LINK's Response to the CMA's Consultation on the NFC Access Conduct Requirement for Apple's Mobile Platform

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1. Introduction

a. LINK is responding to this consultation as a major UK payment scheme, not as a developer. Its primary interest is enabling Network Members to make LINK services available securely and efficiently through their customers' chosen digital wallets and mobile applications.
b. LINK is a not-for-profit company governed by an independent Board, with a public interest objective to protect access to cash across the UK.
c. LINK sustains access to cash by maintaining the coverage of free-to-use ATMs in remote and rural locations and improving free access in deprived areas through its established financial inclusion programme.
d. LINK manages the UK's main cash machine (ATM) network. The network connects the vast majority of ATMs in the UK and enables customers of banks and building societies that are LINK Network Members to make cash withdrawals and balance enquiries with their payment cards at almost all ATMs. All major UK card issuers and ATM operators currently choose to be LINK Members.
e. LINK's access to cash role also includes acting as a coordination body. Participating firms notify LINK of planned closures of facilities such as branches. LINK assesses the impact on the local area and, where required, recommends shared facilities such as banking hubs to maintain access to cash.
f. LINK's core infrastructure is a highly resilient 24/7 real-time network provided by Vocalink, a Mastercard company.
g. LINK is regulated by the Payment Systems Regulator and by the Bank of England as a systemically important payment system designated by HM Treasury. LINK is also designated by HM Treasury and supervised by the Financial Conduct Authority in its role as an industry coordination body.

h. LINK is exploring the introduction of contactless services at ATMs in the UK to support continued access to cash as the use of physical cards evolves. Mobile devices and digital wallets are central to that work.
i. Effective and interoperable access to NFC functionality on iOS is therefore important to LINK. It can enable Network Members to support LINK functionality through Apple Pay, other digital wallets and appropriately authorised banking applications, without technically viable services being unnecessarily constrained or placed at a competitive disadvantage by platform access, functionality or pricing terms.
j. LINK supports the CMA's objective of promoting competition, innovation and consumer choice through effective NFC access on fair, reasonable, transparent and non-discriminatory terms. LINK's response focuses principally on how the proposed Conduct Requirement can support Network Members' access to digital wallets and, through those wallets, consumers' access to LINK services.
k. LINK's position on the proposed Conduct Requirement:

    i. LINK welcomes effective NFC access because it can support Network Members' ability to provide LINK functionality through digital wallets and authorised mobile applications.
    ii. Access should be technology-neutral and interoperable, including HCE and Secure Element access where appropriate.
    iii. Alternative wallets and authorised applications should have sufficiently equivalent functionality to compete effectively, subject to proportionate security, certification and scheme requirements.
    iv. Technical access should be accompanied by commercially viable, transparent and non-discriminatory terms; otherwise the benefit to Members and consumers may not materialise.

Background

LINK's response is principally concerned with its Contactless programme and the ability of Network Members to make LINK services available through mobile and wearable digital wallets. The Digital Pound Lab and National Payments Vision provide useful evidence of possible future use cases, but they are secondary to the immediate issue of effective access for Network Members and their customers.

- Contactless Cash Withdrawal at ATMs and POS.

This project will enable UK debit cardholders at LINK Scheme member banks to withdraw cash at ATM using their contactless-enabled mobile or physical payment

card. LINK is currently engaging with member banks with a goal of reaching a 'go-no go' decision in Q4 2026.

- Bank of England Digital Pound Lab

Within the Digital Pound Lab, LINK has demonstrated the feasibility of converting digital pounds to physical pounds at ATM and Point of Sale, and thereby also demonstrating A2A card and mobile-initiated payments at ATM and POS.

- National Payments Vision

LINK is engaged with the National Payments Vision to provide key support and insights into approaches to combine contactless EMV transactions with Faster Payments, thus providing a sovereign payments solution for the UK.

Review of CMA NFC Conduct Requirements for Apple's mobile platform in relation to LINK's current projects – Contactless Cash Withdrawal at ATM

LINK has engaged extensively with Network Members on the design of mobile-based contactless services at ATMs. The design objective is broad customer reach across iOS and Android and the ability for Members to support LINK functionality through Apple Pay, Google Pay and, where appropriate, other authorised wallets or banking applications.

LINK does not advocate a particular wallet provider or technical model. LINK's concern is that a technically viable wallet or banking application should not be placed at an unjustified disadvantage through restrictions on NFC access, functionality, certification or pricing.

Functional parity is important where platform functionality available to Apple Wallet is necessary for an alternative wallet or banking application to provide a secure and effective customer experience. The ability to select a default NFC application and to initiate transactions seamlessly may therefore be material to Member adoption.

From a LINK perspective, effective NFC access can increase Member choice, support broader availability of LINK services through digital wallets and encourage innovation in how customers access cash. This is welcomed where services meet LINK's security, certification and operating requirements.

