
BEYOND THE BOARDROOM PRESENTS
Payments 101.
The Gen Alpha Guide to Payments.
What Is A Payment?
Card Payments
Instant Payments
Payment Rails
Open Banking
Digital Wallets
Cards
Prepaid
Debit
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Stablecoins
CBDC
Blockchain
ISO 20022
APIs
Payment Methods
Consumer Duty
Regulation
Future of Payments
AGES 10+

BEFORE YOU START

A Quick Note

This book explains payments in a very simple way, on purpose. Real payment systems have a lot more detail and complexity underneath them than what's on these pages, and that's fine, the point here is to build the basic picture first.

Throughout this book, real brand, company, product, and public figure names are used to make ideas easier to picture, including but not limited to: Visa, Mastercard, American Express, Revolut, Monzo, WeChat, Grab, Paytm, Klarna, PayPal, Afterpay, Wise, Western Union, Remitly, goHenry, NatWest, State Bank of India, the Bank of England, Amazon, Amazon Fresh, McDonald's, Tesco, Netflix, Booking.com, eBay, Spotify, Sephora, Ticketmaster, Roblox, Xbox, PlayStation, Apple, Apple Pay, Google Pay, Alexa, Bitcoin, Ethereum, Tether, Solana, XRP, Dogecoin, ChatGPT, MrBeast, Gerwyn Price, Ariana Grande, Taylor Swift, Liverpool FC, Chennai Super Kings, along with any other brand, company, product, platform, or public figure name that appears elsewhere in this book.

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This book is for learning, not financial, legal, or professional advice. If you're making real decisions about money, cards, spending, or investments, talk to a parent, guardian, or a qualified professional.

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FOREWORD

Why I Wrote This

I have worked in payments for over twenty years. And I still, regularly, read something across the payments world, a report, a LinkedIn post, a section of a book, and think: what does this actually mean? Why isn't this written to be simpler?

Not because I don't understand it. Because I don't understand why it needs to be this complicated.

Payments touches everything, every tap, every transfer, every online checkout, and yet most of what's written about it is written for people who already know the industry inside out.

Over the years, I have been fortunate and privileged that people have asked me for help and to explain things - within payments and within my inner circle. Colleagues in my team, those outside my area, friends, family, “what does this actually mean?”, “have you got five minutes to explain this?” I enjoyed those conversations.

Recently the questions haven't slowed down, they have just changed shape. As the market gets more complicated, digital currencies, stablecoins, digital assets, all of it, people are still asking and I know the questions aren't unique to the people asking me. A lot of people, in payments and outside it, struggle with the same things.

So I thought, if explaining things simply is something I can actually do, why not put it down properly. This isn't written as a payments professional laying down exact technical detail. It isn't meant to be definitive guidance on how any of this works in practice. It's meant to give you an overview, a working understanding of what something like cryptocurrency, or a stablecoin, or even a basic payment actually is.

FOREWORD

Why I Wrote This

I wanted it simple enough so that my son, my niece and my nephew could understand it. That kind of became the bar - the simplicity metric - for every page.

101 concepts, explained the simplest way I know how.

If it helps you, use it. Share it with a colleague who's new to the industry, a friend who's curious, or anyone you think might get something out of it.

That's the spirit this book was written in. If you have any feedback, please feel free to reach out to me.

A final thank you to my son, my niece, and my nephew, the real inspiration behind writing this in the simplest way I possibly could, and my pre-teen son for proofreading every single page, for spelling, grammar and common sense.



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Beyond the Boardroom

#1 What Is A Payment?

Every time you buy something, a chocolate bar, a bus ticket, a game on Roblox, money has to move from you to the person selling it to you. That's it. That's a payment.

You are getting something that has value, and in return, you are making a payment to whoever is giving you that value.

It sounds simple, and it usually is, but a payment can happen in a few different ways, and all of them can feel instant to you, even when the money is doing something different behind the scenes.

Sometimes you have coins or cash and you hand it over. That's instant. The money has actually moved.

Other times you tap your card or your phone on a machine, or you put your card in and type your secret PIN. That feels instant too...

But it isn't, not really. The shop hasn't got your money yet. All that's happened is their bank saying “yes, this is fine, the money will come” message. The actual money follows a day or two later.

A payment is essentially you getting something, in exchange for money, and the person or company selling it getting their money, sometimes instantly and sometimes in a few days.

#1 – What Is A Payment?

Cash, instant, money actually moves.



Card, feels instant, money follows later.



A payment is you getting something, in exchange for money, and the seller getting their money, sometimes instantly and sometimes in a few days.

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#2 Push vs. Pull Payments

Some payments happen because you decide to send the money when you buy something. Other payments happen because you've already given someone permission to take the money at a time that's already been agreed.

So the first type of payment is a push payment, and the other type is a pull payment.

A push payment is you pushing the money out. Like when you ask your mum to transfer your pocket money to your account, or you send someone money to pay them back for something. You're the one in charge. You choose the amount, you choose when, and you press send.

A pull payment is the opposite. You give someone permission once, to pull money from your account whenever they need to. Like a subscription to Roblox, or Spotify, or your Xbox Game Pass. You don't push the money every month. The money is automatically taken, and that's a pull payment. You've already given permission, until you decide to cancel it.

Push is you in control, but you've got to take action. Pull feels like giving a bit of control away, but you've given permission.

A push payment is you sending money out, and a pull payment is you letting someone else take the money, whenever they need to, until you say stop.

#2 – Push vs. Pull Payments

PUSH

You send the money to someone else.



You press send.
You're in control.

PULL

Someone else takes the money from you.



You said yes once.
Now it just happens.

A push payment is you sending money out, and a pull payment is you letting someone else take the money, whenever they need to, until you say stop.

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#3 Payment vs. Clearing vs. Settlement

There are three things that happen when you make a payment using your card or your phone, the payment, the clearing, and the settlement.

The payment is the bit you see. You tap, you get a “yes” or a beep, you walk out with your stuff. That's it from your side, done.

Clearing is what happens next, behind the scenes. It's like the banks comparing notes with each other. Your bank and the shop's bank work out exactly how much is owed, to who, and check everything matches up properly before any real money moves.

Settlement is the last step, and it's the actual moment the money moves between the banks. This is when the shop's bank finally receives the real money, not just a promise that it's coming.

So the tap is instant. The clearing happens quietly in the background, usually the same day or overnight. The settlement, the real money landing, can take a day or two after that.

A payment is what you see happen, clearing is the banks checking everything matches, and settlement is when the real money actually moves.

#3 – Payment vs. Clearing vs. Settlement

1 PAYMENT



What you see.
Instant.

2 CLEARING



Banks checking it all matches.
Same day.

3 SETTLEMENT



Real money moves.
A day or two later.



A payment is what you see happen, clearing is the banks checking everything matches, and settlement is when the real money actually moves.

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#4 Prepaid vs. Debit vs. Credit

There are three main types of card, prepaid, debit, and credit, and the difference between them is whose money you're actually spending.

A prepaid card only has the money you've loaded onto it, and nothing else. You put twenty pounds on it, you can spend twenty pounds, and not a penny more. It's not tied to your everyday spending or savings, it's just the money you've chosen to put on that card, and nothing beyond it.

A debit card uses money you already have in your bank account. If you've got twenty pounds in your account, you can spend up to twenty pounds. The money is yours, it's just sitting in the bank instead of on the card.

A credit card is different again. It's not your money at all, it's the bank's money. You're borrowing it, right there at the till, and you promise to pay it back later. If you don't pay it all back, the bank charges you extra for letting you keep borrowing it, that's called interest.

So prepaid, you can only spend what you loaded on. Debit, you can only spend what's already in your account. Credit, you can spend money you don't actually have yet, as long as you pay it back.

That's why credit cards need the most trust. The bank is taking a risk on you, betting that you're good for the money later. Prepaid needs the least trust of all, because the bank can never lose money it never lent you.

A prepaid card spends money you've already loaded on, a debit card spends money you already have in the bank, and a credit card spends money you're borrowing, that you promise to pay back.

#4 - Prepaid vs. Debit vs. Credit

1 PREPAID

You load the money first.



Only what you've loaded. Nothing more.

2 DEBIT

Spends from your bank account.



Only what's already in your account.

3 CREDIT

Spends now, pay back later.



Money you're borrowing, to pay back later.



A prepaid card spends money you've already loaded on, a debit card spends money you already have in the bank, and a credit card spends money you're borrowing, that you promise to pay back.

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#5 The Four Roles In Every Card Payment

When you use a card, there are four roles that need to be played, even if you never see most of them.

The buyer, that's you, paying for something. The seller, that's the shop, selling you something. The issuer, that's your bank, who gave you the card and actually holds your money. And the acquirer, that's the shop's bank, who lets the shop take card payments in the first place.

In between all of them sits a card network, like Visa or Mastercard, connecting everyone and making sure the message and the money can flow between the two banks properly.

That's the usual setup, four separate roles, each one played by a different party. But sometimes the issuer and the acquirer are the same company, playing both roles at once.

Most cards have four roles being played, the buyer, the seller, the issuer, and the acquirer, and sometimes the issuer and acquirer are just the same company.

#5 – The Four Roles In Every Card Payment

BUYER



You, paying.

SELLER



The shop, selling.

CARD NETWORK

VISA · AMEX

Routes the payment between everyone.

ISSUER



Your bank, holds your money.

ACQUIRER



The shop's bank, lets them take cards.

SOMETIMES, ONE COMPANY DOES BOTH





Most cards have four roles being played, the buyer, the seller, the issuer, and the acquirer, and sometimes the issuer and acquirer are just the same company.

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#6 Interchange

Every time you tap your card, a tiny bit of money moves that you never see, and it's called interchange.

Remember the four roles, the buyer, the seller, the issuer, and the acquirer. When the seller gets paid, they don't actually get to keep all of it. A small slice gets taken out along the way and paid to your bank, the issuer.

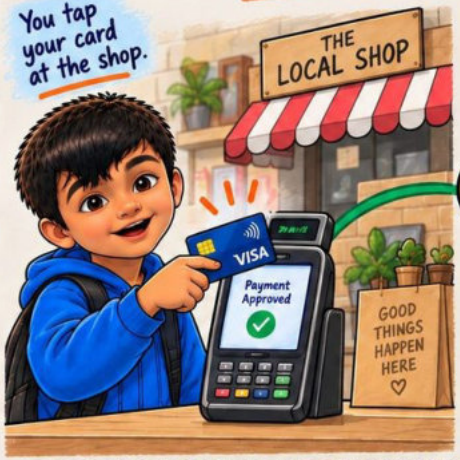
Why does your bank get a cut? Because they're the ones taking the risk. They gave you the card, they let you spend, and if something goes wrong, like the payment being fraudulent or you not being able to pay it back, it's your bank that loses out, not the shop.

So interchange is like a small thank-you fee, paid by the seller's bank to your bank, every single time you use your card. It usually happens automatically, the seller never even sees the full amount land, it's already been taken out before it reaches them.

It's tiny on any one purchase, but banks process billions of card payments, so all those tiny slices add up to a huge amount of money every year.

Interchange is a small fee the seller's bank pays your bank, every time you use your card, for taking on the risk of giving you that card in the first place.

#6 – Interchange



MOST OF IT

Most of the money goes to the shop (for the goods and services).



£

A TINY SLICE

Paid to your bank, for taking the risk.



The shop's bank (acquirer).

Your bank (issuer).

Tiny on its own.



Billions of payments a day.



Interchange is a small fee the seller's bank pays your bank, every time you use your card, for taking on the risk of giving you that card in the first place.

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#7 Payment Rails

You've heard the word “rails” a lot in payments, and it's actually a really good way to picture what's going on.

Think about train tracks. A train can only go where there are tracks already laid down. It can't just drive off into a field. The tracks decide where the train is allowed to go, and how fast, and what kind of train can even use them.

Money moves the same way. It can't just go anywhere, it has to travel along a system that's already been built for it, and that system is called a payment rail.

Card payments have their own rail, run by networks like Visa and Mastercard. Bank transfers have a different rail. Sending money abroad often uses yet another rail. Each one was built differently, some are faster, some are older, some only work in certain countries.

So when someone in payments says “which rail is this going over,” they're really asking, which set of tracks is this money about to travel on, and what does that mean for how fast it gets there, and how much it costs.

A payment rail is the system money travels along to get from one place to another, and different types of payments use different rails.


#7 — Payment Rails
CARD RAIL
Visa, Mastercard.
THE SHOP
GOODS
SERVICES
PEOPLE
YOUR MONEY
BANK TRANSFER RAIL
Straight between banks.
ANOTHER BANK ACCOUNT
SAME START. DIFFERENT DESTINATIONS.
INTERNATIONAL RAIL
Sending money abroad.
ANOTHER COUNTRY
A payment rail is the system money travels along to get from one place to another, and different types of payments use different rails.
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#8 Real-Time vs. Batch Processing

Not every payment gets checked and sorted straight away. Some do, some get bundled up and dealt with later, all at once, and that's the difference between real-time and batch processing.

Real-time means exactly what it sounds like. The moment you tap your card or send money, it gets checked and processed right there, in a second or two, no waiting around. It's like texting a friend, the second you hit send, it appears on their phone.

Batch processing is different. Instead of dealing with each payment the moment it happens, the system collects a whole pile of payments together, and processes them all at once, later. It's more like a school report, your teacher doesn't send a note home every single time you do something, they collect everything up over the term and send it all out together, on one day.

Neither way is wrong, they're just built for different jobs. Real-time is great when you need an answer instantly, like at a shop till. Batch is great when speed doesn't matter as much, but handling huge numbers of payments efficiently does, like when a company pays hundreds of people's wages on the same day.

Real-time processing deals with a payment the moment it happens, and batch processing collects lots of payments together and deals with them all at once, later.

#8 – Real-Time vs. Batch Processing

REAL-TIME

Quick. Instant. Happens now.



Message sent.
Received instantly.



Card payment.
Approved instantly.

Happens the moment it's sent.
No waiting.

BATCH

Collected. Processed together. Later.



Collected up, then all sent together, later.

Real-time processing deals with a payment the moment it happens, and batch processing, collects lots of payments together and deals with them all at once, later.

