

**Hillingdon u3a
Computer Club**

Do you Need a Digital Wallet

September 2026



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Digital Wallet

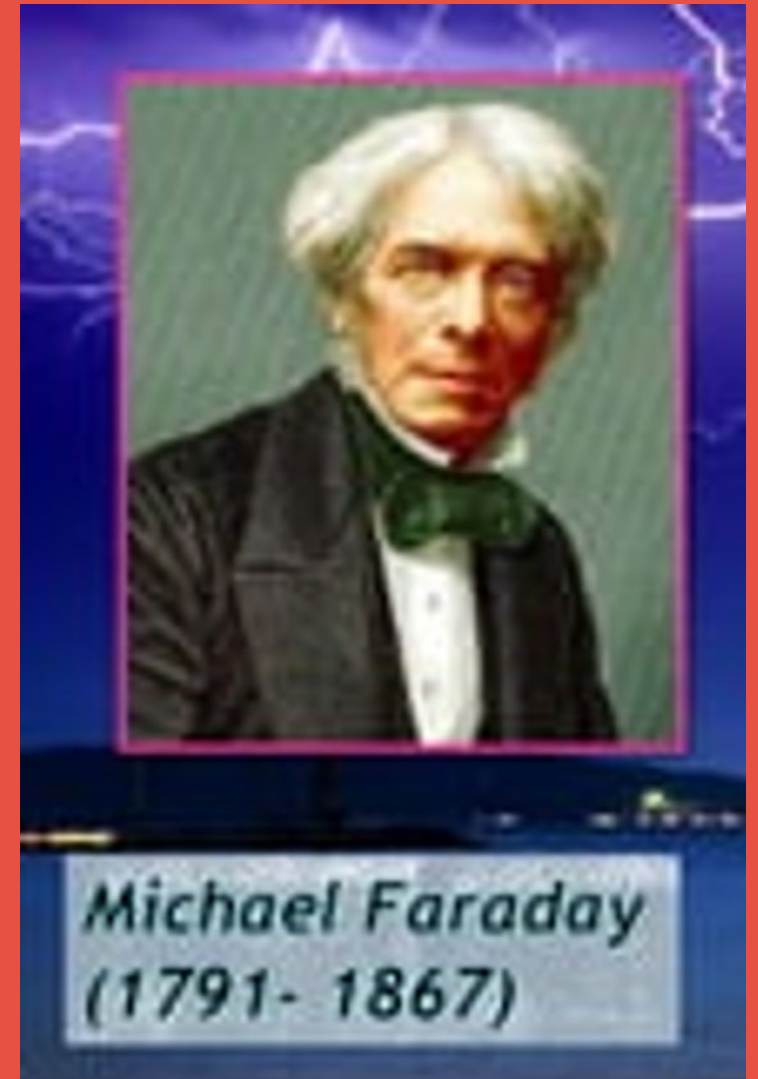
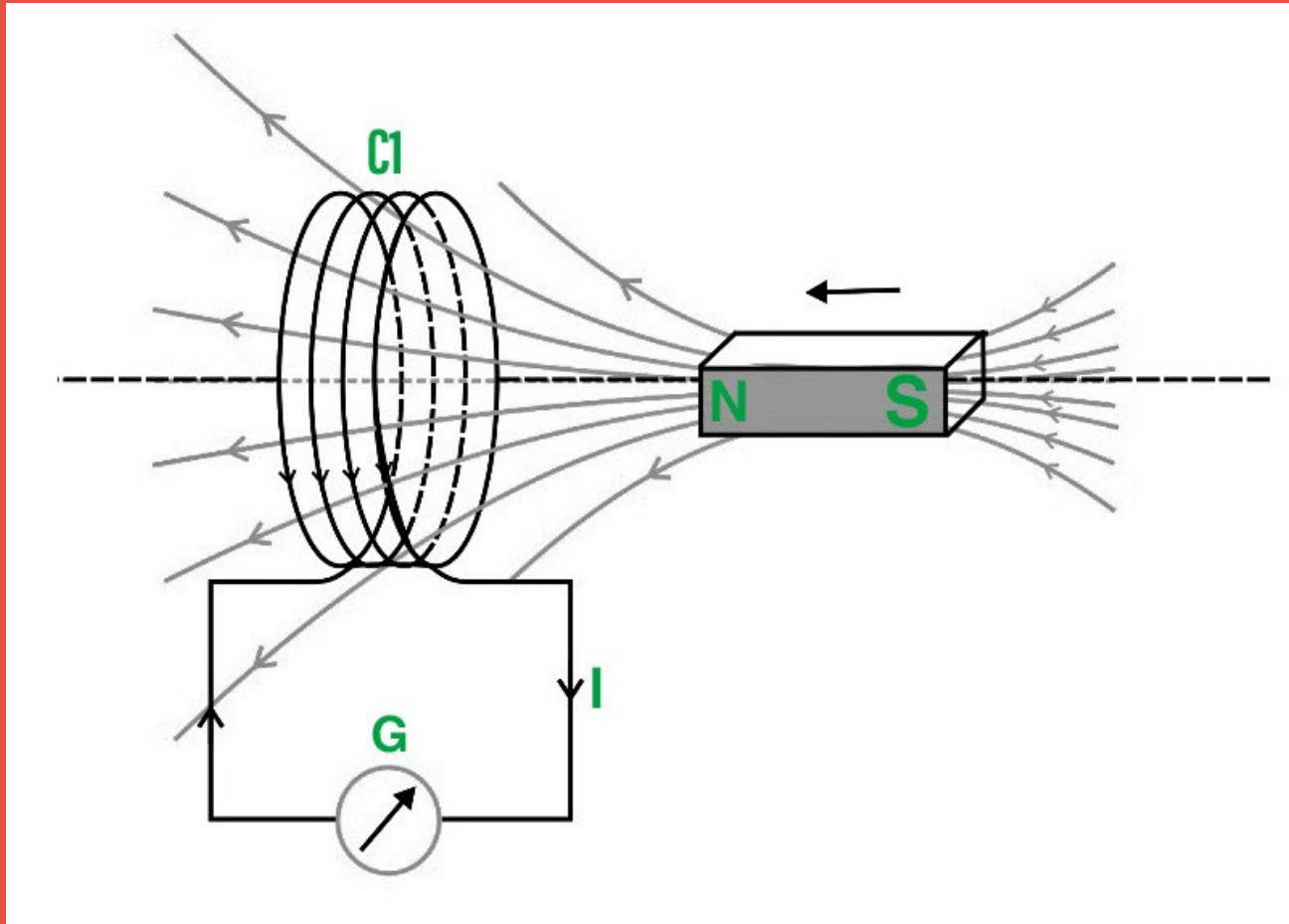
Think Apple Wallet or Google Wallet. Tapping your phone to pay for your morning coffee is normal now.

