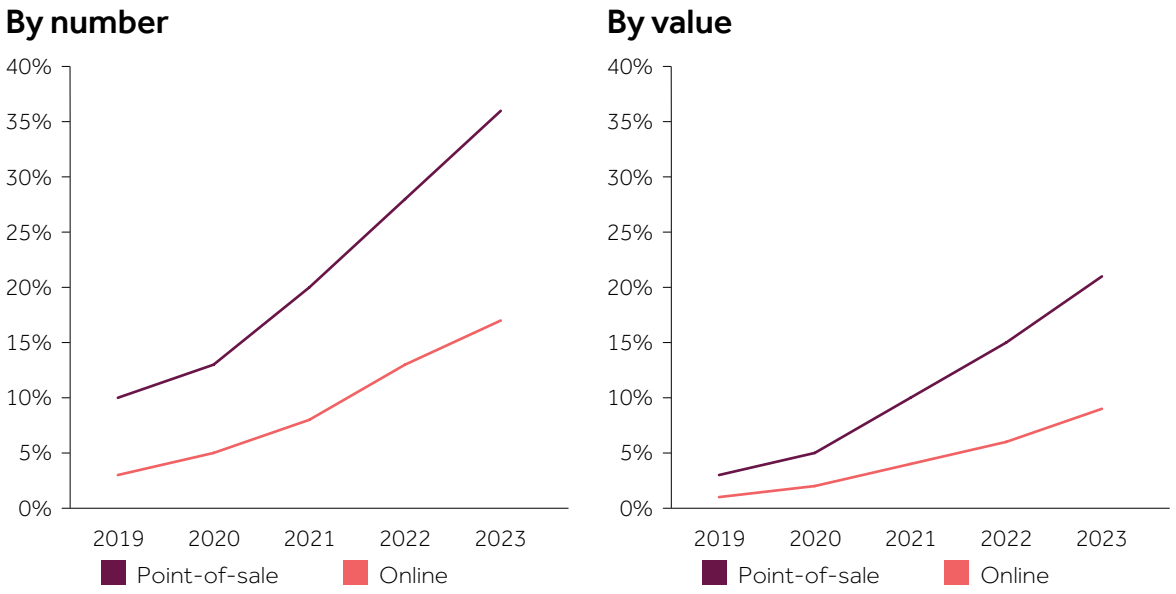


Source: FCA analysis of card issuers' data.

2.13 Since 2019, pass-through digital wallets have accounted for a growing number of retail card transactions in the UK. Analysis of our sample shows that card transactions made through digital wallets increased from 8% in 2019 to 29% in 2023. This growth is particularly evident at in-store POS terminals as seen in Figure 2.

1 We have included limited breakdowns about digital wallet usage due to confidentiality reasons.

Figure 2: Average proportion of card transactions through pass-through digital wallets

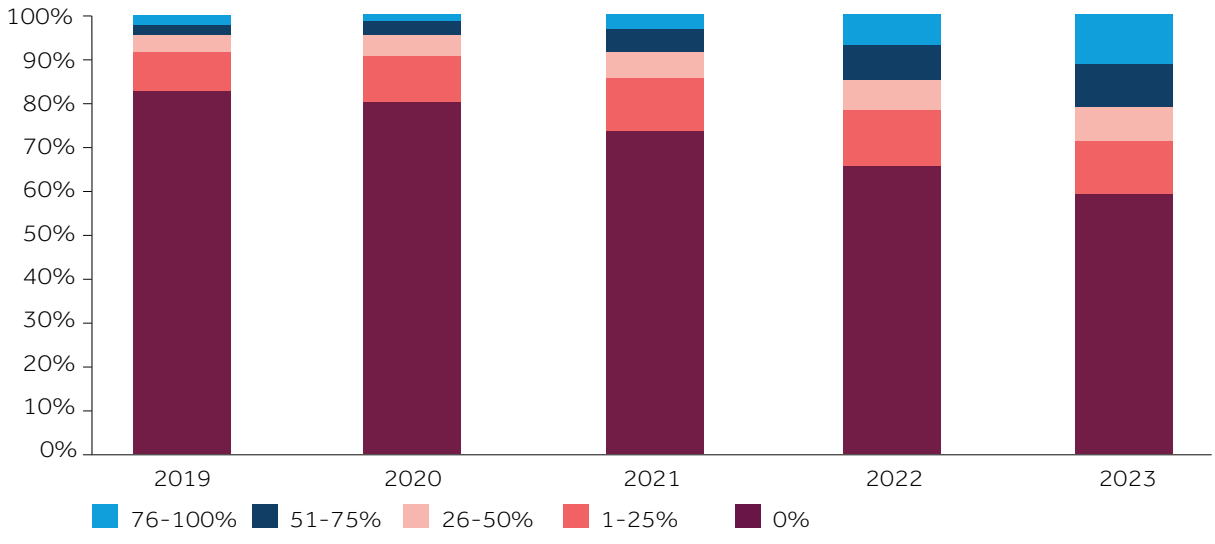


Source: FCA analysis of card issuers' data. One firm was added to the sample in 2021 but this does not make a significant difference to the overall trend.