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#9 Payment Instrument vs. Payment Method

These two get mixed up a lot, even by people who work in payments, but there's a difference.

Think about football for a second. Your boot is the thing on your foot, that doesn't change. But how you actually strike the ball, a normal pass, a rabona, a trivela, that changes every time depending on what you're trying to do. Same boot, different technique.

Payments work the same way. A payment instrument is the actual thing in your hand, or on your phone, that you use to pay. Your card is an instrument. Cash is an instrument. Your phone, with Apple Pay or Google Pay set up on it, is an instrument.

A payment method is more like the technique, how that instrument actually gets used to move the money. Tapping your card is one method. Putting your card into a machine and typing your PIN is another. Scanning a QR code with your phone is another again.

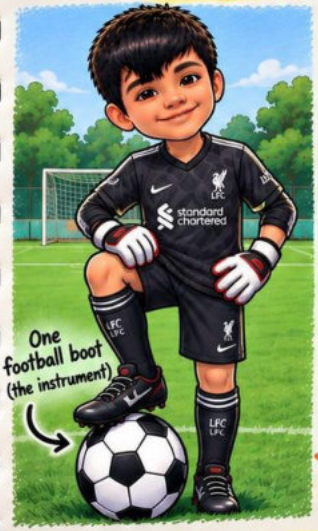
So the same instrument, your card, can be used with more than one method, tap, insert and PIN, or typed in online. And the same method, tapping, can work with more than one instrument, a card or a phone.

A payment instrument is the thing you use to pay, and a payment method is the technique, the actual way that thing gets used to move the money.

#9 – Payment Instrument vs. Payment Method

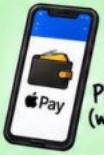
INSTRUMENT

The thing you use.




Card


Cash



Phone (wallet)

Also instruments.

METHOD

The technique, how it's actually used.


NORMAL PASS

Simple. Straightforward.


RABONA

Same boot. Different technique.


TRIVELA

Same boot. Another technique.

Contactless

Chip & PIN

QR Code

Magstripe

Also methods.

A payment instrument is the thing you use to pay,
and a payment method is the technique,
the actual way that thing gets used to move the money.

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#10 The Card

Every card has the same basic parts, whether it's yours, your mum's, or your dad's, once you know what to look for.

On the front, there's a long number, that's the card number. There's a small gold or silver chip, that's what gets read when you put your card into a machine and type your PIN. There's a little notch cut into one edge, that's there to help the machine know which way round to read the chip, and it also helps people who are blind or partially sighted feel which way to put the card in. There's your name, printed on there because the card belongs to you and no one else. There's an expiry date, because cards don't last forever. There's a small shiny hologram, which is hard to copy, so it helps prove the card is genuine. And there's a network logo, VISA, Mastercard, or American Express, showing which network the card runs on.

Flip it over, and the back has a signature strip, a magnetic stripe, which is an older way of reading cards, and a short security code, usually three digits, called the CVV. American Express does it differently, their code is four digits, and it's printed on the front instead of the back.

A card looks simple, but every single thing printed on it, front and back, has a job to do.

#10 – The Card



The chip, read when you insert and type your PIN.

Card number.

Helps the machine read the chip the right way round, and helps blind or partially sighted people feel which way to insert it.



Hard to copy, proves the card is genuine.

Mastercard, which network it runs on.

Your name, it's your card.

Cards don't last forever.



An older way of reading cards.

Where you sign.

The CVV, a security code.

American Express is different, four digits, on the front.



A card looks simple, but every single thing printed on it, front and back, has a job to do.

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#11 PAN, CVC and Expiry Date

The PAN, the CVC, and the expiry date are important parts of a card. Let's look at what each one actually does.

The PAN is the long number on the front, PAN stands for Primary Account Number. It's basically your card's ID number, it tells the systems behind the scenes exactly whose account this is and which bank issued it. No two cards ever have the same one.

The CVC is the short code, usually three digits, on the back of your card. Its whole job is proving you've actually got the card in your hand, not just the number written down somewhere. That's why websites ask for it separately, the number alone isn't proof enough.

The expiry date is there because cards don't last forever, on purpose. Banks reissue cards every few years, partly because the physical card wears out, and partly because it's a chance to refresh the security behind it, a bit like changing your password every so often, except the bank does it for you automatically.

Put together, the PAN says who you are, the CVC proves you've actually got the card, and the expiry date makes sure the whole thing gets refreshed regularly.

The PAN says which account it is, the CVC proves you've actually got the card, and the expiry date makes sure it all gets refreshed regularly.

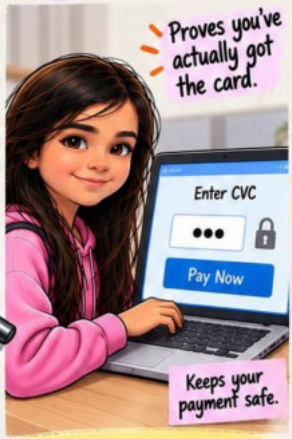
#11 – PAN, CVC and Expiry Date

PAN



Your card's ID number.

CVC



Proves you've actually got the card.

EXPIRY DATE



Cards get refreshed, on purpose.

The **PAN** says which account it is, the **CVC** proves you've actually got the card, and the **expiry date** makes sure it all gets **refreshed regularly**.

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#12 Authorisation

When you tap your card, before anything else happens, your bank has to make a quick decision, yes or no. That decision is called authorisation.

It's a bit like turning up to a party and someone at the door checking your name's on the list before they let you in. Except here, the list is your bank, and it checks a few things in about a second. Have you actually got enough money for this. Does this look like you, or does it look like someone else using your card without you knowing. Is the card even still active, or has it been reported lost or stolen.

Based on all of that, your bank sends back one of two answers, approved or declined. If it's approved, you get the beep, the green tick, and you walk off with your stuff. If it's declined, the machine says no, even though the money was never actually going to move yet anyway.

Authorisation isn't the money actually moving, it's just your bank saying “yes, this one's fine, go ahead.” The real money still has to go through clearing and settlement afterwards.

Authorisation is your bank deciding, in about a second, whether to say yes or no to a payment, before any real money actually moves.

#12 – Authorisation



#13 Clearing

Getting an “approved” at the till isn't actually the end of the story, there's still a step that happens quietly afterwards, called clearing.

Think of it like asking to go to a friend's house. You ask your dad, and he says yes straight away, that's authorisation, a quick decision, in the moment. But before you're actually allowed to go, your mum still checks the details properly, whose house is it, is someone actually going to be there, does the time actually work with everything else going on that day. That's clearing, going back over everything to make sure it all genuinely checks out.

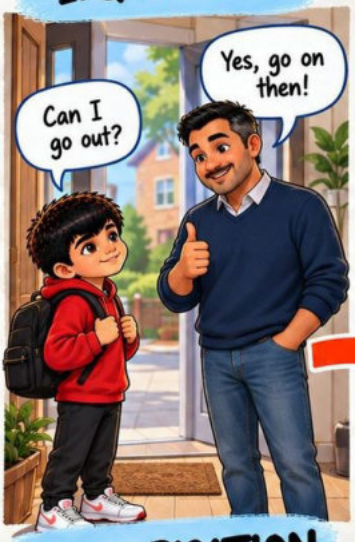
Clearing works the same way with payments. Your bank and the shop's bank compare notes, they check the amount matches, the details line up, and nothing looks wrong, before anything is treated as final. It usually happens quietly, the same day or overnight, without you ever seeing it.

Authorisation is the quick yes. Clearing is the proper double check that happens right after, to make sure that yes was actually correct.

Authorisation is the quick yes in the moment, and clearing is the proper double check afterwards, making sure everything actually matches up.

#13 – Clearing

1. Quick Yes



AUTHORISATION

A quick check in the moment.

2. Proper Check



CLEARING

A proper double check afterwards.

3. All Good!



Only once both checks are done.

Authorisation is the **quick yes** in the moment, and **clearing** is the **proper double check** afterwards, making sure everything actually **matches up**.

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Beyond the Boardroom
Payments 101.

#14 Settlement

Getting a quick yes to go out, and someone properly checking the details, still isn't the same as actually walking out the door, getting on your way, and turning up at your friend's front door. That last bit, actually arriving, is what settlement is.

With payments, there are two steps that happen before any money actually moves. First, authorisation, a quick yes or no, in about a second. Then clearing, a proper check afterwards, making sure everything matches up. But even after both of those, the money itself still hasn't gone anywhere yet.

Settlement is the moment it finally does, when the money leaves your bank and actually lands in the shop's bank account for real.

Until settlement happens, everyone's just agreed that the money should move, and checked that it's all correct. Settlement is the bit where it genuinely does.

This is usually the slowest part. Authorisation takes about a second, clearing happens quietly the same day, but settlement can take a day or two longer, especially if it's crossing between different banks.

Authorisation is the quick yes, clearing is the proper check, and settlement is the moment the money actually arrives.

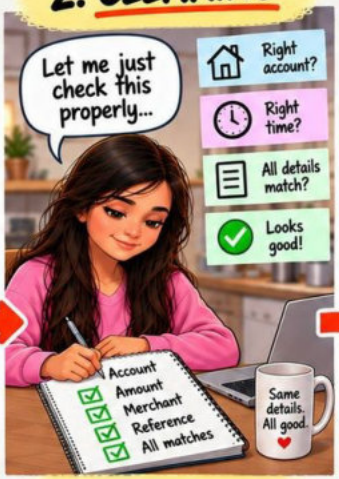
#14 – Settlement

1. AUTHORISATION



A quick yes in the moment.

2. CLEARING



A proper check afterwards.

3. SETTLEMENT



Actually arriving. For real.

Authorisation
Instant
(around 1 second)

Clearing
Same day
(usually within hours)

Settlement
A day or two later
(depending on the payment method)

Settlement is usually the slowest step.

Authorisation is the quick yes, **clearing** is the proper check, and **settlement** is the moment the money actually arrives.

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#15 Authentication vs. Authorisation

These two sound almost the same, and they happen right next to each other, but they're actually answering two completely different questions.

Authentication is proving it's really you. That's your PIN, your fingerprint, your face unlocking your phone, a code sent to your mobile. It's the “prove you are who you say you are” step.

Authorisation is a totally separate decision your bank makes, checking things like whether you've actually got enough money, and whether anything about this payment looks risky. It's the “should this payment actually be allowed” step.

You can be authenticated and still get declined. Imagine it's definitely you, fingerprint and all, but you've genuinely got no money left, your bank still says no. Being proven as you doesn't automatically mean the payment gets approved.

It's a bit like proving you're old enough to get into a cinema, showing your ID proves who you are, that's authentication. But the cinema still checks if there are actually any seats left before you're allowed in, that's authorisation. Two different checks, both need to pass.

Authentication proves it's really you, and authorisation is the separate decision about whether the payment should actually go through.

#15 – Authentication vs. Authorisation







Authentication proves it's really you, and authorisation is the separate decision about whether the payment should actually go through.

Two ways to pay. A brighter tomorrow. ♡

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#16 Chip & PIN vs. Contactless

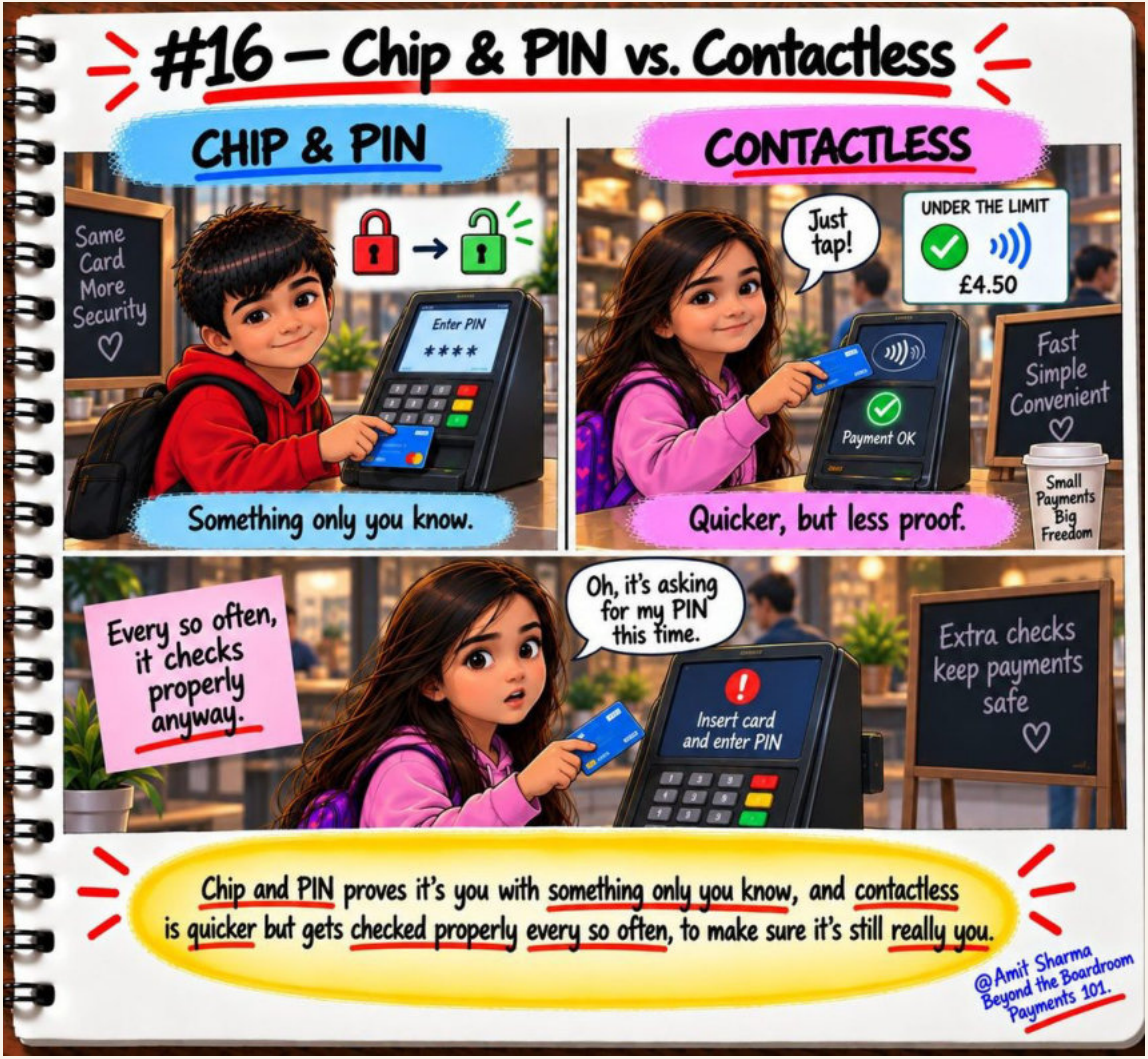
You can use your card by tapping it on the machine, or by putting it in the machine and entering your PIN. Both are just different ways of helping to prove it's actually your card.