Increasingly, they are being used to store tickets, travel passes, loyalty cards and much more.

Governments, banks and even the NHS are beginning to embrace them.

Digital wallets are convenient, secure, easy to use and available to anyone who has a smartphone.

Faraday's Law of Induction

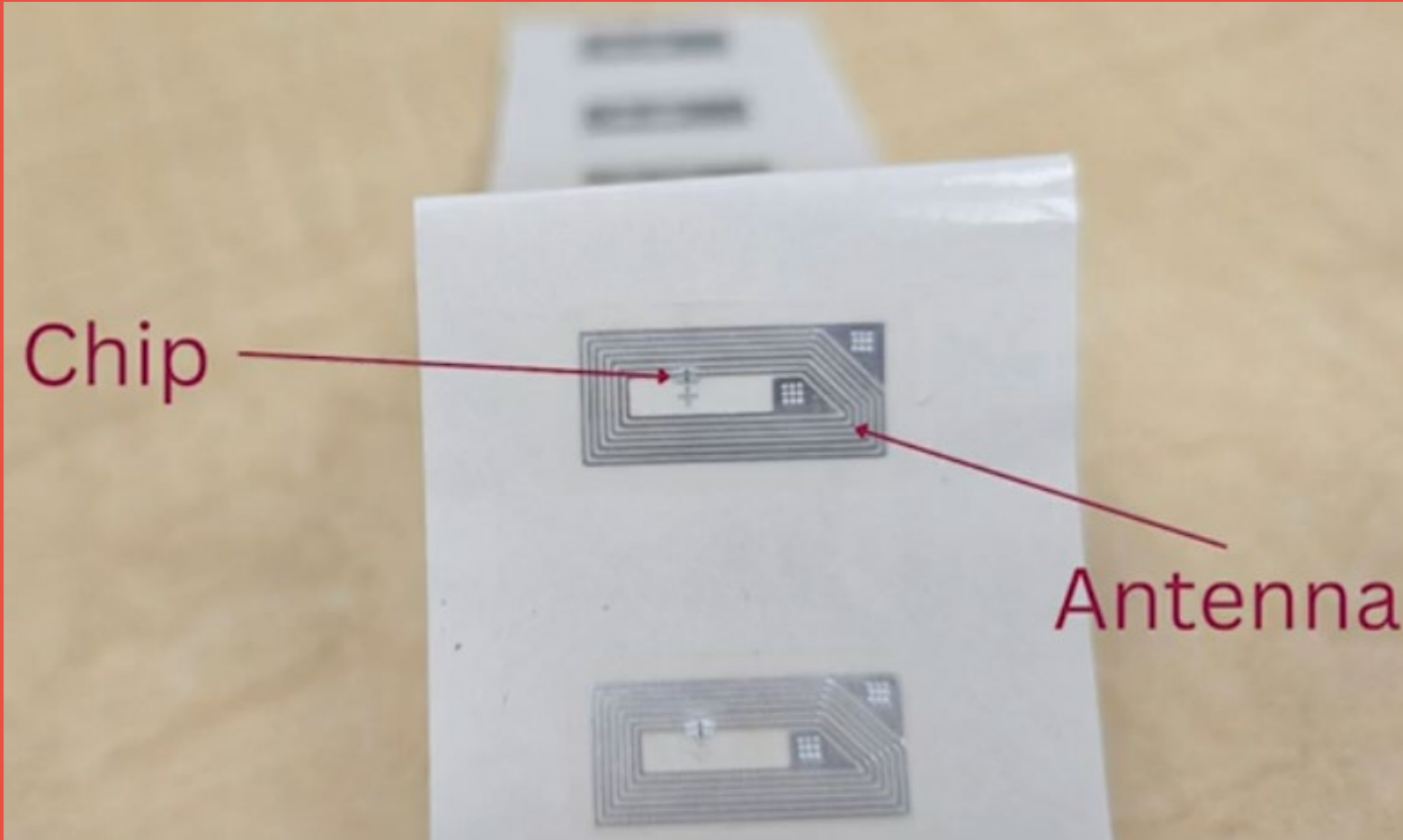


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History

- It all starts with Radio Frequency Identification
- Leon Theremin invented the "Thing" in 1945 - listening device for the Soviet Union.
- Similar tech used as a “friend or foe” transponder in WW II
- Mario Cardullo's patented the first true ancestor of modern RFID in January 1973 and demonstrated a working unit that's most the same tech used today.
- RFID name first used in 1983

Technology



Passive

No Battery

Compact & Lightweight

Range depends on freq

Active

Built in Battery

Long Range 100 metres

Higher costs

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History

- Then NFC (Near Field Communication) evolves out of RFID
- March 2002, Philips and Sony agreed to establish a technology spec. Philips applies for the six NFC patents. ISO approved in 2003.
- First added to Nokia 5140 in 2004 then the 3220. Tested through 2005. Including Nice with Orange & Caen (Samsung)
- First trialed in the UK in 2007 in the Nokia 6131.
- In 2010 the Nokia C7 was the first smart phone to include NFC.
- In 2013 Samsung & Visa partnered to develop mobile payments

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History

- 2014 Dinube created the first non-card payment network for NFC contactless payment on a mobile device.
- 2014 Apple Pay launched & iPhone 4 & 5 (with external case)
- 2015 Purchased by Google & launched in Android Kit Kat
- Also Android Pay launched as a rival to Apple Pay
- 2015 Native in iPhone 6 & iPhone 6 Plus onwards

Technology



Passive & Active NFC

Range 2-4cm

Better Security

Low power (compared to Bluetooth)