2.14 Typically, the proportion of total card transactions using a digital wallet is higher for digital challengers than for large banks and scale challengers.

2.15 Further, the proportion of consumers relying on pass-through digital wallets for most of their card transactions is growing. In 2023, approximately 20% of card users used a digital wallet for over 50% of their card transactions, while around 10% used one for over 75% of their transactions. Meanwhile, the proportion of individuals who do not use digital wallets for any transactions is decreasing, though it still represented a majority at 59% in 2023. This trend is illustrated in Figure 3.

Figure 3: The proportion of card user's card transactions that involve a pass-through digital wallet.



Source: FCA analysis of card issuers' data

2.16 Taken together, these statistics suggest that pass-through wallets, particularly Apple Pay and Google Pay, are growing rapidly in popularity, and some customers are becoming increasingly dependent on them.

Placing our work on digital wallets in the wider context

2.17 While many of the themes in this report are of interest to the work of both regulators, the FCA and PSR have separate regulatory remits and objectives, which informs the lens through which each regulator has assessed the information provided:

- The FCA aims to ensure financial markets work well for individuals, for businesses, and for the medium-to-long-term growth and competitiveness of the UK economy. The FCA's recent letter to the Prime Minister outlines the FCA's plan to ensure growth is the cornerstone of its strategy, through to 2030. Its regulatory remit gives it a particular interest in areas such as payment services, how digital wallets may impact competition in the supply of financial services, and the operational resilience and systemic safety of the UK financial services sector.
- The PSR's work on digital wallets supports a commitment it made in its Strategy Update to further enhance the PSR's focus on competition and innovation in payment systems, supporting economic growth and enabling the payments ecosystem of the future. The PSR has a particular interest in the implications of digital wallets' growing role in the payments value chain, including for competition between and within payment systems, and for innovation.

2.18 Since we published the CFI, the government has published the NPV, which sets out its ambitions for bolstering the UK's payments sector to deliver economic growth. The NPV notes the rapid adoption of digital wallets and their ability to improve the consumer experience through their convenience. It indicates the UK is in a strong position to seize these opportunities, benefiting users of payment system as well as innovative firms across the financial services sector.

2.19 The NPV also highlights the FCA and PSR's ongoing work developing Open Banking enabled payments to help deliver more competition and innovation. The Data (Use and Access) Bill will also deliver the long-term regulatory framework for Open Banking and allow the benefits of Open Banking to be extended to Open Finance in the form of multi-sector data sharing.

2.20 The Bank of England ('The Bank') and HMT are exploring the introduction of a digital pound. In February 2023, they published a Consultation Paper (CP) to seek feedback on the design of a potential UK CBDC for use by households and businesses for their everyday payment needs. They since published a response in January 2024 to the consultation outlining plans for a public-private partnership model, where the Bank provides a digital pound, and private sector firms, such as digital wallet providers, offer innovative services to enhance user experience and drive adoption. Digital wallets would be expected to play a pivotal role in facilitating access to any digital pound. A subsequent progress update on this work was published in January 2025.

2.21 In 2023, HMT signalled how it might consider introducing an additional category of 'service provider' within Part 5 of the Banking Act to allow for the recognition of payments providers that pose systemic risks in their own right. This additional category would allow for the supervision of any payments entities that perform an essential role across payment chains, where such a provider's disruption or outage would not necessarily affect the stability of a specific, already-supervised entity, but could itself have material adverse impacts on the financial system or economy through its relationship with multiple entities or otherwise.

2.22 The Digital Regulation Cooperation Forum (DRCF) has recently explored the future of digital identity and its associated regulatory implications. Within the DRCF's work, many stakeholders emphasised the strong incumbent position of Big Tech firms in other markets — particularly mobile operating system and/or digital wallet markets — positions them to play a leading role in the digital ID market.

2.23 The Government is also exploring the digital identity market and made reference to digital wallets as part of the infrastructure for creating, managing and storing digital identities. The Government is also launching its own GOV.UK Wallet for storing government-issued documents in 2025.

2.24 Several jurisdictions have identified and examined the supply of digital wallets. For example:

- The European Commission (EC) investigated Apple's control over NFC input on iOS in the context of digital wallet technology under EU antitrust rules, concluding in legally binding commitments from Apple to address competition concerns identified. In addition, the Digital Markets Act (DMA) further complements these efforts.
- In the United States, antitrust complaints have been filed against major tech companies regarding their practices in digital markets, including digital wallets.
- The Australian Government is actively working to regulate digital payment services, including digital wallets like Apple Pay and Google Pay. In October 2023, draft legislation was introduced to bring these services under the same regulatory umbrella as traditional credit card networks.
- In 2024, Japan's parliament passed the Smartphone Software Competition Promotion Act, which aims to develop a competitive environment with respect to software particularly necessary for the use of smartphones (mobile operating systems, app stores, browsers and search engines).

Chapter 3

The feedback we have received

3.1 As discussed in section 2, the majority of stakeholders have highlighted that increased usage of digital wallets brings a significant amount of benefit to consumers. However, some stakeholders raised potential issues in the supply of digital wallets that may be harming consumers.