Chip and PIN is the stronger proof. You put your card in, and you type a secret number only you should know. It's a bit like unlocking your phone with a passcode, only you know it, so typing it correctly proves you're the right person.

Contactless is quicker, but it's proving something slightly different. There's no PIN, you just tap and go. Because there's less proof involved, banks put a limit on how much you can spend that way without a PIN, and every so often, even with contactless, the machine will suddenly ask you to put your card in and type your PIN anyway, just to check.

Think of it like a house with two locks. A key you have to turn properly for the front door, that's chip and PIN. And a quick tap sensor for the side gate, fine for small, low-risk stuff, but every now and then still checked properly, just in case.

Chip and PIN proves it's you with something only you know, and contactless is quicker but gets checked properly every so often, to make sure it's still really you.


#16 – Chip & PIN vs. Contactless
CHIP & PIN
Same Card More Security
Enter PIN
****
Something only you know.
CONTACTLESS
Just tap!
UNDER THE LIMIT
£4.50
Payment OK
Fast Simple Convenient
Small Payments Big Freedom
Quicker, but less proof.
Every so often, it checks properly anyway.
Oh, it's asking for my PIN this time.
Insert card and enter PIN
Extra checks keep payments safe
Chip and PIN proves it's you with something only you know, and contactless is quicker but gets checked properly every so often, to make sure it's still really you.
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#17 Card-Present vs. Card-Not-Present

With a card, you can buy things in a store, you can buy things online, or you can even buy things over the phone. Depending on how you're paying, it gets treated as either card-present or card-not- present.

In a store, tapping your card or putting it into a machine, that's card-present. The actual card is there with you, and the machine can check the chip is genuine, right there, in person.

Buying something online, or reading your card details out over the phone, that's card-not-present. The card itself isn't anywhere near a machine, you're just giving someone the numbers.

Because of that, card-not-present is riskier. If someone else gets hold of your card number, they don't need your actual card to use it, they just need the numbers. That's why online and phone payments often ask for extra proof, like the CVC, or a code sent to your phone, to make up for the fact that the card itself was never really there.

Card-present means the actual card was there and got checked properly, and card-not- present means someone just gave the numbers, which is why it needs extra proof.

#17 – Card-Present vs. Card-Not-Present

SAME PURPOSE. DIFFERENT PLACES. ♡

DIFFERENT EXPERIENCES. SAME OUTCOME. ♡

CARD-PRESENT



The actual card is there, and it gets checked properly.

CARD-NOT-PRESENT



Just the numbers. No card actually there.

Card-present means the actual card was there and got checked properly, and card-not-present means someone just gave the numbers, which is why it needs extra proof.

Two ways to pay. A brighter tomorrow. ♡

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#18 Physical vs. Virtual Card

Not every card is actually a card. Some of them don't exist as plastic at all.

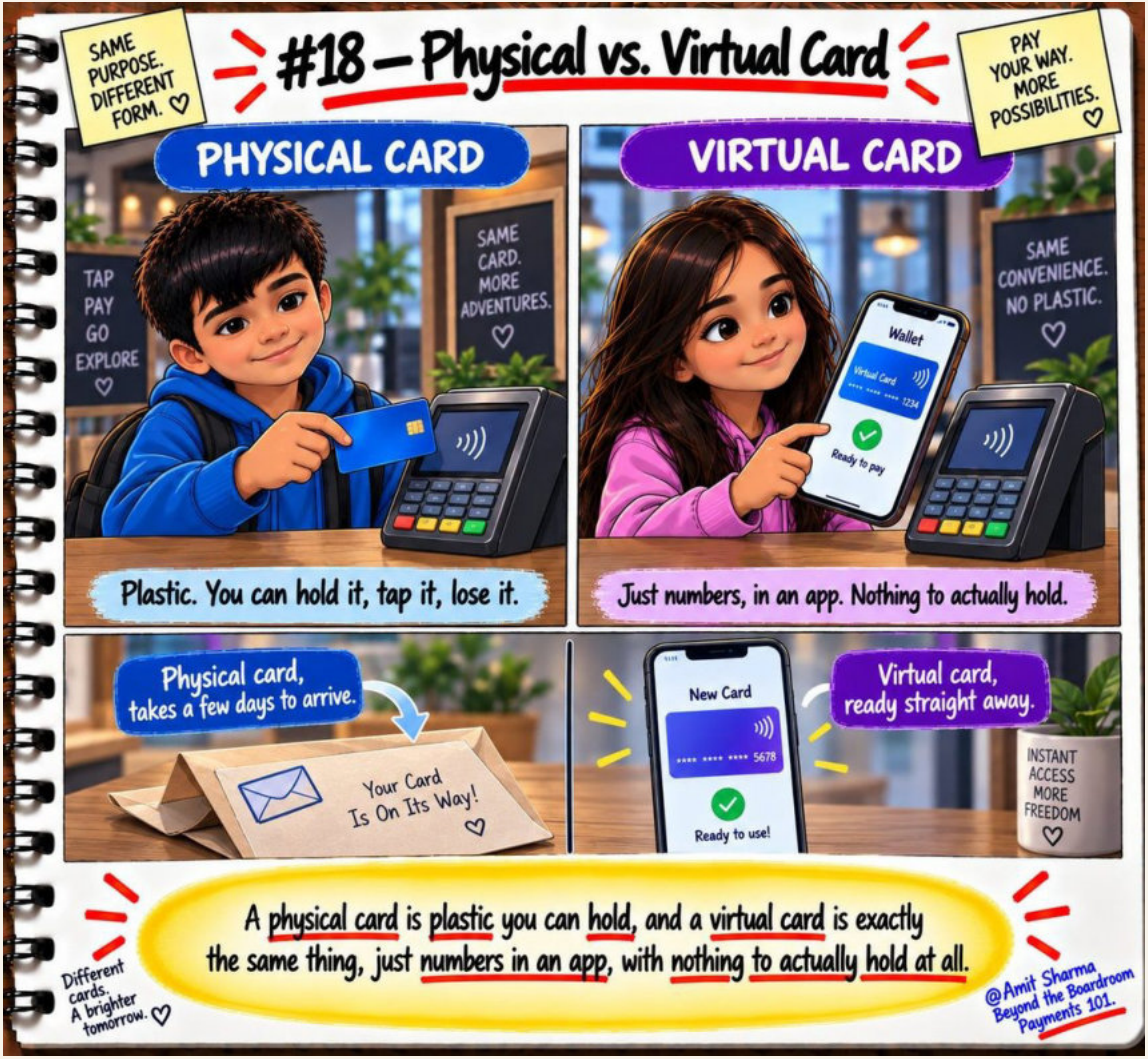
A physical card is the one you'd recognise straight away, plastic, in your wallet, with a chip and a number printed on it. You hold it, you tap it, you can literally lose it down the back of a sofa.

A virtual card is different, it's just numbers, living inside an app on your phone, with no physical card anywhere. It's got its own card number, its own expiry date, its own CVC, exactly like a real card would, it just never gets printed onto plastic.

You can still use a virtual card to pay for things, adding it to a digital wallet on your phone and tapping to pay, or typing its details in online, same as any other card. The only real difference is there's nothing you could physically hand someone, or drop, or leave behind.

Banks often give virtual cards out almost instantly, since there's no waiting for anything to be printed and posted, which makes them handy for something like an online purchase you want to make right away, before the physical card even turns up.

A physical card is plastic you can hold, and a virtual card is exactly the same thing, just numbers in an app, with nothing to actually hold at all.


SAME PURPOSE. DIFFERENT FORM.
#18 – Physical vs. Virtual Card
PAY YOUR WAY. MORE POSSIBILITIES.
PHYSICAL CARD
VIRTUAL CARD
TAP PAY GO EXPLORE
SAME CARD. MORE ADVENTURES.
SAME CONVENIENCE. NO PLASTIC.
Wallet
Virtual Card
Ready to pay
Plastic. You can hold it, tap it, lose it.
Just numbers, in an app. Nothing to actually hold.
Physical card, takes a few days to arrive.
Your Card Is On Its Way!
New Card
Ready to use!
Virtual card, ready straight away.
INSTANT ACCESS MORE FREEDOM
A physical card is plastic you can hold, and a virtual card is exactly the same thing, just numbers in an app, with nothing to actually hold at all.
Different cards. A brighter tomorrow.
@Amit Sharma Beyond the Boardroom Payments 101.

#19 Card Materials

Most cards are made of plastic, but not all of them.

Plastic is by far the most common, it's cheap to make, light, and easy to produce in huge numbers. Most cards you'll ever see are plastic.

Metal cards exist too, usually for premium accounts. They're heavier, they feel different in your hand, and some banks use that weight almost like a status symbol, a bit like the difference between a normal trainer and a limited edition one, same basic job, just made to feel special.

Some cards are even made from wood, or recycled ocean plastic, or other eco-friendly materials, aimed at people who care about how much plastic waste a card creates.

Whatever it's made from, the important part, the chip, still has to work exactly the same. A wooden card still has a normal chip built into it, it just has wood wrapped around the outside instead of standard plastic.

A card can be made from plastic, metal, wood, or all sorts of other materials, but whatever it looks or feels like, the chip inside still has to work exactly the same way.


#19 – Card Materials
Different materials. Same technology. A brighter tomorrow. ♡
Same chip. Same purpose. More possibilities. ♡
Heavier!
SMALL CHOICES A BRIGHTER TOMORROW ♡
SAME TECHNOLOGY DIFFERENT MATERIALS BRIGHTER POSSIBILITIES ♡
Same chip, every time.
PLASTIC
Cheap, light, everywhere.
METAL
Heavier. Feels different. A bit of status.
WOOD
Eco-friendly.
RECYCLED OCEAN PLASTIC
Made from recycled waste.
A card can be made from plastic, metal, wood, or all sorts of other materials, but whatever it looks or feels like, the chip inside still has to work exactly the same way.
Same technology. A safer world. ♡
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Beyond the Boardroom
Payments 101.

#20 Tokenisation

When you add your card to a digital wallet on your phone, or save it on a shopping app, your actual card number usually doesn't get stored at all. Instead, something called a token gets created, a stand-in number that works instead of your real one.

It's a bit like using a username online instead of your real name. If someone sees your Roblox username, they can't use it to find out where you actually live or what your real name is. It only works inside that one game.

A token works the same way. It's tied to one specific phone, or one specific app, and it only works there. If someone managed to steal that token, it wouldn't work anywhere else, not in a different app, not on a different phone, not typed into a random website.

And even if someone did get hold of the token, your actual card number is still completely safe. The token never reveals it, because it was never the real number to begin with, it's a stand-in doing the job without ever actually being it.

Tokenisation swaps your real card number for a stand-in number that only works in one specific place, so even if the token got stolen, your real card number would still be safe.

#20 – Tokenisation

Same technology. Safer payments. A brighter tomorrow. ♡









Tokenisation swaps your **real card number** for a **stand-in number** that only works in **one specific place**, so even if the token got stolen, your **real card number** would **still be safe.**

Small changes. A safer world. ♡

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#21 Why A Payment Gets Declined

Sometimes you tap your card and it just doesn't work. The machine says no, and you're standing there not really knowing why. There's usually one of a few reasons behind it.

The most common one is simply not having enough money. If there isn't enough in the account to cover it, the bank says no straight away.

Sometimes it's about the spending limit. Contactless has a cap on how much you can spend without a PIN, so if you go over it, the machine will ask for your PIN instead, or just decline if a PIN isn't entered.

Sometimes the card itself is the problem, it's expired, or it hasn't been activated yet, or it's been reported lost or stolen, so it simply won't work anymore.

And sometimes it's about safety. If a payment looks unusual, a strange amount, a strange place, something that doesn't match how that card is normally used, the bank might block it just to check it's really you, even if you've actually got plenty of money.

A payment can get declined because there isn't enough money, the card's expired or blocked, or the bank's just being extra careful to make sure it's really you.

#21 - Why A Payment Gets Declined

IT'S NOT ALWAYS A PROBLEM. SOMETIMES IT'S A PROTECTION. ♡

1 NOT ENOUGH MONEY



Simply not enough in there.



2 OVER THE LIMIT



Contactless has a spending cap.

3 CARD PROBLEM



Expired, not activated, or reported lost.

4 PLAYING IT SAFE



Something looked unusual, so the bank double-checks.

A payment can get declined because there isn't enough money, the card's expired or blocked, or the bank's just being extra careful to make sure it's really you.

Same card. More understanding. ♡

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#22 Refund vs. Reversal vs. Chargeback

“I want my money back” can actually mean three different things, depending on how you actually get it.

A refund is the simplest one. You return something, or the seller agrees you shouldn't have been charged, and they choose to give the money back themselves. Nice and straightforward, everyone agrees.

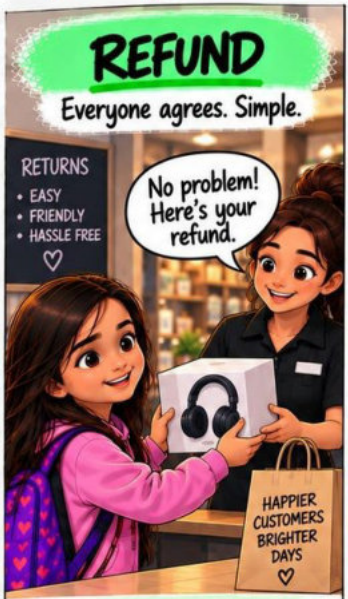
A reversal happens before the payment's even properly gone through. Imagine you order something online, then change your mind two minutes later, before it's even been packed. If it's caught in time, the payment can be stopped before it fully settles, like cancelling a text message the second before it sends.