Data Transferred - very small

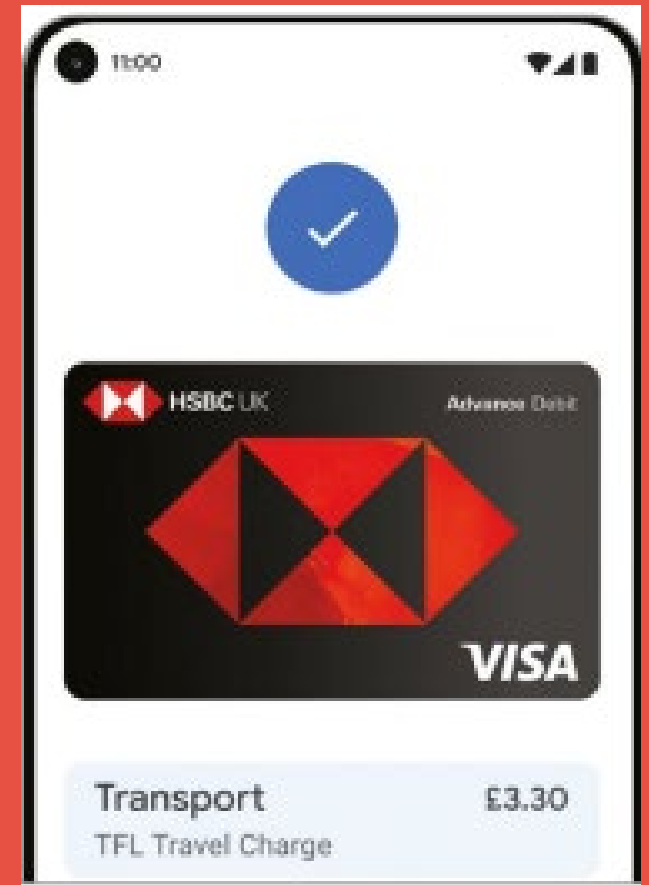
No WiFi or Bluetooth to pair

Apps that just 'touch & use'

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What is it

- A digital wallet - secure app to store digital versions of items normally in a physical wallet like debit and credit cards.
- Adding a card is just a tap on the Add button, scan your card with your phone's camera and verifying it with your bank.



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How it's Used

- Once approved, contactless payments use Apple Pay, Google Pay or Samsung Pay, depending on your device.
- Digital wallets use NFC – the same short-range wireless technology used by contactless bank cards.
- After confirming your identity on the phone, fingerprint, face or phone PIN, simply hold your phone close to the payment terminal and you've paid
- All done in a fraction of a second and you don't need a mobile signal or Wi-Fi connection for contactless payments to work.

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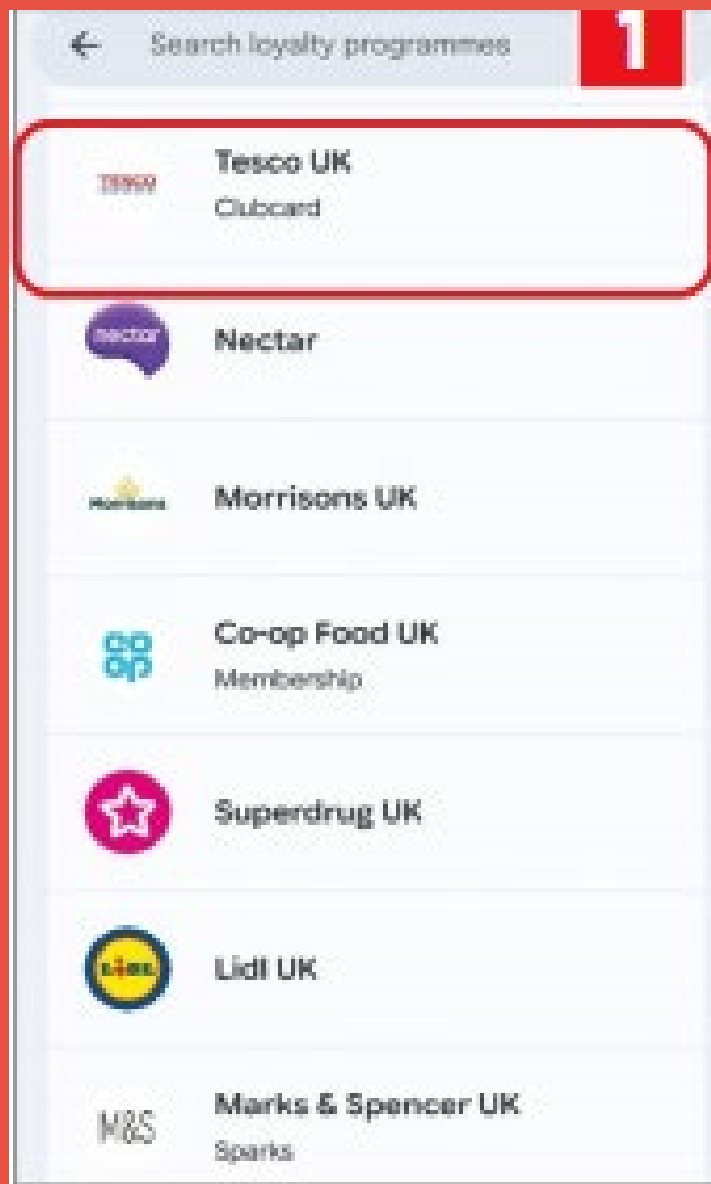
What Else