3.2 In this section we will discuss issues raised by stakeholders across four key areas: (1) competition between digital wallets (2) competition between payment systems within digital wallets (3) operational resilience and consumer rights and protection and (4) the regulatory perimeter.

Competition between digital wallets

There are concerns that Apple's historic restriction on access to the NFC chip may have reduced competition in the supply of digital wallets and reduced choice.

3.3 The NFC chip discussed in Section 2 is a physical component embedded in devices that allows the device to interact wirelessly with other NFC-enabled devices or systems over short distances. While the chip is hardware, its functionality is controlled through Apple's mobile operating system, iOS.

3.4 Until October 2024, Apple restricted access to the NFC chip in UK iPhones and other iOS devices to all digital wallet competitors, reserving this access for Apple Pay only. Therefore, no other provider has been able to offer NFC input functionality on alternative apps on iOS devices. As in-store contactless payments have become increasingly popular, many stakeholders claim this NFC restriction has significantly increased barriers to entry for third-party digital wallets to emerge on iOS devices and limited choice for Apple customers. This means it is very difficult for third parties to enter the market and challenge Apple's market position, effectively locking iOS customers into Apple's ecosystem.

3.5 Since October 2024, with the launch of iOS 18.1, third-party digital wallet providers have been granted access to the NFC chip and SE. However, we currently do not have information on the number of developers, if any, that have entered into commercial contracts with Apple.

3.6 There are also potential demand-side barriers to effective competition. A few stakeholders state customers are unlikely to make their mobile phone choice based on digital wallets eg due to other iOS benefits they may require. Further, to switch away from Apple Pay, eg if they thought an alternative digital wallet was of better quality, would require switching mobile devices altogether.

3.7 Some stakeholders claim that alternative technology, such as QR codes, are not viable substitutes for NFC infrastructure. Of these stakeholders, some state alternatives do not offer the same level of security, reliability, and user experience that NFC technology provides. Further, some flagged many businesses have invested heavily in NFC compatible payment terminals and transitioning to alternative technologies would require significant new infrastructure investment.

3.8 Apple's historic approach may also have wider implications for digital wallet developers because of the potential economies of scale and scope required to develop a viable wallet. Some stakeholders highlighted that their lack of ability to serve customers with iOS devices, who make up a large proportion of digital wallet users, creates a financial disincentive to launching a rival wallet only for non-iOS devices.

We have heard concerns that Apple's restrictions on access to the NFC chip may have hindered innovation, impacting the ways that markets work and impacting consumers.

3.9 Entry, or threat of entry, by competitors can drive innovation in markets as firms compete to win customers by providing higher quality, differentiated products. A few stakeholders highlight that innovation is particularly important in digital wallets as it is a zero-priced service, meaning that improving the consumer experience and enhancing use cases are key to fostering adoption and market growth.

3.10 Since Apple Pay's launch in 2014, Apple has introduced new features in the UK such as:

- Introducing a 'Tap to Pay' functionality, which allows merchants to accept in-store contactless payments using only their iPhone.
- Allowing consumers to check their balance when checking out with Apple Pay.
- A BNPL option for consumers, allowing them to pay using instalments when checking out.

3.11 However, some stakeholders state innovation has been hindered in the supply of digital wallets as entry barriers are high. They claim this has limited Apple Pay's incentive to advance certain technologies or services at pace, with third parties being unable to address this by providing their own alternative.

3.12 A few stakeholders stated they would have introduced their own digital wallets. More generally, some stakeholders raised that with more competition digital wallets could have potentially provided consumers with additional innovative features such as further financial insights, spending predictions, and personalised recommendations for rewards and discounts. These wallets, stakeholders claim, could have also gone further to introduce wider financial services such as banking, lending, investments, and insurance into a single app.

3.13 Beyond financial services activities, some stakeholders state they could have acted as centralised identity hubs holding virtual IDs, passports, licenses, and health records. They also highlighted opportunities for seamless cross-border and international transactions that could have been realized.

3.14 Ultimately, some stakeholders say this reduced innovation may have led to consumer harm in the form of a lack of, or a slower introduction of, improvements to digital wallets.

Card issuers pay fees to Apple Pay that may impact their ability to invest in innovation.[2]

3.15 Apple charges card issuers fees to allow their customers to use Apple Pay, whereas other wallets such as Google Pay do not. We understand that since there are no alternative mobile wallets on iOS that are capable of making NFC mobile payments, card issuers must either pay this fee or be denied access to the technology.

3.16 A few stakeholders claim that these fees could reduce the card issuers' overall profitability and ability to reinvest in other areas, such as innovation that could benefit consumers. A few stakeholders stated that it could also restrict their capacity to develop and offer competing wallet solutions.

Apple's NFC access offer to the UK.

3.17 In August 2024, Apple announced that it intends to open access to the NFC chip in the UK, amongst other jurisdictions, as of iOS 18.1. This will allow third party digital wallet providers to gain access to the NFC and SE APIs on iOS devices. The NFC and SE APIs leverage the SE which is an industry standard certified chip designed to store sensitive information securely on a device.