A chargeback is different again, and it only happens when the seller won't help. Maybe something never arrived, or it was faked, or they just won't respond. Instead of asking the seller, you go to your own bank, and your bank forces the money back on your behalf. It's a bit like asking a teacher to step in when you and a friend can't sort something out yourselves.

A refund is the seller giving your money back, a reversal is stopping it before it fully goes through, and a chargeback is your bank forcing it back when the seller won't help.

#22 – Refund vs. Reversal vs. Chargeback

Same payment. Different outcomes. ♡



Everyone agrees. Simple.



Stopped before it fully goes through.



Your bank steps in, when the seller won't help.

A refund is the seller giving your money back, a reversal is stopping it before it fully goes through, and a chargeback is your bank forcing it back when the seller won't help.

Understand the difference. Make smarter choices. ♡

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#23 Issuer

The issuer is the bank, or company acting like one, that actually owns the card and makes sure it works for you.

Take a GoHenry card. It's branded and distributed by GoHenry, that's the app your parents probably set it up on. But the card is actually issued by a bank called IDT Financial Services, working quietly behind the scenes.

The issuer is the one holding your money, or in the case of a credit card, deciding how much they're willing to lend you. Every time you tap to pay, it's your issuer who makes the final call, yes or no, based on whether you've actually got the money, and whether the payment looks safe.

The issuer also takes on the risk. If a payment gets disputed, or your card gets lost or stolen, it's the issuer who has to sort it out and deal with the fallout, not anyone else.

When a bank lets another company, like GoHenry, use its banking licence to launch a card, that's sometimes called being a BIN sponsor, named after the BIN, the block of numbers at the start of every card. Same job as an issuer, just a specific term used when a non-bank company is involved.

The issuer is the bank that actually owns the card, decides whether payments go through, and takes on the risk if something goes wrong.

#23 – Issuer

Behind every card is a bank (issuer).



The issuer is the bank that actually owns the card, decides whether payments go through, and takes on the risk if something goes wrong.

Different cards. Same trust behind them.

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#24 Acquirer

If the issuer is the buyer's bank, the acquirer is the seller's bank, the one that actually lets a shop accept card payments in the first place.

Without an acquirer, a shop couldn't take card payments at all, no tapping, no machine, nothing. The acquirer is who sets that up for them, and when a customer pays, it's the acquirer who actually receives the money from the issuer and gets it into the shop's account.

The acquirer also takes on a different kind of risk to the issuer. If a customer disputes a payment, or the shop turns out to be doing something dodgy, it's the acquirer who's on the hook, not the shop's customers.

Small businesses often don't deal with a big bank directly for this. Loads of shops use something like a card reader from a company that handles all of it for them, taking care of the technical side, while a proper acquirer sits behind the scenes making sure the money actually moves properly.

The acquirer is the seller's bank, the one that lets a shop take card payments, receives the money, and takes on the risk if something goes wrong.

#24 – Acquirer



The acquirer is the seller's bank, the one that lets a shop take card payments, receives the money, and takes on the risk if something goes wrong.

Different parts. Same bigger picture.

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#25 Card Scheme / Network

VISA, Mastercard, American Express, UnionPay, you'll have seen these names printed on cards, but what does a network actually do?

A network is the company that connects everyone together. It's not your bank, and it's not the shop's bank, it sits in the middle, making sure a message from your bank and the shop's bank can actually understand each other, no matter which two banks are involved, anywhere in the world.

Think of it like a common language at a big international school. Kids come from all sorts of countries speaking all sorts of languages, but everyone agrees to speak English in class, so everyone can actually understand each other. The network is a bit like that shared language, it means your bank in one country and a shop's bank in a completely different country can still talk to each other properly, because they're both speaking the network's language.

The network also sets the rules everyone has to follow, how fast a payment should be answered, what counts as fraud, how disputes get handled, so that tapping a card feels exactly the same whether you're at your local shop or on the other side of the world.

A card network is the company that connects banks, shops and customers all over the world, using shared rules so a payment works the same way, wherever you are.

#25 – Card Scheme / Network

The Global Translator for Payments.

Different banks. Different countries. Same payment. That's the power of a card network.

ISSUER (YOUR BANK)

Sends the payment request into the network.

Same card. A bigger world.



CUSTOMER (Like You)

CARD SCHEME / NETWORK

Shared rules. Global reach. Payments for everyone.



CUSTOMER (Like You)

Same language for payments, no matter where you are.

From New York to Tokyo. From London to Sydney. Payments just work.

People. Places. Payments. Connected.



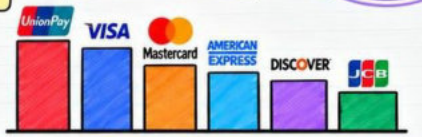
MERCHANT (Shops & Businesses)

Accepts the payment and completes the sale.



Receives the request from the network and completes the payment.

BIGGEST CARD NETWORKS (BY WORLDWIDE SHARE)



Different cards. Same network. More possibilities.





TRAVEL. SHOP. EXPLORE. PAY. All connected.

A card network is the company that connects banks, shops and customers all over the world, using shared rules so a payment works the same way, wherever you are.

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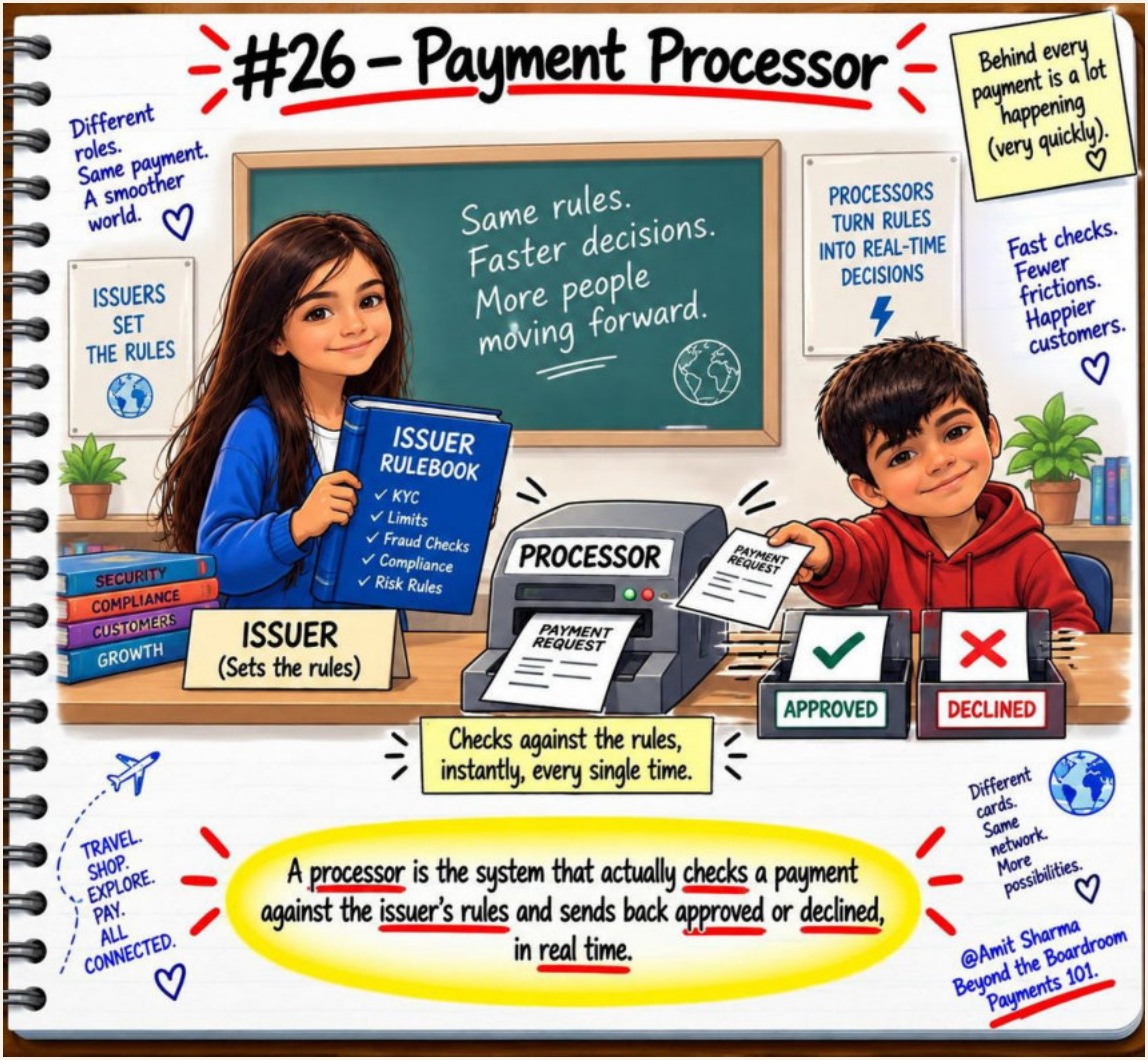
#26 Payment Processor

The issuer decides the rules, enough money, no unusual activity, spending limits, but checking all of that in about a second, every single time you tap, is a different job. That's the processor.

A processor is the system that actually runs the check. It looks at your balance, it checks the rules the issuer has set, and it sends back approved or declined, all in real time. It's a bit like a teacher setting the rules for a test, and a marking machine actually checking each answer against them instantly, rather than the teacher marking every single paper by hand.

Banks don't usually build this technology themselves, it's complicated, and it has to work perfectly, every single time, for millions of payments a day. So issuers often use a specialist processor to run the checks for them, following the issuer's own rules exactly.

A processor is the system that actually checks a payment against the issuer's rules and sends back approved or declined, in real time.


#26 – Payment Processor
Behind every payment is a lot happening (very quickly).
Different roles. Same payment. A smoother world.
ISSUERS SET THE RULES
Same rules. Faster decisions. More people moving forward.
PROCESSORS TURN RULES INTO REAL-TIME DECISIONS
Fast checks. Fewer frictions. Happier customers.
ISSUER RULEBOOK
✓ KYC
✓ Limits
✓ Fraud Checks
✓ Compliance
✓ Risk Rules
SECURITY
COMPLIANCE
CUSTOMERS
GROWTH
ISSUER
(Sets the rules)
PROCESSOR
PAYMENT REQUEST
PAYMENT REQUEST
APPROVED
DECLINED
Checks against the rules, instantly, every single time.
TRAVEL. SHOP. EXPLORE. PAY. ALL CONNECTED.
A processor is the system that actually checks a payment against the issuer's rules and sends back approved or declined, in real time.
Different cards. Same network. More possibilities.
@Amit Sharma
Beyond the Boardroom
Payments 101.

#27 Payment Gateway

Buying something in a shop and buying something online use the same basic idea, tap, check, approve, but online, there's no physical machine to tap. Something else has to do that job, and that's the gateway.

A gateway is like the online version of the card machine you'd see in a shop. When you type your card details into a website, the gateway is what actually takes those details, locks them up securely, and sends them off to get checked, exactly like tapping does in person, just without anything physical involved.

It's a bit like the difference between handing a letter to a postman face to face, and posting it through a letterbox instead. Different way of starting the journey, same letter, same destination, same steps happening after that.

Without a gateway, online shops wouldn't have any safe way to actually collect your card details and get them checked properly, they'd just be typing numbers into a form with nowhere secure for them to go.

A gateway is the online version of a card machine, taking your card details from a website and sending them off securely to get checked, exactly like tapping does in a shop.

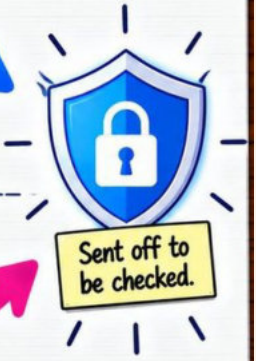
#27 - Payment Gateway

IN A SHOP



ONLINE





A gateway is the online version of a card machine, taking your card details from a website and sending them off securely to get checked, exactly like tapping does in a shop.

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#28 PSP (Payment Service Provider)

A shop taking payments needs a lot of things sorted, a card machine, a way to accept online payments, someone checking for fraud, someone handling the money coming in. A PSP is a company that bundles all of that together into one thing, so the shop doesn't have to sort each piece separately.

Instead of a small business going out and arranging a card machine from one company, a gateway from another, fraud checks from somewhere else, a PSP just does the lot, in one package, one setup, one company to deal with.

It's a bit like a school trip. Instead of a parent booking the coach, the museum tickets, and the packed lunches all separately, the school just sorts the whole trip as one thing. The PSP is doing that for a shop, taking care of everything needed to accept a payment, bundled together.

Lots of small businesses and online shops use a PSP rather than dealing with a bank directly, because it's simpler, and it gets them up and running much faster.

A PSP is a company that bundles everything a shop needs to accept payments, the machine, the online checkout, the fraud checks, into one simple package.

#28 – PSP (Payment Service Provider)



A PSP is a company that bundles everything a shop needs to accept payments, the machine, the online checkout, the fraud checks, into one simple package.

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#29 Programme Manager vs. ISO/MSP

Banks don't always want to do all the hands-on work of running a card themselves, so they bring in helper companies to do it for them. Which helper they use depends on which side of the payment they're helping with.

A programme manager helps on the issuing side. If a bank wants to launch a card, say, for a new app or a new brand, the programme manager does a lot of the actual work, designing the product, running the day-to-day operations, managing how it all works, while the bank behind it still holds the licence and takes the risk.