- Store cards, loyalty cards, gift cards and vouchers. No need to open a supermarket app to scan your loyalty card.
- Airline boarding passes, train tickets, railcards, bus passes and other travel passes can often be stored there too.
- Cinemas, concert venues and sports tickets can be held in the wallet.
- Even some hotels issue digital room keys, while gyms, universities and workplaces are beginning to offer digital access passes.

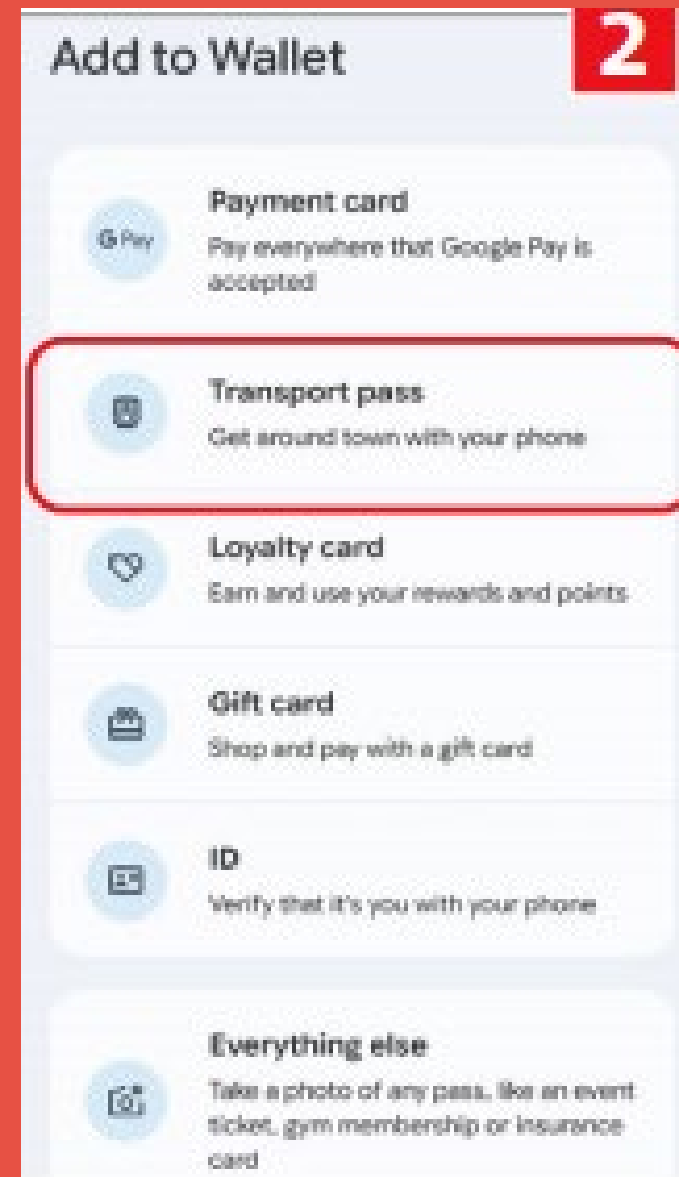
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What Else

- Some passes appear automatically e.g. a boarding pass at the airport or your cinema ticket as you arrive at the venue, saving you having to search through emails or apps.
- Travel passes can be added by tapping the relevant option in your wallet.
- Most tickets, boarding passes and loyalty cards can be added by tapping an 'Add to Wallet' button in an email, website or the provider's own app. Others may require you to scan a QR code.