Developing and operating consumer payment applications requires significant investment. Obligations to grant and maintain effective NFC access on fair, reasonable, transparent and non-discriminatory terms are therefore important to give Members and their chosen providers sufficient confidence to invest.

LINK supports access through both HCE and Secure Element. LINK does not have a fixed preference between those technologies: Network Members and their chosen wallet or application providers should be able to select the architecture appropriate to their service, subject to proportionate security, interoperability and certification requirements.

Future relevance: Digital Pound Lab and National Payments Vision

As part of its work supporting the Bank of England's Digital Pound Lab LINK has demonstrated a strong capability to invoke a standard EMV Contactless transaction through an NFC interface interoperable with a digital pound ledger.

However, due to the known restrictions around iOS NFC access for payments, the development was completed using the Android platform only.

A possible extension of the digital pound lab architecture is not to use an EMV contactless transaction to invoke a change to the digital pound ledger but rather use it to invoke an A2A payment in line with the National Payments Vision. LINK have demonstrated within the Digital Pound Lab that a payment using an 'authenticated Request to Pay' – standard EMV PIN authentication transmitted as part of a Request to Pay message – is entirely feasible.

These initiatives illustrate the potential future value of interoperable NFC access for domestic payment innovation. They are not part of the initial LINK Contactless implementation and would require separate technical, commercial and governance consideration.

The ability to select a default payment application, together with proportionate access to field-detect, double-tap or equivalent initiation methods, could be important to providing a seamless and competitive customer experience.

Furthermore, the ability to return to the default payment application following suppression by a third-party application on the same basis and timings as Apple Wallet provides a 'level playing field' for the default payment application in comparison to Apple Wallet.

LINK's Response to questions within the consultation

6.1 We welcome views on any aspect of the proposed NFC Access CR Design or analysis set out above. We are particularly interested in stakeholder feedback on the following questions

The technology on which access is based.

6.2 Given the overall design of our proposed NFC Access CR (including allowing Apple to charge a fair, reasonable, and non-discriminatory fee) would you still expect there to a demand for both HCE and SE across different use-cases, e.g. Payment vs. Non-payment. Please explain your reasoning for this?

LINK supports demand for both HCE and Secure Element access. The important outcome is that Network Members and their chosen wallet or application providers are not unnecessarily constrained to one technical implementation where another can securely and effectively support a LINK service. LINK expects payment use cases, including cash withdrawal and balance enquiry initiation, to be relevant, but does not seek to predict which technology will be preferred by individual providers.

6.3 Under what circumstances would you have the incentive to switch to a different access technology compared to your current preference?

LINK does not have a fixed technology preference. The incentive to change technology would depend on security, resilience, functional capability, interoperability, certification requirements, commercial terms and the needs of Network Members and their chosen wallet providers. Access to functionality such as Power Reserve could be relevant if LINK were to approve an appropriate low-power use case in future.

6.4 To what extent would Mastercard and Visa's iOS SE SDK reduce the complexity of developing SE solutions? Please explain whether the SE SDKs would shorten the timeframe to deploy SE contactless solutions on iOS in the UK

The potential benefit of Mastercard and Visa Secure Element SDKs is specific to applications using those payment-scheme credentials: the SDKs may reduce implementation complexity and deployment time. That benefit would not, by itself, provide equivalent assistance for LINK or Faster Payments use cases. The CMA should therefore assess effective access for domestic schemes, LINK's Network Members and other providers separately from the assistance available through an international card-scheme SDK.

6.5 What impact would being unable to offer unauthenticated transactions and having access to iOS functionalities used by Express Mode and Power Reserve have on the development, operation or uptake of NFC apps (and would this differ by use

case)? Please provide supporting evidence and where available an estimate of the impact.

The initial LINK Contactless design requires the customer to present an unlocked device and enter a PIN for each cash withdrawal or balance enquiry. LINK has not currently decided to adopt unauthenticated transactions, Express Mode or Power Reserve. Lack of access to those capabilities would therefore not prevent the initial service, but could constrain future Member propositions if equivalent functionality were safely adopted by LINK.

In time, Express Mode on iOS, which would be analogous to a contactless physical card cash withdrawal, may become adopted by LINK (no decision on this has been made). In this case, if Express Mode becomes a valid LINK Scheme consumer authentication method, the impact could be significant and encompass a significant portion of UK cards provisioned into digital wallets.

Equally Power Reserve may provide a useful feature adopted by third-party wallet providers to enable ATM withdrawals in low-power mode.

More investigation is required to understand the SE / iOS functionality to fully enable Express Mode from a third-party wallet service, particularly its relationship to Power Reserve SE functionality.

The following transit example provides background on the functionality discussed above; it does not describe the initial LINK Contactless design. Transit currently requires three mandatory checks, set out below. In these examples, authentication means mandatory authentication of the device, not of the consumer.