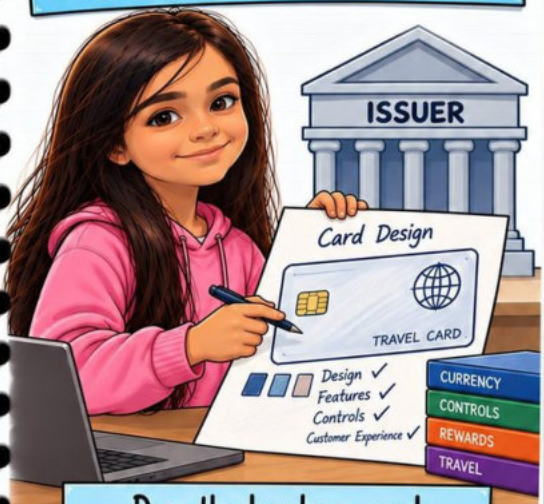
ISO/MSP stands for Independent Sales Organisation, or Member Service Provider, and it's the same kind of idea, but on the acquiring side. Instead of helping a bank issue cards, an ISO/MSP goes out and signs up shops to accept card payments, on behalf of an acquirer, without being the acquirer itself.

Same basic idea both times, a specialist company doing the hands-on work for a bank that doesn't want to do it all itself. One just works on the issuing side, and the other works on the acquiring side.

A programme manager does the hands-on work of running a card for an issuer, and an ISO/MSP does the hands-on work of signing up shops for an acquirer.

#29 - Programme Manager vs. ISO/MSP

PROGRAMME MANAGER



Does the hands-on work of running the card.

ISO / MSP



Does the hands-on work of signing up shops.

A programme manager does the hands-on work of running a card for an issuer, and an ISO/MSP does the hands-on work of signing up shops for an acquirer.

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#30 Merchant

“Merchant” just means whoever's selling something and getting paid for it.

That could be a huge shop, or a tiny market stall, or someone selling something through an app, a website, anywhere money changes hands for something being sold. If they're the one accepting the payment, they're the merchant.

Every merchant needs an acquirer to actually accept card payments, that's what lets them take a tap or a card number in the first place. Without one, they'd only be able to take cash.

Merchants also carry a bit of responsibility. They're the ones who have to keep customer card details safe, and they're the ones who deal with it if a payment gets disputed or something goes wrong with an order.

A merchant is simply the seller, whoever is selling something and getting paid, big or small, and the merchant can be a physical store or operate online.

#30 - Merchant

PHYSICAL



A shop, a stall, anywhere in person.

ONLINE



An app, a website, anywhere online.

A merchant is simply the seller, whoever is selling something and getting paid, big or small, and the merchant can be a physical store or operate online.

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#31 Digital Wallet Provider

Apple Pay, Google Pay, Samsung Pay, you'll have used one of these, or seen someone else use one, and they're actually a different kind of player to everyone else here.

A digital wallet provider doesn't issue cards, and it doesn't process payments itself. What it does is let you add your card to a wallet, so you can pay without needing the actual card, and also keeps your actual card details secure.

Once your card's added, you can tap your phone at the till instead of carrying the card, and you can use the same wallet to pay on websites and apps too, just choosing “Apple Pay” or “Google Pay” at checkout instead of typing your card details in.

Behind the scenes, it's still your card, your issuer, your bank doing all the actual work of approving the payment. The wallet provider hasn't taken over any of that, they've just given you a more convenient way to pay, on your phone or on a screen.

A digital wallet provider doesn't issue your card or approve your payment, it just lets you pay without carrying the card, on your phone or at checkout online.

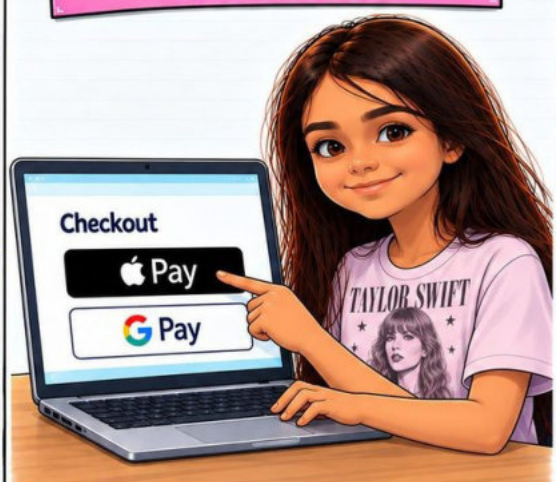
#31 - Digital Wallet Provider

IN A SHOP



Apple Pay/Google Pay accepted.

ONLINE



One tap at checkout, instead of typing card details.

A digital wallet provider doesn't issue your card or approve your payment, it just lets you pay without carrying the card, on your phone or at checkout online.

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#32 Card Bureau

Somebody has to actually make the physical card, the plastic, the chip, your name printed on it, and that's a job done by a specialist company called a card bureau.

The issuer decides everything about the card, what it looks like, what account it's linked to, but they don't usually sit there printing and encoding cards themselves. Instead, they send all the details to a card bureau, a company whose entire job is manufacturing cards properly and securely.

The bureau prints the design, embeds the chip, loads your card number and details onto it safely, and then posts it out, all without ever being the bank behind the card. It's a bit like a printing company making the actual pages of a book, while the author is the one who decided what goes in it.

Card bureaus have to be really careful with security, since they're handling real card numbers before a card's even reached you, so they're closely checked and regulated too.

A card bureau is the company that actually manufactures the physical card, chip, printing and all, on behalf of the issuer who decided what goes on it.

#32 – Card Bureau



The issuer decides the design. The bureau actually makes it.

A card bureau is the company that actually manufactures the physical card, chip, printing and all, on behalf of the issuer who decided what goes on it.

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#33 Bank vs. EMI

Not everyone who gives out a card is a bank. Some are, some are something called an EMI instead, and the difference matters, because it changes what they're actually allowed to do with your money.

A bank can do a lot, hold your money, lend money out, offer credit cards, the whole range. Banks are checked really closely by regulators, and if a bank ever ran into serious trouble, your money is usually protected up to a certain amount by a special scheme.

An EMI, which stands for Electronic Money Institution, is different. An EMI can hold your money and let you spend it, tap, transfer, all the normal stuff, but it generally can't lend you money the way a bank can. EMIs are checked by regulators too, just under a lighter set of rules than a full bank, and money held with an EMI isn't protected in exactly the same way as money held with a bank.

Loads of apps and cards you might use are actually run by EMIs rather than full banks, it's often quicker and easier for a company to become an EMI than to become an actual bank, which is why so many newer apps and prepaid cards work this way.

A bank can hold your money and lend it out, and an EMI can hold your money and let you spend it, but generally can't lend, and both are regulated, just under different rules.

#33 - Bank vs. EMI

BANK



Holds money

Lends money

Protected

EMI



Holds money

Lets you spend

Can't lend

A bank can hold your money and lend it out, and an EMI can hold your money and let you spend it, but generally can't lend, and both are regulated, just under different rules.

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#34 Card Scheme Licensing

Before a bank or EMI can actually put a VISA, Mastercard, or American Express logo on a card, they need permission, and that permission is called a scheme licence.

Networks like VISA, Mastercard, and American Express don't let just anyone issue cards using their name. A company has to apply, meet a long list of rules, prove they can handle the security and the risk properly, and only then do they get licensed to actually issue cards on that network.

It's a bit like getting a franchise to open a shop under a big brand's name. You can't just put up a sign and start selling, you'd need the brand to actually approve you first, agree you'll follow their standards, and only then are you allowed to use their name.

Once licensed, the issuer has to keep following the scheme's rules the whole time, not just when they first apply, things like how fraud gets handled, how disputes get resolved, and what security standards they maintain.

Card scheme licensing is the permission a bank or EMI needs from a network like VISA, Mastercard, or American Express before they're allowed to issue cards carrying that network's name.

#34 - Card Scheme Licensing



1. Apply.
2. Meet the rules.
3. Get approved.

Card scheme licensing is the permission a bank or EMI needs from a network like VISA, Mastercard, or American Express before they're allowed to issue cards carrying that network's name.

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#35 Consumer vs. Corporate vs. Government Programmes

Not every card is built for the same kind of person, or the same kind of spending, and who a card is designed for is called its programme type.

A consumer programme is built for ordinary people, like you or your parents, everyday spending, everyday accounts. Most cards you'll ever see fit here.

A corporate programme is built for businesses, cards given to employees to spend on things like travel, equipment, or expenses, with the business behind the account, not an individual person.

A government programme is built for public sector spending, things like benefit payments, or cards used by government departments and staff, often with extra rules around exactly what the money can be spent on.

Each type usually comes with different rules built in. A corporate card might have stricter spending categories, a government programme might have tighter limits or approvals, while a consumer card is generally more flexible, built for everyday life.

A card's programme type, consumer, corporate, or government, decides who it's built for, and shapes the rules baked into how it can actually be used.

#35 - Consumer vs. Corporate vs. Government Programmes

CONSUMER



Everyday people, everyday spending.

CORPORATE



Businesses, for employee spending.

GOVERNMENT



Public spending, with tighter rules.

A card's programme type, consumer, corporate, or government, decides who it's built for, and shapes the rules baked into how it can actually be used.

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#36 Co-branded vs. White-label

When a company builds a card, they have to decide how visible the bank's name is going to be, and that's the difference between co-branded and white-label.

A co-branded card shows both names. Think of an airline card, you'll usually see the airline's logo and the bank's logo both printed on it, side by side.

A white-label card hides the bank almost completely. It looks like it's entirely the brand's own card, their name, their colours, even though a bank is actually running everything behind the scenes.

Sometimes it goes even further, called private label, where the card only works at one shop at all, made just for that one brand.

Companies pick white-label when they want the card to feel completely theirs. They pick co-branded when showing the bank's name alongside their own actually helps, people trust it a bit more.

A co-branded card shows both the bank's name and the partner's, and a white-label card hides the bank almost entirely, sometimes going as far as private label, where the card only works at one shop.

#36 – Co-branded vs. White-label

CO-BRANDED



Brand, bank, and scheme, all shown together.

WHITE-LABEL



Brand and scheme shown. The bank stays hidden.

PRIVATE LABEL



Only works at that one shop. No scheme, no bank shown.

A co-branded card shows both the bank's name and the partner's, and a white-label card hides the bank almost entirely, sometimes going as far as private label, where the card only works at one shop.

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#37 Open-loop vs. Closed-loop vs. Restricted Loop

Not every card works everywhere, some are built to only work in certain places, and that's decided by what's called the loop.

An open-loop card works basically anywhere, any shop, any country, because it runs on a real network like VISA or Mastercard. Most cards you'll ever use are open-loop.

A closed-loop card only works at one place. A gift card for one specific shop is the classic example, an Amazon gift card only works on Amazon, nowhere else.

A restricted loop sits in between the two. It works across a group of places, rather than just one, like a shopping centre gift card, usable at any shop inside that one centre, more than closed-loop, but still nowhere near as wide as open-loop.

Think of it like a key to your school. Open-loop is like a master key that gives you access to every room in your school. Closed- loop is like a locker key that only opens your own locker, nothing else. Restricted loop is like a key that gets you into the school, and into the gym and the swimming pool too, but not into any other rooms.

Open-loop works almost anywhere, closed-loop only works at one place, and restricted loop works across a limited group of places in between.

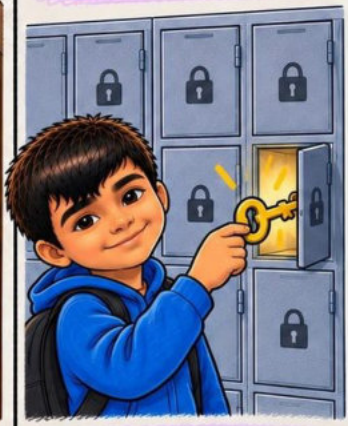
#37 - Open-loop vs. Closed-loop vs. Restricted Loop

OPEN-LOOP



Works almost anywhere.

CLOSED-LOOP



Only works at one place.

RESTRICTED LOOP



Works across a limited group of places.

Open-loop works almost anywhere, closed-loop only works at one place, and restricted loop works across a limited group of places in between.

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#38 BIN/IIN

The first six to eight digits of any card number aren't random, they actually mean something, and that block of numbers is called the BIN, or IIN.

BIN stands for Bank Identification Number, IIN stands for Issuer Identification Number, they're really the same thing, just two names people use for it. Those first few digits tell the whole payment system exactly which bank or company issued the card, before anything else about the card is even checked.

You can actually spot which network a card belongs to just from the very first digit. VISA cards always start with a 4. Mastercard usually starts with a 5. American Express starts with a 34 or 37.

Every time you tap or type in a card number, the BIN is one of the very first things read, it's how the whole system instantly knows where to send the payment message, before checking anything else about the card itself.

The BIN is the first six to eight digits of a card number, and it tells the payment system exactly which bank issued the card, even before anything else gets checked.

#38 - BIN / IIN



The BIN is the first six to eight digits of a card number, and it tells the payment system exactly which bank issued the card, even before anything else gets checked.

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#39 Single Currency vs. Multicurrency vs. FX Wallet

Cards can be single currency or multicurrency, some only work with one currency, and some can work with several, ready to use wherever you are.

A single currency card is the simplest, it's only ever linked to one currency, pounds, for example. If you use it abroad, your bank still has to convert the money into the local currency for you, every single time you spend.

A multicurrency card is linked to several currency balances behind the scenes, pounds, euros, dollars, and more, and it automatically uses whichever one matches where you're spending. If you've topped up euros before a trip, spending in Europe pulls from the euro balance directly, no conversion needed.

An FX wallet goes a step further again. Instead of the card being the main thing, the wallet itself is, a proper account showing all your different currency balances clearly, and the card is really just one way of spending from it. You don't even need a card at all, you can hold, send, and receive money in dozens of currencies straight from the wallet itself.

A single currency card is only linked to one currency, a multicurrency card automatically uses the right currency behind the scenes, and an FX wallet shows you those currencies properly, with the card being optional.

#39 – Single Currency vs. Multicurrency vs. FX Wallet

SINGLE CURRENCY



One currency only (e.g. GBP).



Converts every time abroad.

MULTICURRENCY



Several currencies (e.g. GBP, EUR, USD).



FX WALLET



Multiple currencies in the account.

A single currency card is only linked to one currency, a multicurrency card automatically uses the right currency behind the scenes, and an FX wallet shows you those currencies properly, with the card being optional.

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#40 Configuring the Card

Once you've got your BIN, and you know what kind of programme you're building, there's still a lot of choices to make about exactly how the card's going to work, and that's called configuration.