Loyalty Cards



Travel & Gift Cards

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Are They Safe

- Layers of protection make them at least as secure as physical cards, probably more so.
- The wallet is encrypted and protected by your phone's security, so a very low risk of skimming your wallet with a card reader.
- Any payment doesn't transmit your card number. It creates a unique encrypted code for that single transaction i.e a token. A process called 'tokenisation.'

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Are They Safe

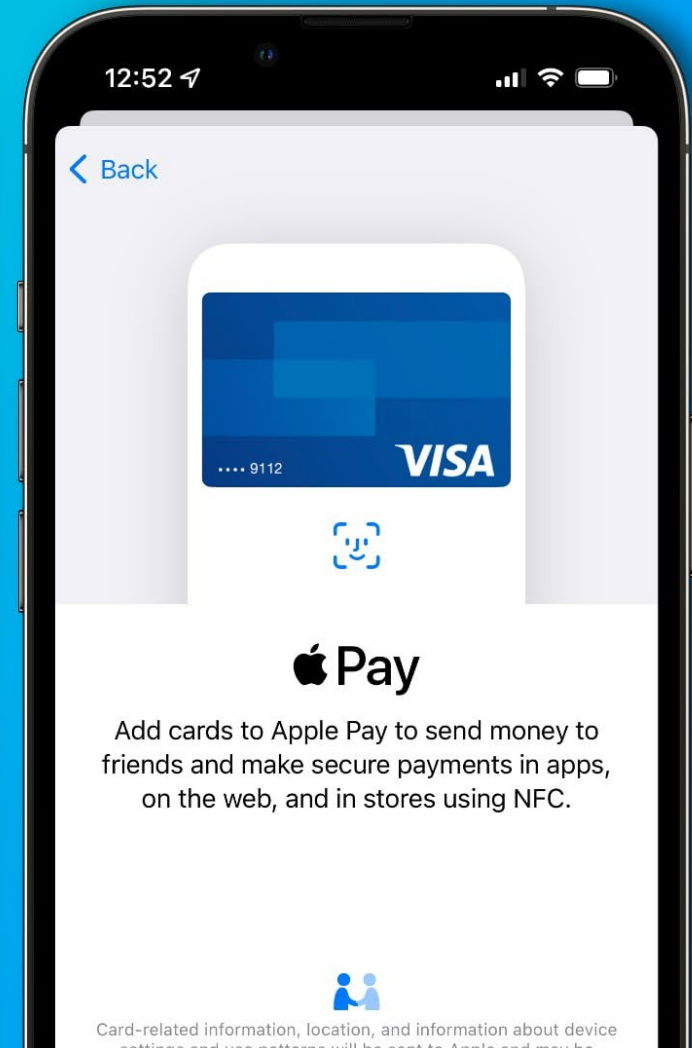
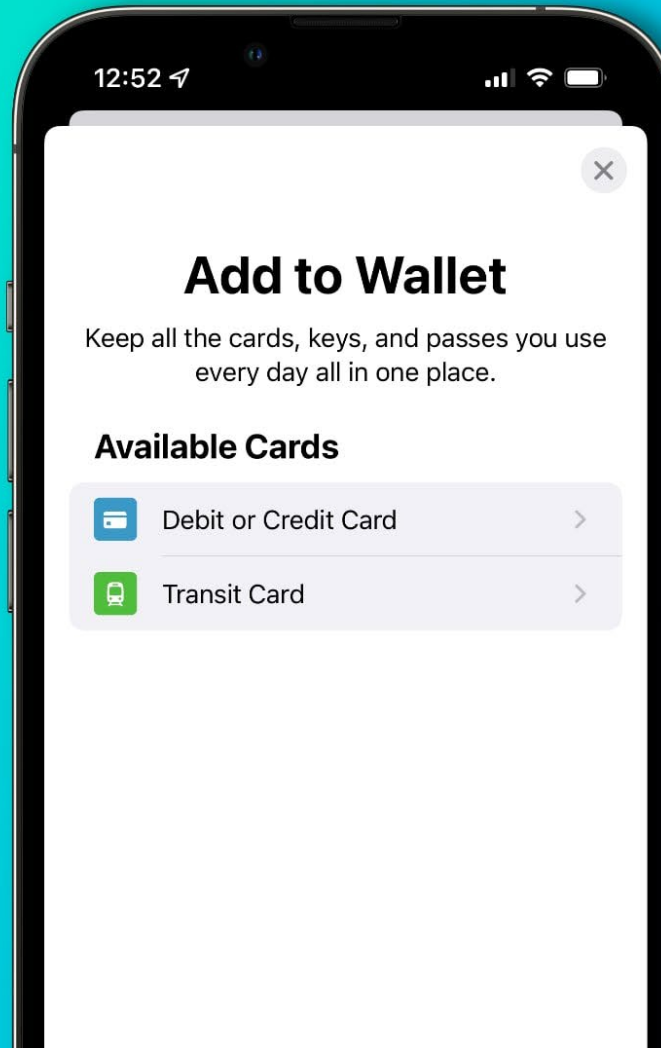
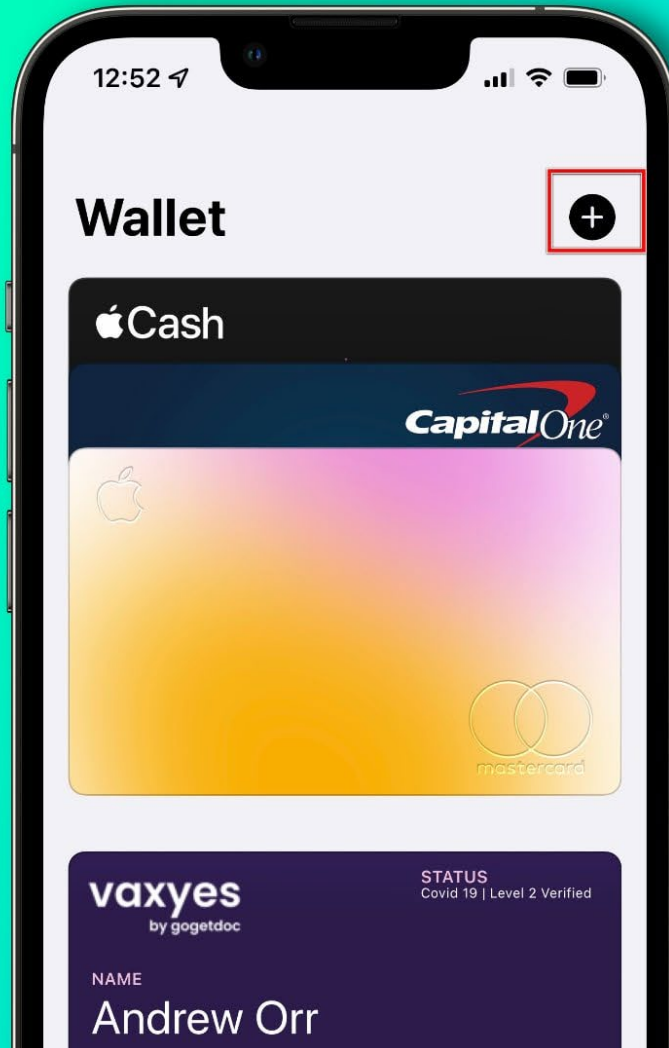
- This 'tokenisation' process means your real card details aren't shared with the retailer and it can't be reused
- However, a good idea to carry a physical card as a backup.
- In the event of loss or theft, lock your phone remotely using Apple's Find My or Google's Find Hub, and suspend or erase its contents, if necessary.
- Many banks also let you freeze individual cards