3.18 This will allow developers to be able to offer in-app contactless transactions in a wide variety of use cases such as in-store payments, car keys, closed-loop transit, corporate badges, student IDs, home keys.

3.19 This could deliver meaningful consumer benefits through enhanced competition and innovation as new digital wallets enter the market and compete with Apple Pay to gain customers. However, some stakeholders pose there are several areas where Apple's UK proposal may fall short of addressing the competition concerns we have outlined in this paper, generally and/or in comparison to Apple's commitments made in the EU.

3.20 Table 2 below provides a high-level overview of Apple's EU commitments and their proposed UK approach

Table 2: UK and EU digital wallet offering

Jurisdiction	NFC cost	Technology	iOS features access (eg push notifications)	Legally binding	NFC access controlled by Apple	Includes wearables
UK	At cost	Secure Element (SE)	Potentially	No	Yes	Unknown
EU	Free	Host Card Emulation (HCE)	Yes	Yes – 10 years	Yes	No

2 We have included limited information on commercial agreements in this section due to confidentiality reasons.

3.21 Some stakeholders state from the perspective of encouraging greater competition, the UK offer may be inferior to the EU commitments, which were adopted on 11 July and are currently in force, in a number of respects:

- In the EU, Apple committed to providing free access to the NFC chip on its devices for third party digital wallets, however in the UK they will charge for access. Some stakeholders claim this disadvantages them compared to Apple Pay in the UK market and in comparison to other markets such as the EU. Concerns have been raised this may deter UK third party digital wallet entry or reduce investment in innovation. Some of these stakeholders have advocated for free access, saying this is crucial for creating a truly level playing field in the UK.
- In the EU, Apple has committed to providing third party wallet providers access to the NFC chip through HCE technology on iOS devices, while the UK proposal offers access to the SE. The key difference between HCE and SE for NFC is that HCE relies on payment details being stored in the cloud, while SE ensures this data never leaves the device. Some stakeholders state access to SE and/or HCE should be free or on reasonable terms.
- In the EU, Apple's commitments include provisions to allow third parties access to key iOS features that otherwise may advantage Apple Pay. These provisions include allowing consumers to easily switch their default digital wallet on their iPhone and allowing new digital wallets to prompt users to do so with push notifications (in-app and outside of it). Apple has made no equivalent commitment in the UK, although Apple may choose to allow access to some or all of these features.

3.22 We also note that in the EU, Apple's commitments are legally binding and guaranteed for a minimum period of 10 years, however, they are not in the UK. Given a few firms have mentioned that developing a digital wallet requires significant upfront investment, uncertainty around the UK offer may deter entry.

3.23 In addition, some stakeholders have stated that even if the EU commitments were adopted in the UK, there are still areas where further action may be relevant. More broadly, some stakeholders expressed concerns that:

- Apple's EU commitments do not extend to wearables, such as smart watches and rings, which are becoming increasingly popular for making payments. One respondent referred to evidence suggesting wearable usage will quadruple over the next eight years. A few stakeholders think this risks shifting competition issues from mobile phones to wearable devices.
- Access to NFC differs in jurisdictions globally, therefore, digital wallet providers must design multiple region-specific solutions rather than a single, global solution. This increases barriers to competing with large, global digital wallet providers and impacts the consumer experience on an international basis.

3.24 In combination, these stakeholder concerns – generally or when compared to the EU – state that competition concerns may not be resolved by Apple's UK offer.

3.25 Further, while Apple announced their UK NFC access offer in August 2024, the specific implementation details will be determined through individual commercial agreements with developers. Given this, and that the offer is relatively recent, further work needs to be done to explore its practical impact on competition in the UK market.

Apple and Google's market position in mobile ecosystems and the impact in the supply of digital wallets

3.26 Beyond NFC access restrictions on iOS devices, some firms are concerned competition between digital wallets (including Android devices) may also be dampened by of the market position of some Big Tech firms, including Apple and Google, which may advantage them in the supply of digital wallets compared to third party providers (e.g., fintechs).

3.27 Some stakeholders are particularly concerned Apple and Google can benefit from control of their mobile ecosystems to steer consumers to use their own digital wallets eg through pre-installation of their own digital wallet and use of nudges and push notifications to prompt consumers to use their digital wallet. Some have raised concerns that this could benefit these firms compared to third parties and may be instrumental in driving adoption. Although, we note that Apple Pay's new UK NFC offering may include access to some of these functionalities.

3.28 A few stakeholders raised that Big Tech firms may benefit from the existence of network effects in this market. Consumers may derive value from being able to use a digital wallet as a payment method, while merchants may benefit from having more consumers use a digital wallet at their terminal. Big Tech firms have access to many consumers on a global scale, a strong brand attachment, and benefit from economies of scope and scale. This means they can more easily drive adoption for their digital wallet compared to third parties.

3.29 Indeed, we see that whilst NFC access is available on Android devices, there has not been significant entry from rivals to Google Pay. This may be due to Google's market position as a mobile ecosystem provider. We also note that the lack of significant entry may be driven by the need for economies of scale across both iOS and Android for third-party rivals.