Configuration is setting up the rules for the card, based on who it's actually for. Things like what fees apply, an annual fee, a fee for using it abroad, whether there's interest charged, what limits are in place, how much can be spent in a day, and even smaller details, like whether it can be used for cash withdrawals at all.

It's a bit like setting up a new phone before you actually use it, choosing your ringtone, your lock screen, which apps get notifications. The phone works either way, but the configuration decides exactly how it behaves for you.

Every card gets configured differently, depending on who it's built for. A student card might have lower spending limits and no fees, while a premium travel card might have higher limits but a bigger annual fee. Same basic card, completely different setup underneath, matched to what the person actually needs.

Card configuration is all the rules set up as the card's being built, fees, limits, and features, matched to who it's actually for.

#40 – Configuring the Card



Card configuration is all the rules set up as the card's being built, fees, limits, and features, matched to who it's actually for.

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#41 Card Controls

There are rules that define how and where a card can be used. These are called card controls.

A velocity limit controls how much can be spent in a certain amount of time, like a maximum of £50 a day, or a certain number of transactions per hour. It stops the card being used too much, too fast, even if there's plenty of money available.

MCC blocking controls where the card can be used at all. Every shop has a category code attached to it, MCC stands for Merchant Category Code, and a card can be set up to block certain categories entirely, like stopping a card from being used at betting shops, or only allowing it at supermarkets.

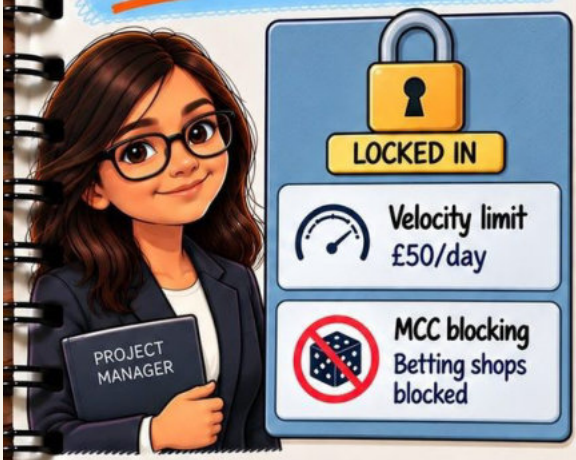
It's a bit like parental controls on a phone or games console, not stopping you from using it altogether, just setting boundaries around how much, or where, or what kind of thing it can be used for.

Some of these controls get set by the programme owner when the programme is being built, and can only be changed by them. But plenty of others can actually be changed by the person using the card too, freezing or unfreezing a card instantly in an app, blocking extra categories, or setting your own spend limits, without needing to ask the bank to do it.

Card controls define how and where a card can be used, some set by the programme owner and locked in, others that the cardholder can switch on or off themselves.

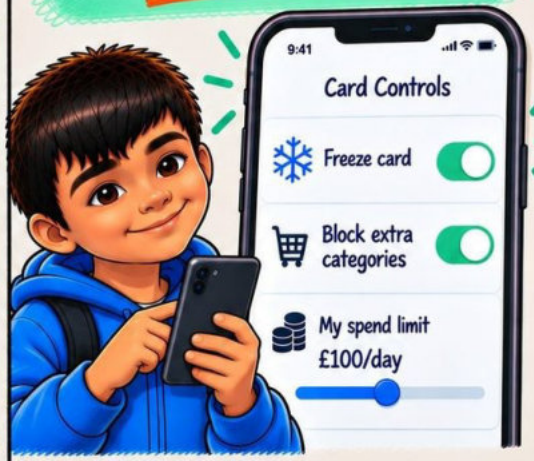
#41 – Card Controls

SET BY THE PROGRAMME



Set when the card's built.

SET BY YOU



Changed anytime, in the app.

Card controls define how and where a card can be used, some set by the programme owner and locked in, others that the cardholder can switch on or off themselves.

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#42 Card Expiry & End of Life

A card isn't built to last forever, on purpose. At some point, every card reaches the end of its life, and what happens next depends on why.

The most normal ending is expiry. Every card has a date printed on it, and once that date passes, the card simply stops working. The account behind it doesn't disappear though, a new card usually gets sent out automatically, just before the old one expires, so there's barely any gap at all.

Sometimes a card reaches the end of its life early, if it's lost, stolen, or damaged. In that case, it gets blocked straight away so no one else can use it, and a replacement card gets issued, often with a brand new card number, just to be safe.

Occasionally a card gets closed for good, not replaced at all, if someone closes their account entirely, or a programme itself comes to an end.

Either way, the account and the card aren't quite the same thing. The card is just the physical or digital way of reaching the account, and when a card reaches the end of its life, it's usually the card that changes, while the account underneath carries on.

Every card eventually reaches the end of its life, through expiry, loss, or damage, and usually gets replaced automatically, while the account behind it keeps going.

#42 – Card Expiry & End of Life

EXPIRY



A new one arrives automatically.

LOST OR STOLEN



Blocked instantly, replaced safely.

ACCOUNT CLOSED



Closed for good.

Every card eventually reaches the end of its life, through expiry, loss, or damage, and usually gets replaced automatically, while the account behind it keeps going.

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#43 Bank Transfer (Faster Payments)

Sometimes you don't need a card at all, you can just send money straight from your bank account to someone else's. That's called a bank transfer, and in the UK, the system that actually moves it is called Faster Payments.

You type in the amount, who it's going to, and press send. In the background, Faster Payments moves the money between the two banks, and it usually lands in seconds, sometimes it can take a little longer, but it's built to be quick.

It's different to tapping a card, there's no shop, no till, no chip being read. It's just you, telling your bank to move money directly to someone else's account, like paying your mate back for cinema tickets, or your parents sending your pocket money straight into your account.

There's usually a limit on how much you can send this way in one go, and most banks let you send it any time, day or night, weekends included, since it doesn't rely on shops or tills being open.

A bank transfer sends money straight from your account to someone else's, and in the UK, Faster Payments is what actually moves it, usually in seconds.

#43 – Bank Transfer (Faster Payments)



A bank transfer sends money straight from your account to someone else's, and in the UK, Faster Payments is what actually moves it, usually in seconds.

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#44 Standing Order

A standing order is a bit like a bank transfer, but on autopilot, you set it up once, and it just keeps happening on its own, without you having to do anything again.

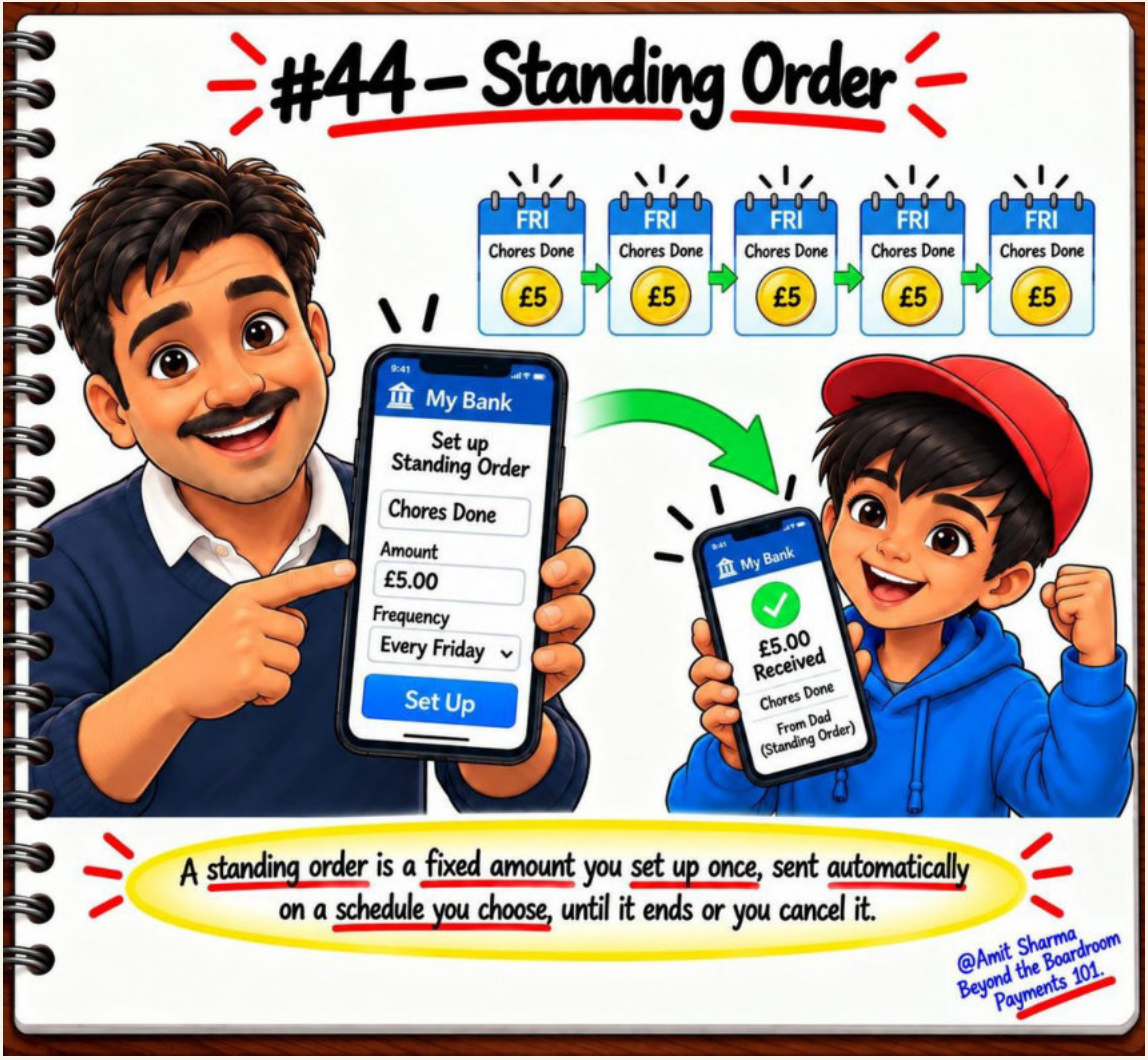
You choose the amount, who it goes to, and how often, weekly, monthly, whatever you decide, and your bank just does it automatically from then on, on the same date, every single time. You can also choose when it stops, a set end date, a certain number of payments, or just leave it running until you cancel it yourself.

It's always the exact same amount, sent out on the exact same schedule, for as long as it runs.

A good example is pocket money. Instead of your mum or dad remembering to send you money every week, they could set up a standing order, the same amount, automatically, every single week, without them having to think about it again.

A standing order is a fixed amount you set up once, sent automatically on a schedule you choose, until it ends or you cancel it.

#44 – Standing Order



A standing order is a fixed amount you set up once, sent automatically on a schedule you choose, until it ends or you cancel it.

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#45 CHAPS

Most payments happen instantly, or within seconds, but sometimes people are moving really big amounts, like when someone's buying a house, and for that, there's a different system called CHAPS.

CHAPS stands for Clearing House Automated Payment System. It's used for large, important, same-day payments, and unlike a normal bank transfer, it's guaranteed. Once it's sent, it can't be pulled back, and it's confirmed as done, that same day, no waiting around.

It usually comes with a fee too, since it's a more heavily checked, guaranteed service, not something used for everyday spending.

Other countries have their own version of this. In Europe, the equivalent system is called Target2, doing basically the same job, guaranteed, same-day, high-value payments, just for euros instead of pounds.

CHAPS is used for large, guaranteed, same-day payments, needed for big purchases like buying a house.

#45 — CHAPS



CHAPS is used for **large, guaranteed, same-day payments,** needed for big purchases like **buying a house.**

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#46 Cheques

Before cards and bank transfers made everything instant, there was one main way to send someone money without using cash, a cheque, and even though they're used far less now, they haven't disappeared completely.

A cheque is basically a written instruction to your bank. You fill it in, the amount, who it's for, your signature, and hand it over. But unlike tapping a card, nothing happens straight away, the person has to actually take that cheque to their own bank, or scan it through an app, before any money moves at all.

Once it's been paid in, it still isn't instant, cheques usually take a few working days to clear, going through checks before the money actually lands. That's a lot slower than a bank transfer, which is one of the main reasons cheques have become less common.

They're still used in some places though, some businesses still send cheques, and some older relatives might give birthday money that way, an envelope with a cheque inside instead of cash.

A cheque is a written instruction telling your bank to pay someone, and it takes a few days to actually clear, much slower than a bank transfer or card.

#46 – CHEQUES



A cheque is a written instruction telling your bank to pay someone, and it takes a few days to actually clear, much slower than a bank transfer or card.

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#47 BACS

Some payments don't need to be instant at all, they just need to happen reliably, for millions of people at once, and that's what BACS is built for.

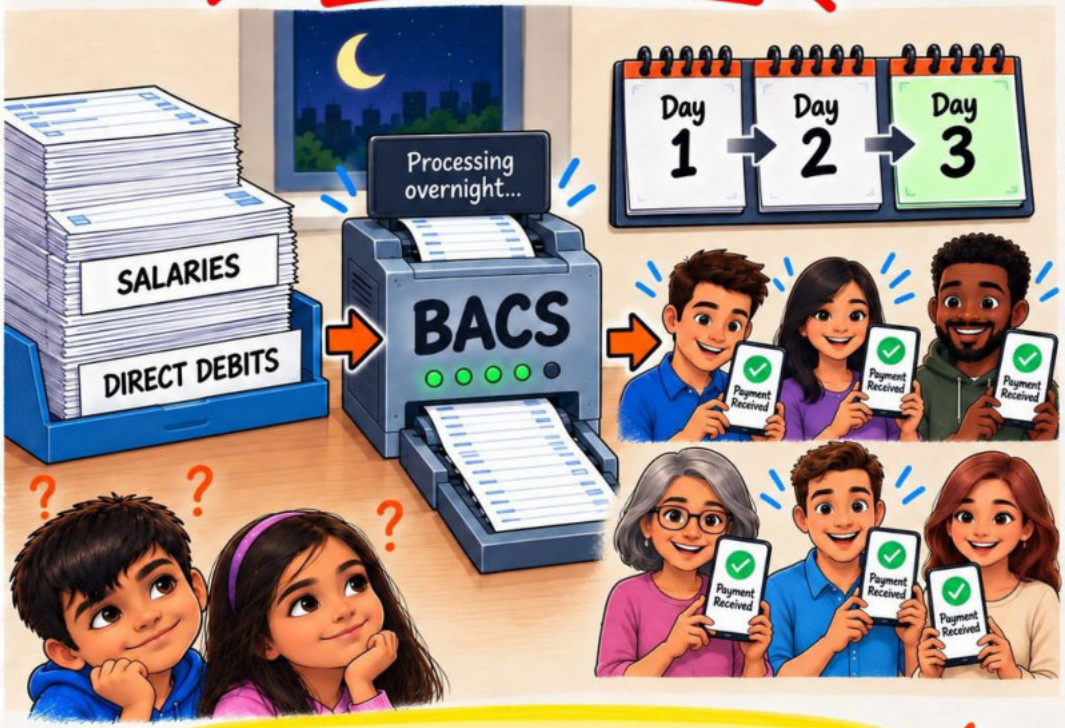
BACS stands for Bankers' Automated Clearing Services, and it's the system that handles things like salaries, Direct Debits, and other regular payments in bulk. Instead of moving money the second it's requested, BACS collects a huge batch of payments together and processes them all at once, usually overnight.