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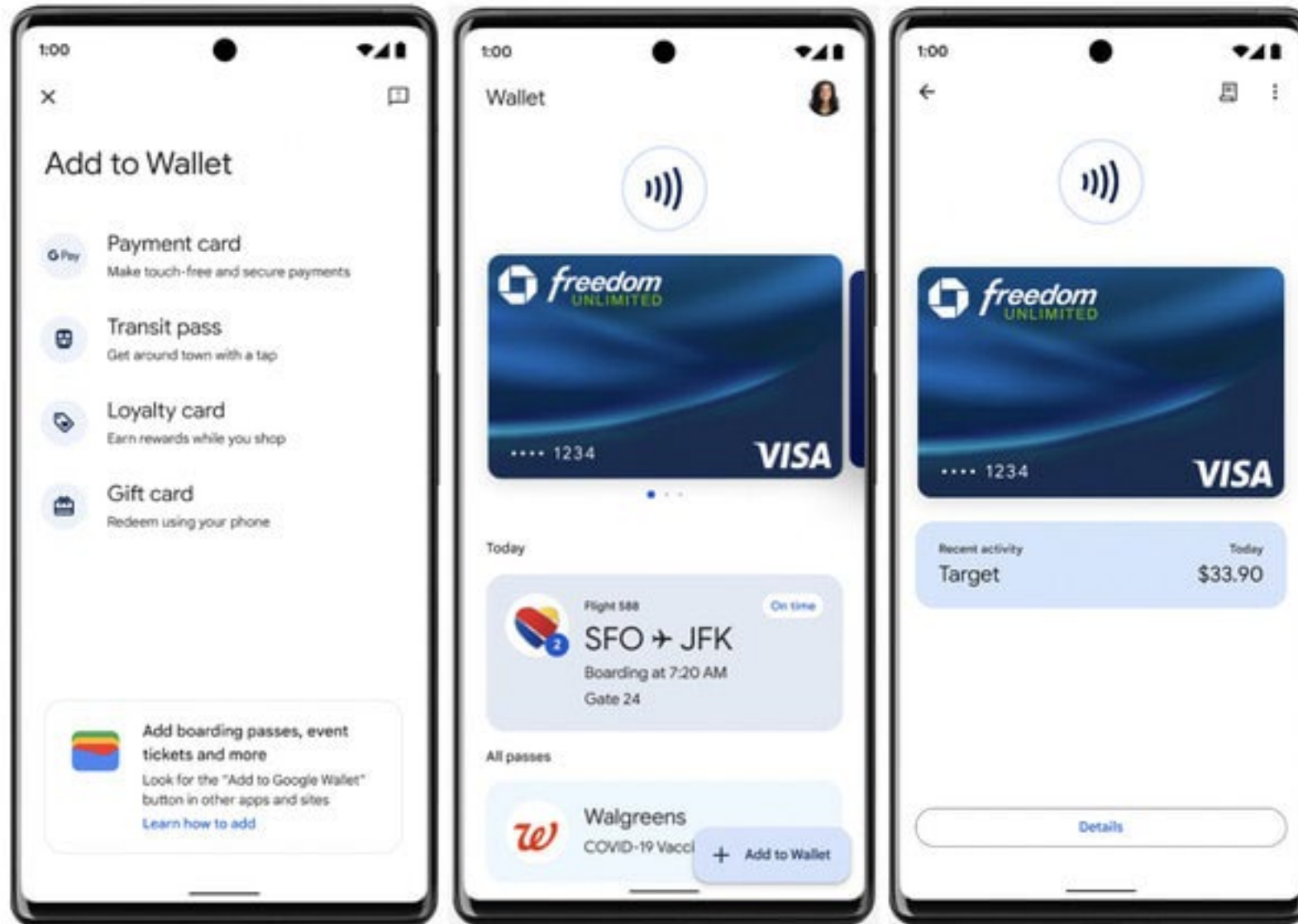
Wallet Options