Digital wallets and competition between payment systems

3.30 Most retail transactions in the UK are underpinned by a card transaction (81% of the total by volume in 2023) and retailers have limited choice of payment systems. The NPV states that it is crucial that seamless A2A payments – enabling consumers to pay for goods and services in shops and online directly from their bank account – are developed. The CFI also discussed the importance of competition in payment systems, particularly around unlocking A2A payments as an effective alternative to card payments. We obtained views to understand better the role that digital wallets might have in enabling this.

3.31 The main pass-through digital wallets currently allow UK consumers to make card-based payments only. This is likely because alternative digital payment methods are not sufficiently developed yet to represent a viable, scale alternative to cards for many retail transactions.

3.32 In the future, alternative forms of payment could become viable for a wider range of retail transactions. We note that in the recently published NPV, the government considers unlocking Open Banking enabled A2A payments for e-commerce to be a strategic short to medium term priority. It also acknowledges, however, that physical POS transactions bring particular technological challenges. Other possible future payment methods include CBDC and stablecoins.

3.33 The rising popularity of digital wallets means that they will likely have an increasingly significant impact on the take up of any non-card forms of digital payment that become available.

3.34 If the main pass-through digital wallets continue to rely on cards, that could entrench the card schemes' position in UK retail payments and be a barrier to the adoption and use of future alternative forms of payment that come to market. While cards are popular and offer many advantages, this would not be consistent with enabling greater competition between payment systems.

3.35 On the other hand, if users are able to access alternative forms of payments through digital wallets, this could represent an opportunity to support wider adoption and use of those forms of payment.

3.36 However, concerns have been raised that innovation in the provision of digital wallets may be stifled due to high barriers to entry. If barriers to providing digital wallets are lowered, this could increase entry, or threat of entry, by third party digital wallet providers. This could increase the incentives or opportunities – both for incumbents and challengers – to win or maintain customers by offering new, innovative services, eg by adding new payment methods to their wallet. This could lead to consumers holding multiple digital wallets with varying payments methods or, as a few stakeholders suggest consumers may prefer, one digital wallet with multiple payment methods available.

3.37 A few stakeholders recognised the importance of this issue, stating that digital wallets should integrate with different payment systems to ensure users have flexibility and choice. The growth of alternatives such as A2A payments (including A2A via Open Banking) may mean that consumers and merchants could subsequently benefit from features such as instant settlement and potentially lower fees, promoting competition and innovation.

3.38 Stakeholders raised several issues relevant to whether any integration of alternative payment methods within digital wallets would result in effective competition that benefits users, including:

- Consumers should be able to choose which payment method to use on a per-transaction basis and to be able to switch between them easily.

- When a user chooses which payment method to use within a wallet, there needs to be transparency in terms of fees, settling times, risks and protection and redress schemes.
- Digital wallets need to be able to process Open Banking payments both online and at POS terminals.

3.39 A few stakeholders raised EMV (Europay, Mastercard, and Visa) standards as a potential barrier to retailers accepting alternative payment methods in-store. These enable retailer POS terminals to accept card-based payments via NFC but they do not currently support alternative payment methods, including through digital wallets. Two stakeholders told us that EMV standards should be opened up to alternative payment methods.

3.40 Some stakeholders raised various other issues relevant to unlocking the potential of A2A based on Open Banking, such as the importance of developing appropriate commercial, liability and dispute models and standards. In line with NPV, we are addressing these issues through our work on the overall framework for commercial Open Banking payments. The FCA and the PSR have recently set out next steps, including on the role of Open Banking Limited in establishing an independent central operator to coordinate how variable recurring payments, which enable customers safely connect authorised payments providers to their bank account and make regular payments on their behalf, are made.

Operational resilience and consumer rights and protection

Operational resilience

3.41 An operational failure of a digital wallet could temporarily block users from accessing funds and impact payments. A failure could disrupt both in-store and online transactions, affecting consumers and merchants. If consumers could easily switch to alternative digital wallets, or were still able to access their physical cards, this would not be likely to pose a threat to the wider financial system, nor result in significant consumer harm.

3.42 However, some stakeholders raised that over time increasing reliance on digital wallets may increase the risk of harm occurring.

Unauthorised transactions

3.43 Pass-through digital wallets such as Google Pay and Apple Pay enable consumers to apply strong customer authentication (SCA) when making payments. They use a PIN code or a biometric such as a fingerprint scan or Face ID, and link the tokenised card to possession of a device such as a smartphone. However, the underlying card issuers remain responsible for compliance with SCA regulatory requirements.

3.44 Consumers are further protected against the impact of fraud, as the card issuers are subject to liability provisions under the Payment Services Regulations 2017 which require card issuers to reimburse consumers for unauthorised transactions.

3.45 Although biometrics and two-factor authentication help to tackle unauthorised transaction fraud, fraudsters continue to adapt their techniques. Some stakeholders state that, despite being generally considered more secure than traditional payment methods, pass-through digital wallets may present new risks due to their growing popularity and the convenience they offer to consumers. One example of this is social engineering, where a fraudster manipulates a victim into sharing sensitive information, such as card details or login credentials, which the fraudster then uses to load the victim's card into their own digital wallet. Another tactic involves phishing attacks, where cybercriminals send fraudulent emails or messages designed to steal wallet login credentials.