- *Offline Data Authentication (ODA)*
    - *CDA at MasterCard*
    - *FDDA at Visa*
- *Expiration Date*
    - *Date which token (card) will expire*
        - *Expiration date normally used as EMV tag which is used to create a HMAC (Unique value representing the token in Transit Eco System)*
- *Local Support Function*
    - *The HMAC is a Cryptographic signing of three static EMV tags, which all tokens (card) will be exchanged during EMV read action.*

- *PAN (tag 5A)*
- *Expiration Date (tag 5F24)*
    - *If returned by token (card) and otherwise self-constructed as BCD 6n (YYMMDD)*
        - *Using tag 57 (YY/MM) and based on MM, adding DD*
            - *MM = 2 , DD = 28*
            - *MM = 1,3,5,7,8,10,12, DD = 31*
            - *MM = 4,6,9,11, DD = 30*
        - *This since tag 5F24 needs to be BCD 6n in Acquirer Network Exchange*

Apple Express Mode and Low Power Mode will still follow rules above, since processing the token from Wallet will still be possible.

In Power Reserve, an Apple phone or watch will still exchange the preferred token but the user will not receive confirmation on screen if the read action succeeds. Rather:

- *A quick message including low battery is shown in NFC Express Mode*
- *The Transportation Reader still processes checks above and will return the final decision "Approved or Declined"*

6.6 Would allowing third parties to offer unauthenticated transactions and access to iOS functionalities used by Express Mode and Power Reserve require any changes to existing protocols, NFC terminals or supporting infrastructure? If so, please describe those changes, who would need to make them and the cost implications.

The changes required would depend on the functionality and technical model ultimately adopted. They could include changes to wallet or banking applications, device personalisation, ATM terminal software and configuration, LINK specifications, certification and Member implementation. LINK is not presently able to quantify those changes or costs because Express Mode and Power Reserve are not part of the initial Contactless design.

For LINK, should Express Mode be adopted, this would likely require a personalisation update to the card profiles stored on the consumer devices. This is a BAU process and unlikely to incur significant cost. Apple certification requirements would also need to be assessed.

Furthermore, Express Mode is potentially only applicable to transit terminals which support Enhanced Contactless Polling 2.0 frames, which is an Apple specification. Express Mode is therefore not only a device but also an Apple Terminal specification with potential commercial conditions and certifications.

6.7 Would access to iOS functionalities used by Express Mode and Power Reserve and the ability to complete transactions without authentication allow you to develop features equivalent to Express Mode and Power Reserve? Please provide a description of any developments that would need to be completed.

With access to the relevant iOS functionality on terms equivalent to those available to Apple Wallet, third-party providers should be better able to develop comparable features. For LINK, the key principle is that alternative wallets and authorised applications should not be structurally disadvantaged where equivalent functionality can be provided securely. LINK has decided to not include Express Mode or Power Reserve in its initial service.

6.8 Would providing access to the iOS functionalities used by Express Mode and Power Reserve create any security or privacy risks? If so, please provide a detailed description of any measures which might mitigate them.

Access to Express Mode, Power Reserve or equivalent functionality could introduce security and privacy risks if it enables transactions without the authentication controls used in the initial LINK design. Any LINK use case would require proportionate scheme requirements, security risk assessment, threat modelling, penetration testing, certification, transaction monitoring and risk-based controls before deployment.

1) *Perform a full security risk assessment using a formal methodology such as Structured Risk Assessment and/or STRIDE Threat Modelling. This exercise would help identify any potential security risks and the impact of those for the stakeholders and the users.*
2) *Perform a full penetration test of the implementation so any security defects are identified and mitigated before release for pilot study or final production.*

3) *Velocity checks of transaction usage, limitation of transit transactions performed in low power mode and risk-based transaction analysis are further mitigations which can be considered.*

NFC access fees

6.9 Are you planning to launch or have you considered launching products or services in the UK that require NFC access on iOS? If so, please provide the following information for each product or service:

a) Please provide a layperson's description and how it differs from existing products and services.

LINK is currently developing a Contactless capability under which its Network Members could offer cash withdrawals and balance enquiries at LINK ATMs using contactless physical cards and credentials provisioned to mobile or wearable digital wallets accessed through ApplePay and GooglePay.

As a result of the above limitation on direct NFC Access, LINK's Network Members are constrained commercially from using appropriately their own banking applications as an alternative OEMPay access.

Therefore, LINK is not currently proposing to launch a service with would require direct NFC access on iOS.

b) Please explain whether Apple's current NFC & SE Platform fees are commercially viable for your product or service.