- Choice is governed by what phone you own.
- iPhone use the built-in Apple Wallet app.
- Android use Google Wallet (free from Google Play Store
- Samsung Galaxy use Samsung Wallet (many features are the same as Google wallet but tightly integrated in the phone). Or use Google Wallet.
- All three wallets are evolving.....
 - Apple more banking features i.e. account balance
 - Google Wallet can display transactions.

Apple iPhone Wallet



Android Google Wallet



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Wallet Options – Other but Linked

- PayPal - One of the early pioneers of online payments
- Revolut - Travel card to bank. Now one of Europe's largest digital banking super-apps and financial platforms.
- Curve – part of Lloyds Bank, pioneered letting users consolidate their debit, credit and loyalty cards into a singular digital wallet app.
- Don't confuse Banking apps for Wallets.

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The Future

- Several World Governments already use digital wallets to store government credentials.
- Ireland is rolling out its own digital Wallet to allow citizens to store documents such as driving licences, passports and birth certificates securely on their phone.
- UK National Digital ID scheme was abandoned in July, but development of the Gov.uk Wallet continues as a separate project to store government documents on your phone.

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The Future

- An Armed Forces Veteran Card is already available through the Gov.uk One Login app
- Digital driving licences have been tested in private trials with the DVLA ahead of a wider rollout.
- A government wallet will remain entirely optional and physical documents will continue to be available.
- Healthcare is a prime area of interest.
 - e.g. during Covid, people could add their NHS Covid Pass to Apple or Google Wallet.

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