3.46 For consumers, falling victim to digital wallet fraud can result in significant financial loss, emotional distress, and potential damage to their creditworthiness, especially if unauthorised transactions are not promptly detected or reimbursed. Consumers may also face additional challenges, such as resolving disputes with their financial institution or dealing with the repercussions of identity theft. Some stakeholders stated that digital wallets are expected to become increasingly targeted by fraudsters as more product features are added to them, such as features relating to personal identity.

3.47 A few stakeholders have highlighted that card issuers or merchants may face increased chargeback rates, which lead to financial losses and additional operational costs. However, some stakeholders stated that digital wallets are more secure than physical cards and can reduce fraud security risks in the payments ecosystem. These stakeholders did not provide any supporting evidence to substantiate the above claims, leaving the extent and scale of these issues unclear.

Fraud liability

3.48 Digital wallet providers control the user authentication and identity verification process when setting up their digital wallet, as well as the transaction authentication process through biometric authentication, PIN entry, or other security measures. In many cases, card issuers do not have direct control or oversight over these processes.

3.49 Under the Payment Services Regulations 2017, card issuers remain ultimately responsible for ensuring card payments meet SCA requirements. Card issuers are also liable for unauthorised payment transactions, including transactions made through a digital wallet. This can create a disconnect in terms of liability because, while the wallet provider may be responsible for enabling the transaction, it is not liable for reimbursing loss from an unauthorised payment.

3.50 Many stakeholders report concerns that this liability gap may reduce wallet providers' incentives to strengthen security measures and invest in fraud prevention. Stakeholders have not, however, provided empirical evidence to substantiate these concerns.

3.51 A few stakeholders advocate for apportioning some liability for fraud to digital wallet providers. They argue that placing sole liability on payment service providers is no longer sufficient given the evolving fraud landscape. Moreover, a few stakeholders suggest that liability-sharing models – such as joint and several liability – could encourage digital wallet providers to strengthen security practices. Additionally, they explain that wallet providers could play a more active role by sharing authentication data and other relevant information with issuers to mitigate fraud risks.

3.52 However, there was a lack of sufficient evidence to assess the strength of incentives for digital wallet providers to proactively invest in fraud prevention. This gap in understanding limits the ability to assess whether existing market dynamics effectively encourage wallet providers to adopt advanced security measures and robust fraud prevention strategies. In chapter 4, we set out information about the steps we will take to investigate this issue further.

Access to payment services

3.53 New payment services introduced through digital wallets could play an important role in promoting competition and innovation in payments, particularly if they can facilitate the creation of products aimed at serving the needs of specific consumer groups such as those without traditional bank accounts.

3.54 However, if digital wallets become a prerequisite for accessing, onboarding or using payment services, there is also a risk that these services could exclude consumers without smartphones, or consumers with concerns relating to data privacy. One card issuer noted that consideration and inclusive design principles should be applied to ensure that consumers who are less able to engage digitally are not excluded, particularly considering card issuers' obligations under the FCA's Consumer Duty. Some stakeholders indicated that it will be important to ensure that consumers are able to choose the payment method appropriate to them, including methods which do not rely on consumers having smartphones, to avoid consumers being financially excluded.

Legal powers and the regulatory perimeter

3.55 In the CFI, we set out how our regulatory powers relate to digital wallets and the issues we discussed.

3.56 From the FCA's perspective, a provider of a mobile app that transmits a payment service user's tokenised card details with a payment order for processing by the card issuer is not carrying out the FCA-regulated activity of issuing a payment instrument. However, when a payment service user uploads a payment card onto a digital wallet, they typically agree a new set of procedures for initiating a payment with their card issuer. This involves the card issuer engaging in the regulated activity of 'issuing a payment instrument'. This can result in a situation where the card issuer is regulated by the FCA, while the digital wallet provider is not.

3.57 From the PSR's perspective, entities that provide infrastructure used for the purposes of operating a payment system or provide services to non-participants that enable the

transfer of funds using a payment system are 'participants' in that payment system under FSBRA. Therefore, to the extent that they provide such infrastructure or services, digital wallet providers would be characterised as 'participants' under FSBRA. These services might include, for example, the storage and transmission of payment data. Each case would need to be considered on its own facts to determine whether the type of services supplied would bring their provider within the definition of a participant. The PSR has certain powers over participants in a regulated payment system.

3.58 The majority of stakeholders view the current regulatory framework, including the scope of the FCA's regulatory perimeter, as not fully effective and needing improvements, particularly to address areas like operational resilience and consumer protection. To address this, some stakeholders recommend amending the regulatory framework to explicitly cover pass-through wallets, ensuring a level playing field and consistent oversight across different types of payment intermediaries. On the contrary, a few stakeholders argued that the current flexible regulatory landscape is largely effective and shifting to a more prescriptive approach could stifle innovation.

3.59 Finally, a few stakeholders explicitly supported the PSR's view on its powers, noting that digital wallets, including pass-through wallets, fall within FSBRA's scope whose aim is to regulate the whole payment journey from 'end to end'. Others challenged this position, noting that there is not a universal view on whether such a determination can be made based on the existing legislation and the services that pass-through digital wallets provide.