No Apple NFC or Secure Element platform fee is currently charged directly to LINK. However, fees charged to Network Members or their chosen wallet, application or technical providers could affect whether LINK functionality can be offered commercially and at scale. LINK therefore considers the full end-to-end cost to Members relevant to the CMA's assessment.

c) Please provide analysis of the fee level at which each of your NFC products or services breaks even.

This response does not provide a quantified break-even NFC access fee for LINK Contactless. Any additional fees payable by Network Members could be

detrimental to the LINK Contactless business proposition; the commercial effect would depend on the overall costs incurred by Members and their chosen providers.

LINK supports tariff choice where it reflects genuine differences in service and enables providers with different business models and transaction volumes to select a commercially appropriate option. Tariffs should be transparent, predictable and readily comparable, and switching should not involve disproportionate technical or contractual barriers. Fixed, usage-based and volume-related charging structures may be appropriate, provided they do not discriminate unjustifiably or make low-volume and innovative LINK use cases commercially unviable.

d) Please provide the (estimated) launch date. Please explain how this date would move depending on the level of NFC & SE Platform fee reduction

Whilst LINK is working with its Network Members on the development of a LINK Contactless proposition, not launch date has yet been set. The benefits identified by LINK could still arise where NFC access is subject to a fair, reasonable and non-discriminatory price, but their scale would depend on the level and structure of the charge. Any fee may be compatible with effective access if it is transparent, predictable and does not make provision of LINK functionality commercially unattractive for Network Members or their chosen providers. The assessment should consider platform charges alongside existing wallet, tokenisation, implementation, certification and processing costs.

6.10 What advantages and disadvantages may arise for (i) you and (ii) other stakeholders from requiring Apple:

(a) Not to engage in undue discrimination between:

(i) itself, Apple and developers, and

A prohibition on undue discrimination should help Network Members and their chosen providers obtain alternative access to the functionality needed to offer LINK services. The principal benefits would be greater Network Member choice, wider wallet availability, more scope for innovation and reduced risk that technically viable services are disadvantaged relative to ApplePay. Any differences in treatment should be objectively justified, proportionate and transparent.

(ii) different developers?

Different developers, wallet providers and technical models should not face unjustified differences in access, functionality, certification processes or commercial terms. This is particularly important where Network Members select different delivery models for the same LINK service.

(b) To offer different 'tariffs' from which developers can choose and switch?

Please explain any differences between different 'tariff' option (e.g. the choice of charging unit, variable or fixed fees, etc.)

No comment.

6.11 What are the main parameters of competition (that is, what do consumers care most about; e.g. price, quality, range or service) in the supply of (i) payments and (ii) non-payment NFC-based Apps.

For LINK-related payment applications, relevant parameters include security, reliability, ease of use, acceptance coverage, speed, customer choice and price. For Network Members, interoperability, implementation cost, certification effort and the ability to reach customers through their preferred wallet or banking application are also material.

Proportionality

6.12 Please list any other benefits or costs you foresee arising (i) to you and (ii) more generally from the proposed NFC access CR, and please provide an estimate of the magnitude of the effect, including any supporting evidence available.

For the LINK Contactless programme, the principal benefit of the NFC Access Conduct Requirement would be to improve the ability of Network Members to offer LINK services through proprietary digital wallets and authorised banking applications. Effective access could increase wallet choice, support Member innovation and reduce the need for alternative initiation methods developed solely to work around iOS restrictions.

1) *Further benefits could include lower barriers to developing or adapting banking applications and bank-owned wallets for LINK cash withdrawals and balance enquiries, and reduced risk that platform charges or restrictions discourage deployment.*

2) *Avoidance of costly infrastructure projects designed to mitigate any Apple fees and provide low-cost contactless access at ATM.*

For the second point, LINK have recently conducted a study on the potential for QR code-based ATM transactions, in comparison to EMV contactless ATM transactions, to mitigate the limitation of providing NFC contactless withdrawals on iOS and through Apple Wallet.

The outcome of the study concluded that QR code cash withdrawals would require significantly more investment, be potentially less secure, and result in a poorer user experience for consumers.

6.13 To the extent you previously identified benefits arising from effective NFC access being provided for free on iOS (for example, in your response to the CMA's call for evidence), please discuss if these benefits would still arise should effective NFC access be provides at a fair, reasonable and non-discriminatory price.

LINK considers any access fee could limit the ability of Network Members to offer LINK services through proprietary digital wallets and authorised banking applications.

6.14 If you are a developer interested in taking up NFC on iOS, do you foresee any unintended consequences resulting from the measures included in the proposed NFC access CR?

LINK is not a developer. However, in LINK's view, the potential unintended consequences include fragmented technical implementations, inconsistent access to functionality, disproportionate certification or onboarding requirements, discriminatory pricing, and changes that disrupt existing wallet integrations. The CMA should monitor implementation and review the Conduct Requirement periodically, with input from payment schemes, issuers, wallet providers and other affected parties.