That's why your salary, or a Direct Debit, doesn't land the second it's sent, BACS payments typically take about three working days to fully clear, since they're built for reliability and huge volume, not speed.

In the US, there's a system that does basically the same job, called ACH, Automated Clearing House. Different name, different country, same basic idea, batching up huge numbers of payments and processing them together rather than instantly.

BACS handles bulk payments like salaries and Direct Debits in the UK, usually taking a few days, and ACH does the same job in the US.

#47 – BACS



BACS handles **bulk payments** like **salaries** and **Direct Debits** in the UK, usually taking **a few days**, and **ACH** does the same job in the US.

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#48 Direct Debit

A Direct Debit is another automatic payment, but it works the opposite way round to a standing order, this time, someone else decides the amount, not you.

You give permission, once, to a company, like a gym, a phone provider, or a streaming service, to take money from your account whenever they need to. But unlike a standing order, the amount can actually change each time, your phone bill might be a bit different month to month, and the company is allowed to adjust it and still take the payment.

That's the key difference from a standing order. A standing order is a fixed amount, controlled by you. A Direct Debit is a flexible amount, controlled by whoever you gave permission to, within the rules you agreed to.

Direct Debits do come with strong protection though. If a company ever takes the wrong amount, or takes money it shouldn't have, you're entitled to get that money back straight away, that protection is called the Direct Debit Guarantee.

A Direct Debit lets a company take payments automatically, and unlike a standing order, the amount can change each time, though you're protected if anything's ever taken wrongly.

#48 — Direct Debit



A Direct Debit lets a company take payments automatically, and unlike a standing order, the amount can change each time, though you're protected if anything's ever taken wrongly.

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#49 SWIFT

Sending money to someone in the same country is one thing, but what happens when the money needs to go all the way to a completely different country, to a bank that's never dealt with your bank before? That's where SWIFT comes in.

SWIFT is a global messaging network that connects banks almost everywhere in the world. It doesn't actually hold or move the money itself, what it does is send a secure message between the two banks, telling them exactly what needs to happen, who's sending, who's receiving, how much, and in what currency.

It's a bit like an international postal address system. Even if two people have never written to each other before, as long as the address is written properly, the letter can still find its way there, through all sorts of sorting offices along the route. SWIFT works similarly, making sure a payment message can find its way to the right bank, anywhere in the world, even if the two banks have never dealt with each other before.

Because it's crossing borders, going through different currencies, and sometimes several banks along the way, a SWIFT payment usually takes longer than a domestic transfer, often a few days, rather than seconds.

SWIFT is the global messaging network that lets banks anywhere in the world send secure payment instructions to each other, even if they've never dealt with each other before.

#49 – SWIFT



SWIFT is the global messaging network that lets banks anywhere in the world send secure payment instructions to each other, even if they've never dealt with each other before.

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#50 SEPA and SEPA Instant

Sending money across borders is usually slow and can come with extra costs, but Europe built something to make that easier for euro payments, called SEPA.

SEPA stands for Single Euro Payments Area. It covers most of Europe, and it means sending euros from a bank in one European country to a bank in another works almost exactly like sending money domestically, same low cost, even though it's technically crossing a border.

Before SEPA existed, sending money between two European countries could take days and cost a fair amount, even for relatively small, ordinary payments. SEPA changed that by getting banks across the whole region to agree on shared rules, so a payment between, say, a bank in France and a bank in Germany works basically the same as a payment between two banks in the same country.

Regular SEPA payments usually land the next working day. But there's also SEPA Instant, a newer, faster version that moves the money in seconds instead, much closer to how a Faster Payment works in the UK.

It only works for euros though. If you're sending pounds, or dollars, or any other currency, SEPA doesn't apply, that payment would need to go a different route, like SWIFT.

SEPA lets euro payments move between European countries almost as easily and cheaply as a domestic payment, and SEPA Instant does the same thing, but in seconds.

#50 – SEPA and SEPA Instant



SEPA lets euro payments move between European countries almost as easily and cheaply as a domestic payment, and SEPA Instant does the same thing, but in seconds.

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#51 Open Banking

Normally, only your own bank can see your account, your balance, what you've been spending. Open banking changes that, but only if you actually say yes.

With open banking, you can give another app permission to look at your bank account, or even make a payment straight from it, without you needing to hand over your card details or your banking password. You choose exactly what you're allowing, and you can take that permission away again whenever you want.

It's a bit like giving a friend a spare key to just one room in your house, not the whole house, just the one room you've agreed to. They can't wander in anywhere else, only exactly what you said yes to.

This is what makes things like budgeting apps possible, ones that can see your spending across different accounts in one place, or apps that let you pay directly from your bank account instead of using a card. None of that works without you giving permission first.

Open banking lets you give another app permission to see your account or make a payment directly, only for exactly what you've agreed to, and only until you take that permission away.

#51 – OPEN BANKING



Open banking lets you give another app permission to see your account or make a payment directly, only for exactly what you've agreed to, and only until you take that permission away.

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#52 Request to Pay (RtP)

Most bills just get taken automatically, but Request to Pay works differently, it asks you first, and lets you actually decide what happens.

With RtP, a company that's owed money, like a gym, or a council, sends you a request through your banking app, “you owe £30, is that okay?” And instead of it just being taken, you get options. You can pay it in full, right away. You can pay part of it now. You can ask for a bit more time. Or, in some cases, you can query it if something looks wrong.

That's very different from a Direct Debit, where you've already given permission in advance and the money just gets taken automatically. With RtP, nothing happens until you actually respond.

It's a bit like being asked “can I borrow this?” instead of someone just taking it and telling you afterwards. You're in the conversation, not just informed after the fact.

Request to Pay sends you a request instead of automatically taking money, and you choose whether to pay it in full, pay part, ask for more time, or query it.

#52 – Request to Pay (RtP)



Request to Pay sends you a request instead of automatically taking money, and you choose whether to pay it in full, pay part, ask for more time, or query it.

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#53 ISO 20022

Banks all around the world send each other payment messages constantly, but they haven't always used the same format to do it, a bit like people writing letters in different styles, some short, some messy, some missing bits. ISO 20022 is a new, shared format that all banks are switching to, so every message looks the same and makes proper sense.

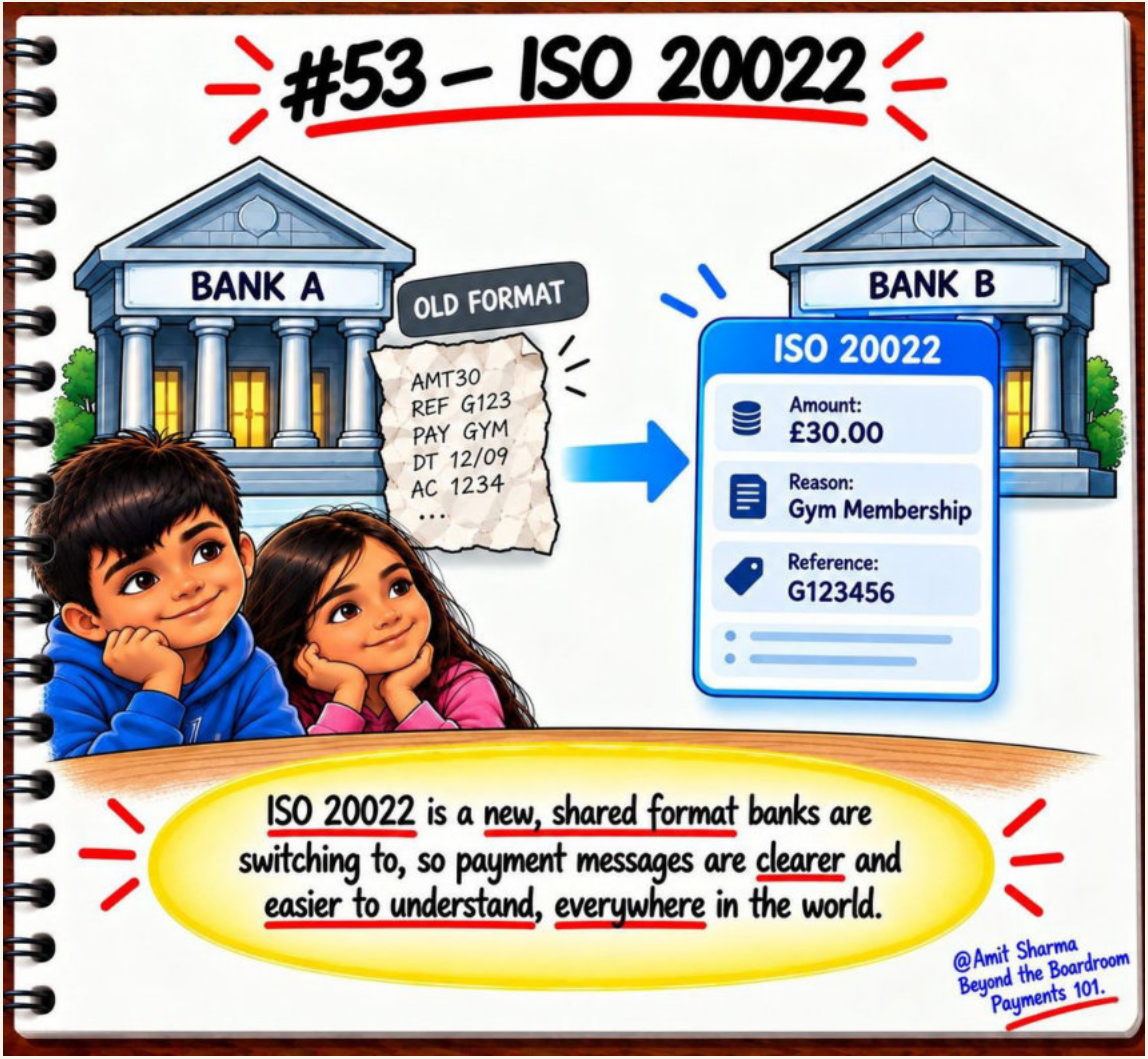
A card network acts like a shared language for card payments, so any bank can understand any other bank. ISO 20022 is doing that same job, but for bank transfers instead of cards.

The old messages were quite basic, just enough room for a short reference, a few words. The new format has way more space, clear reasons for the payment, proper details, nothing missing or squeezed in.

It's a big change, so banks are switching over gradually, a bit at a time, rather than all at once. But once it's done, payment messages will be clearer and easier for every bank to understand, wherever they are in the world.

ISO 20022 is a new, shared format banks are switching to, so payment messages are clearer and easier to understand, everywhere in the world.

#53 – ISO 20022



ISO 20022 is a new, shared format banks are switching to, so payment messages are clearer and easier to understand, everywhere in the world.

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#54 Pix (Brazil) & UPI (India)

While the UK has Faster Payments, other countries have built their own instant payment systems too, and two of the biggest are Pix in Brazil and UPI in India.