Chapter 4

Next Steps

4.1 In Section 3 we have set out that, while the majority of stakeholders view digital wallets as posing a significant benefit to consumers, many raised concerns through the CFI process. We recognise in many instances these need to be further analysed and considered and therefore, our next steps reflect this need.

4.2 Our proposed next steps are informed by engagement with stakeholders and other regulators. This collaborative approach ensures that our measures are proportionate and support the development of a competitive digital wallets landscape in the UK.

4.3 These next steps are summarised in Table 3.

Table 3: Potential issues and proposed next steps.

What is the potential issue?	What is the next step?	How does this address the issue?	Who is doing this next step?	When is this next step being undertaken?
Potential Issue 1: Concerns that competition between digital wallets may not be working well.	The FCA and PSR will work with the CMA as they investigate digital wallets as part of their mobile ecosystems SMS investigation using DMCCA powers. We consider that the DMCCA means that the CMA are best placed to act in considering the issues raised, but given the importance of digital wallets for competition and innovation, we will keep our role under review.	As NFC technology is controlled by software within the mobile ecosystem, CMA could impose relevant code of conduct requirements on digital wallet providers.	CMA with FCA and PSR input	CMA launched SMS investigations into Apple and Google's mobile ecosystems on 23 January 2025. Their statutory deadline for issuing SMS Decision Notice is 22 October 2025. The FCA and PSR are inputting into this consultation.
Potential Issue 2: Concerns there are barriers to enabling effective competition between payment systems within digital wallets.	The FCA and PSR will continue to monitor the issue and work with the CMA to understand the impact of any potential Issue 1 interventions on Issue 2.	Greater competition between digital wallets may also increase effective competition between payment systems.	CMA with FCA and PSR input	

What is the potential issue?	What is the next step?	How does this address the issue?	Who is doing this next step?	When is this next step being undertaken?
Potential Issue 3: Concerns around consumer protection and operational resilience issues raised by stakeholders.	The FCA will consider these issues as part of its review of the Payment Services Regulations and the Electronic Money Regulations.	The FCA will further investigate whether changes need to be made.	FCA	The FCA will seek to engage with HMT to consider this issue and potential options as part of the review of the Payment Services Regulations and Electronic Money Regulations. The previous government set out its plans for this review in 'Building a Smarter Financial Services Regulatory Framework for the UK: The next phase'. We will work with HMT to support their review in accordance with timelines that they set.
Potential Issue 4: Whether pass-through wallet providers should fall within the FCA and/or PSR's regulatory perimeters.	The FCA will consider these issues as part of its review of the Payment Services Regulations and the Electronic Money Regulations. The PSR has set out its views in this statement, noting its intention to further engage with digital wallet providers on this issue as it continues to monitor developments in this area.	The FCA will further investigate this issue and if appropriate seek to engage with HMT regarding its perimeter.	FCA and PSR	The FCA will seek to engage with HMT to consider this issue and potential options as part of the review of the Payment Services Regulations and Electronic Money Regulations in accordance with timelines that HMT set. The PSR will further engage with digital wallet providers on this issue as part of monitoring developments.

Next steps on competition issues

4.4 On 1 January 2025 the DMCCA came into force, allowing the CMA to designate firms with SMS in relation to a particular digital activity. Once designated, the CMA can impose conduct requirements or introduce pro-competition interventions to achieve positive outcomes for UK consumers and businesses.

4.5 Following commencement, the CMA launched initial SMS investigations into Apple and Google's respective mobile ecosystems on 23 January 2025. The CMA will gather and analyse evidence from various stakeholders and issue a SMS Decision Notice by their statutory deadline on 22 October 2025. Alongside or following, they may also issue a Conduct Requirements Notice to Apple and/or Google.

4.6 The CMA plans to explore issues including whether there are barriers to third parties using and deploying contactless payments provided through digital wallets. Potential measures include that:

- Apple and Google do not restrict interoperability as required by third-party digital wallets to function effectively and compete with Apple's and Google's own products and services.
- Apple make changes to rules or policies if its current rules or policies prohibit certain third-party services, such as rival wallets, from operating on iOS devices.

4.7 Therefore, whilst we have carefully considered using the FCA and/or PSR's powers to address the lack of competition between digital wallets, we believe the CMA, through its powers under the DMCCA, is best positioned to investigate concerns raised by stakeholders and if appropriate, impose conduct requirements.

4.8 Such conduct requirements would be for the CMA to decide, but based on the feedback to this CFI, aspects that could be considered include:

- **Lack of iOS NFC access:** Opening access to the iOS NFC chip to third parties in the UK on appropriate terms could enhance competition between digital wallets through several mechanisms. First, it could lower barriers to new market entry by competitors, which increases choice for consumers and allows them to switch between providers. Second, it could result in improved innovation in digital wallets as new services and innovations are introduced across the market by incumbents and/or challengers. Third, it could improve card issuers' bargaining position in their contractual relationships.
- **Apple and Google's market position:** Looking at whether to address these provisions so that prospective or current third-party digital wallets can access required mobile ecosystem features (e.g. push notifications) that may 'steer' customers towards certain digital wallets.

