CIFAS
The UK's Fraud Prevention Service

Problem Profile Bulletin: Digital Wallets

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What are they?

A 'digital' or 'E' wallet is exactly what it says on the tin, it is the representation of a physical wallet within an online space.

A digital wallet can be used to make transactions and hold information, much in the same way that a physical wallet can. It can store bank/credit card account information, store card/accounts, digital currencies such as Bitcoin, even personal information and online gaming accounts.

Numerous companies such as traditional financial institutions, start ups, and telecommunications offer digital wallets and each offer slightly different services. Most will offer a selection of features, such as the ability to:

- Make transactions online or through an App on a mobile handset.
- Link various financial accounts and personal accounts to the wallet.
- Earn rewards and points by using the wallet with particular organisations or by linking certain cards to the wallet.
- Store digital copies of full card/PIN details.

The advantage of a digital wallet is that it acts as 'middle man' between the consumer and merchant i.e. when completing transactions no direct card information is given to the merchant.

How do they work?

Digital wallets work in two ways. They can act as a payment device and/or as a storage device for your personal information. In an online environment you can elect to make a transaction using a digital wallet or link a bank/credit card through your digital wallet to make the transaction. In a physical (face to face) environment the same process would happen, though the transaction would be carried out through a smartphone 'app' using a mobile handset.

For example: An individual sets up a digital wallet. They link their credit card and bank account to the wallet. When online shopping they use the wallet to purchase goods, selecting within the wallet which card to use e.g. a credit card. They are then required only to enter the username and password for their digital wallet to confirm their transaction. The funds are then debited via the wallet from the credit card.

The same individual also sells an item on an online marketplace; the funds from the sale are then credited to the wallet, which are then subsequently withdrawn to a selected bank account linked to the wallet. At no point does the individual directly provide any bank/credit card information when making transactions.

In the physical environment, the consumer (having already set up the digital wallet) using a smartphone opens the digital wallet app and selects to use it to pay; they then use contactless technology to interact with the merchant's payment terminal and pay for goods or services.

Essentially this is how a digital wallet operates. It ensures that all financial information is hidden and all transactions are encrypted. Some digital wallets will also allow person-to-person payments (P2P) using mobile numbers or even social media contacts.

How can they be used to facilitate or enable fraud?

Digital Wallets have the ability to store a lot of information about the holder. This information could be used to enable the impersonation of the wallet holder, should the wallet be compromised through malware or social engineering. A fraudster who has access to the password of a digital wallet could in theory purchase any number of goods or services using the wallet before the genuine account holder was made aware. They could also use the information held on the wallet to perform multiple account takeovers. An extension of this in the physical world is the potential installation of malware on payment terminals in store that could read sensitive information from the smartphone App or handset.

CIFAS Members have also raised concerns that if a wallet is hijacked, there is currently no formal process for informing the card providers that have cards in that wallet. Depending upon who operates the digital wallet, card providers may also lose chargeback rights on fraudulent authorisations carried out on their cards through the wallet. In addition, the card provider may only see the first authorisation (or registration of the card in the wallet) but no subsequent authorisations on the wallet.

What's on the horizon?

Digital payments are evolving fast, with numerous developments under way that have the potential to alter radically the way we transact – both in the physical and the online world. Perhaps two current developments "Coin" and "Bluetooth Low Energy (LE)" have the potential to make a big impact in the digital wallets environment. Coin is a card that acts as an extension of a digital wallet in the real world. Rather than using a digital wallet on a smartphone, all the information contained in the digital wallet is transferred to one card, which can be used in the same way as a normal debit/credit card. The advantage is that it lets you use a digital display on the card to pick which payment card you wish to use and you only need to carry one card around.

Bluetooth LE is a variant of Bluetooth 4.0, which itself is an updated version of the Bluetooth software currently available on most smartphone handsets. Bluetooth LE allows two nearby devices to connect i.e. cash register and smartphone and can run on a single power cell for years. One application of this for example, is to develop wristbands powered by Bluetooth LE. This would allow the wristband to act as digital wallet. The user could then swipe the band at payment terminals much like a contactless card or smartphone.

Both these developments use digital wallets; however they bridge the divide between online and physical payments. They also appeal on the basis that a user will not have to 'dig around' getting their smartphone out to pay and/or lose the ability to pay owing to battery loss. They therefore have the capability to take digital wallets into the mainstream consumer market.

Current developments that have the potential to increase market penetration include: The Google Wallet, this lets the holder use a traditional debit card that is linked to Google's digital wallet service. Vodafone, EE, and 02 are also coming together to form a mobile wallet service called 'Weve.' The co-founder of Twitter (Jack Dorsey) has developed 'Square' which provides small businesses with a piece of hardware that plugs into a mobile phone and allows merchants to take payments both from traditional cards and via digital wallet Apps. Square have their own payment App which works with the merchant software. Apple are also rumoured to be developing their own device which incorporates their fingerprint software and short distance communication technology 'i-beacon'.

As yet it is still unknown how Bitcoin and other digital currencies will develop, and to what extent the take-up of alternative currencies will drive consumers away from traditional offerings. Whether the additional flexibility of digital wallets will increase the use of alternative currencies is therefore open to speculation.

Considerations for Members

Member organisations developing alternative payment methods for their online and physical world channels should be aware of the fast pace of developments being made. Already there are numerous Alternative Banking Platforms (ABP) online which operate outside traditional financial systems. This presents both a fraud and money laundering risk to Members. These, coupled with the increasing use (and value) of digital currencies (such as Bitcoin) rather than traditional currencies make for a somewhat Wild West market. The use of smartphones, paybands, and Coin cards to make payments and apps/tech add-ons to receive payments increase the number of points of data compromise that could lead to impersonations and account takeovers.

Members may wish to consider the following when developing their solutions:

- Do you need awareness campaigns or targeted messaging to customers around data/physical/password security?
- How much information is and can be stored on devices/the cloud/third party software?
- How trustworthy are the third party companies developing software for your payment solutions? Do there need to be extra checks on them?