4.9 We will continue to actively engage with the CMA as they progress through their SMS designation process and develop any appropriate conduct requirements in parallel with their nine-month designation investigation. As mentioned within our CFI, we may share relevant information with the CMA in line with the appropriate gateways.

Next steps on digital wallets and competition between payment systems

4.10 To the extent there is any intervention to reduce barriers to digital wallet entry, this could lead to greater competition between payment systems within wallets. For instance, new digital wallets, based on forms of payments different from (or in addition to) cards, could enter the market in future. Greater competition between digital wallets could also plausibly increase incentives for incumbent wallet providers to integrate with future alternative payment methods that come to market. This has the potential to bring considerable benefits to both consumers and merchants, through increased innovation, lower prices and higher quality service.

4.11 Therefore, in the first instance, we consider it is important for the CMA to investigate competition between digital wallets as this may potentially address concerns raised by stakeholders regarding competition between payment systems.

4.12 However, we recognise that interventions aiming to stimulate competition between digital wallets may not address stakeholder concerns in full. For instance, new wallets may face incentives to integrate only with cards or there could continue to be concerns around potential steering within digital wallets (e.g. steering consumers towards card payments). Hence, we consider it is important that the CMA consider how any interventions that address competition between digital wallets may impact on competition and innovation between payment systems. The PSR will provide support to the CMA in doing this.

4.13 This should also help to inform whether any additional future regulatory interventions may be warranted, for instance, relating to other barriers to alternative payment methods' integrating with digital wallets.

Next steps on operational resilience and consumer protection and the FCA's regulatory perimeter

4.14 We acknowledge stakeholder views suggesting that risks relating to operational resilience, unauthorised transactions, and financial inclusion may be further addressed by bringing the provision of pass-through digital wallets within the FCA's regulatory perimeter. As part of this, improved standards that apply directly to digital wallet providers' tokenisation and authentication services could help to further promote a reliable and integrated payments ecosystem. Additionally, changes to the regulatory framework could redefine liability among wallet providers and card issuers to ensure fair accountability to strengthen wallet providers' incentives to avoid consumer financial loss.

4.15 We currently lack sufficient evidence on the prevalence of the types of fraud mentioned within this paper, making it difficult to assess the scale and extent of the issue. We will carry out further research and data collection to gain a clearer understanding of the benefits and risks associated with emerging digital wallet features. We will seek to collaborate with stakeholders including wallet providers, financial institutions and

regulators to address this knowledge gap and ensure the ongoing security and resilience of digital wallet payments. Although changes to the FCA's regulatory perimeter would be determined by HMT, the FCA will seek to engage with HMT to consider these issues and potential options as part of our work our work on considering moving provisions of the Payment Services Regulations and Electronic Money Regulations into the FCA's Handbook in accordance with timelines that HMT set.

Future role

4.16 Given the clear and significant importance of digital wallets for consumers, competition and innovation, both authorities will continue to monitor developments and consider issues that emerge.

4.17 In line with the NPV, the FCA and PSR will continue to work closely on this as synergies arise between our work to avoid regulatory congestion.

Annex 1

List of stakeholders

Please see below the list of stakeholders who responded to the CFI and consented to have their names published.

4KEYS International

Accenture

Amazon

Ant International

Association of Independent Risk & Fraud Advisors

Barclays

British Retail Consortium

Computer & Communications Industry Association

Consumer Council for Northern Ireland

Curve

Digital Pound Foundation

FCA Practitioner Panel

Finance & Leasing Association

Financial Services Consumer Panel

Global Digital Finance

Government Banking

HSBC UK

Innovate Finance

Klarna Bank AB

Lloyds Banking Group

Monzo

Nationwide

NFC Forum

Nugget

OneID

Open Banking Ltd

Pay Uk

PayPal UK

Plus 500 UK Ltd

Preiskel & Co: Movement for an Open Web

Revolut

Santander

TechUK

Teya

Token

Trans Union

True Layer

UK Finance

Vanquis Banking Group

Visa Europe

Which?

Yapily

Annex 2

Abbreviations used in this paper

Abbreviation	Description
API	Application Programming Interface
A2A	Account-to-Account
BNPL	Buy Now Pay Later
CFI	Call for Information
CBDC	Central Bank Digital Currency
CMA	Competition and Markets Authority
CP	Consultation Paper
DMCCA	Digital Markets, Competition and Consumers Act
DRCF	Digital Regulation Cooperation Forum
EC	European Commission
EMV	Europay, Visa, Mastercard
FCA	Financial Conduct Authority
FSBRA	Financial Services (Banking Reform) Act 2013
HMT	His Majesty's Treasury
HCE	Host Card Emulation
iOS	Apple's mobile operating system
NPV	National Payments Vision
NFC	Near-Field Communication
NFTs	Non-Fungible-Tokens
PSR	Payment Systems Regulator

Abbreviation	Description
POS	Point-of-Sale
PAN	Primary Account Number
SE	Secure Element
SMS	Strategic Market Status
SCA	Strong Customer Authentication
The Bank	The Bank of England

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