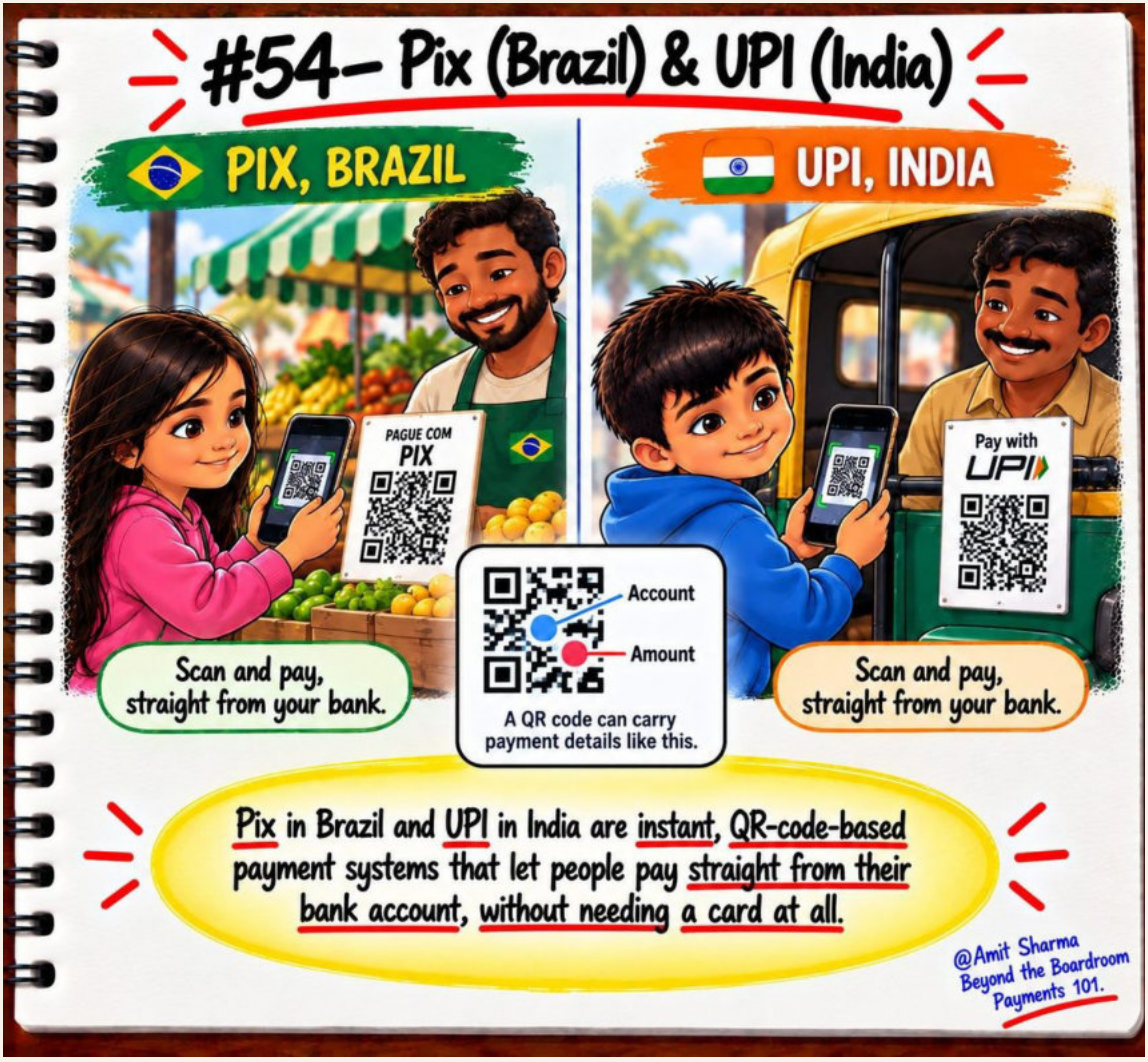
Both work in a really simple way, instead of typing in someone's bank details, you just scan a QR code, and the payment happens instantly. A QR code is just a little square pattern that a phone camera can read instantly, and inside it, it's actually carrying the payment details needed, whose account it's going to, how much, all packed into that pattern. A market stall, a taxi, a small shop, all can accept a payment this way, no card machine needed at all, just a printed code and a phone.

They've both become massive. In Brazil, Pix is now one of the most common ways people pay for absolutely everything, and in India, UPI processes an enormous number of payments every single day, far more than card payments in most other countries.

What makes them interesting is that neither of them relies on cards at all. They've built an entirely different way to pay, straight from bank account to bank account, instantly, using nothing but a QR code and a phone.

Pix in Brazil and UPI in India are instant, QR-code-based payment systems that let people pay straight from their bank account, without needing a card at all.

#54– Pix (Brazil) & UPI (India)



#55 KYC

Before a bank or app lets you open an account or get a card, they need to know one thing for certain, that you actually are who you say you are, and that's called KYC.

KYC stands for Know Your Customer. It's the process of checking someone's identity properly before letting them start using a financial product, usually by asking for proof, like an ID document, or checking details against official records.

It's a bit like showing your ID to get into an age-restricted event. The person on the door isn't being difficult for no reason, they're making sure the right person is actually getting in, not someone pretending to be them.

Banks and apps do this because letting the wrong person open an account can cause real problems, someone using a fake identity, or opening an account that isn't really theirs, can be used to hide money from crimes or scam other people.

For younger people, KYC often works a bit differently, since a child usually can't complete it fully on their own, that's why accounts like GoHenry are set up by a parent or guardian instead, with the adult's identity being checked properly.

KYC means checking who someone actually is before letting them open an account or get a card, to make sure the right person is really behind it.

#55 – KYC

Checking who you really are, before you're let in.



KYC means checking who someone actually is before letting them open an account or get a card, to make sure the right person is really behind it.

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#56 KYC vs. SDD vs. Anonymous

Not every card needs the exact same level of checking, some need a full identity check, some need a lighter check, and some barely need any at all, and which one applies depends on how much money's involved.

Full KYC is the proper version, checking your actual identity documents, this is what you'd need for a real bank account, or a card with higher limits. The bank needs to be confident about exactly who they're dealing with.

SDD stands for Simplified Due Diligence, a lighter check. Instead of verifying full identity documents, it might just be your name and address, checked against basic records, not fully verified. This tends to apply to cards with lower limits, where there's less at stake.

An anonymous card needs almost no checking at all, usually because the limit is so low it's treated a bit like cash, a basic gift card being the classic example. No name, no ID, just money loaded onto a card.

The pattern is simple, the more money a card could actually hold or move, the more identity checking gets required, and the less it can hold, the lighter that checking gets.

Full KYC applies proper identity checks for higher-value accounts, SDD is a lighter check like name and address for lower limits, and anonymous cards need almost no checking at all because the limit is so small.

#56 – KYC vs. SDD vs. Anonymous

FULL KYC



£5,000

Full identity check.

SDD



£500

Name and address only.

ANONYMOUS



£20

Almost no checking needed.

Full KYC applies proper identity checks for higher-value accounts, SDD is a lighter check like name and address for lower limits, and anonymous cards need almost no checking at all because the limit is so small.

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#57 AML

Some people get money by doing wrong things, and they try to make that money look like it was earned properly and honestly instead. Stopping that is called AML, Anti-Money Laundering.

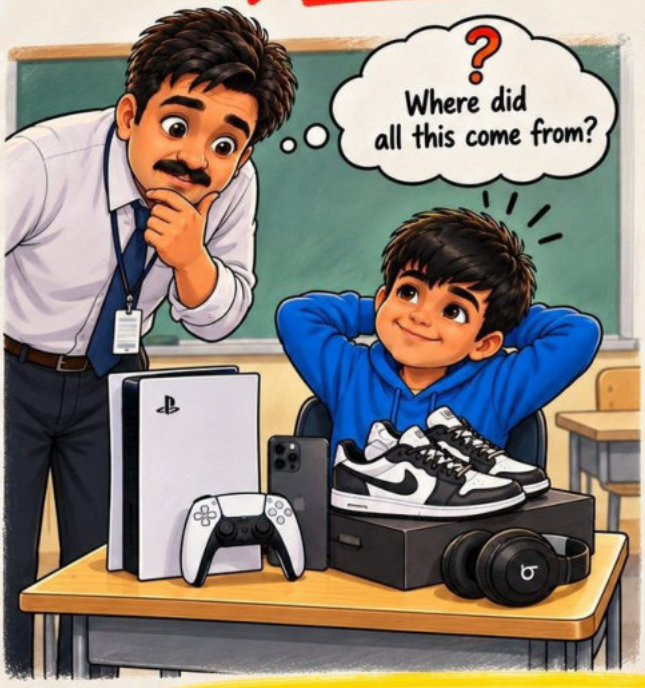
If someone got money illegally, they can't just spend it normally, it would look suspicious. So they try to move it around, through accounts, businesses, or cards, until it looks clean, like it came from somewhere completely normal.

AML is all the rules and checks banks follow to catch this happening. They watch for things that don't add up, large amounts moving for no clear reason, money passing through lots of accounts quickly, spending that doesn't match how someone normally uses their account.

It's a bit like a teacher noticing a student suddenly has loads of expensive things with no explanation of where the money came from, that doesn't add up, and it's worth asking questions.

AML means the rules and checks banks use to catch money that was gained by doing wrong things, before it gets made to look like it was earned properly and honestly.

#57 – AML



At the Bank...



AML means the rules and checks banks use to catch money that was gained by doing wrong things, before it gets made to look like it was earned properly and honestly.

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#58 PCI DSS

Every time a shop or app handles your card number, they have to follow a strict set of rules to keep it safe, and that set of rules is called PCI DSS.

PCI DSS stands for Payment Card Industry Data Security Standard. It's not run by one single bank or network, it's a shared standard, agreed by VISA, Mastercard, American Express, and the others together, that any company handling card details has to follow.

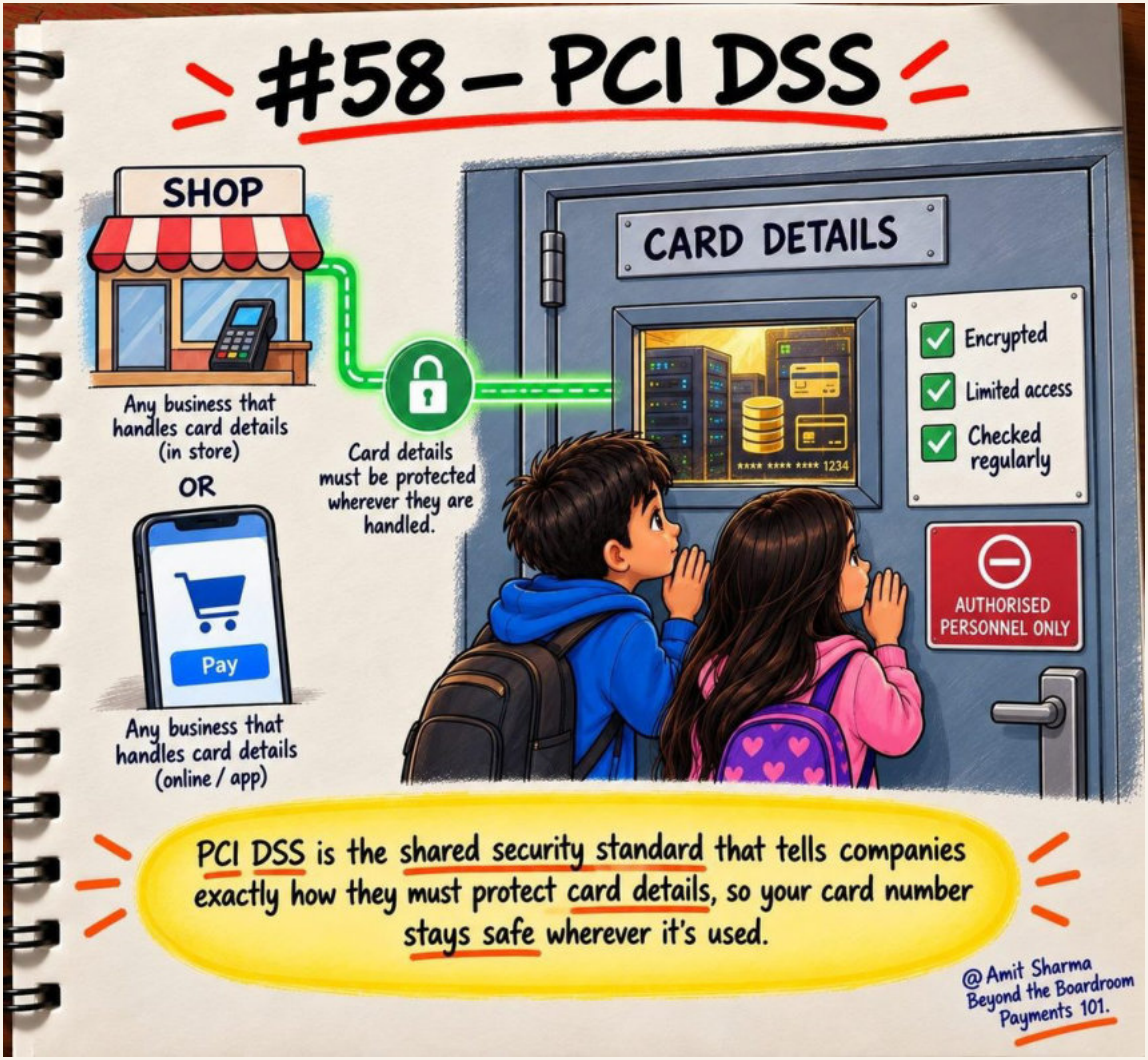
It covers things like how card numbers get stored, who's allowed to see them, and how they're protected from being stolen. A company can't just keep card numbers sitting in a random file somewhere, they have to be encrypted, limited to as few people as possible, and properly secured.

It's a bit like a school having strict rules about who's allowed into the room where exam papers are kept, locked up, limited access, checked regularly, because if it got out, it could cause real problems.

Companies that don't follow PCI DSS properly can get in serious trouble, big fines, or even lose the ability to accept card payments at all.

PCI DSS is the shared security standard that tells companies exactly how they must protect card details, so your card number stays safe wherever it's used.

#58 – PCI DSS



PCI DSS is the shared security standard that tells companies exactly how they must protect card details, so your card number stays safe wherever it's used.

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#59 Strong Customer Authentication (SCA)

Online payments used to just need a card number and a few details, but that's not enough anymore, there's now a rule that says you need more proof than that, and it's called SCA, Strong Customer Authentication.

SCA is a legal requirement in the UK and EU, banks and payment companies have to check two different types of proof before letting certain payments go through, not just one. That might be something you know, like a PIN, something you have, like your phone, or something you are, like your fingerprint.

It exists because relying on just a card number is genuinely risky, if someone else gets hold of that number, they'd have everything they need. Needing two different types of proof makes it far harder for someone else to fake being you.

It's a bit like a school needing both your ID card and your face to actually match before letting you into an exam, one alone isn't enough, together they're much harder to fake.

SCA is the rule that says extra proof is needed. It doesn't say exactly how that proof has to be collected, different tools do that job in different situations.

SCA is the rule that online and certain other payments need two different types of proof it's really you, not just a card number, making it much harder for someone else to fake being you.

#59 – Strong Customer Authentication (SCA)





Two different proofs, not just one.

SCA is the rule that online and certain other payments need two different types of proof it's really you, not just a card number, making it much harder for someone else to fake being you.

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#60 3D Secure (3DS)

SCA says extra proof is needed for a payment, but something has to actually collect that proof, and for card payments, that's usually done by a tool called 3D Secure, or 3DS.

You've probably experienced it without knowing the name, typing in a card number online, then suddenly your bank sends a code to your phone, or asks you to approve the payment in an app, before it actually goes through. That whole extra step is 3DS doing its job.

It's the way most card payments actually give that second proof, your phone, your fingerprint, on top of the card number itself.

It's a bit like the school example again, the ID card is the card number, and 3DS is the extra step of matching your face too, the specific way the “two proofs” rule actually gets carried out.

Not every online payment triggers 3DS, banks decide when the extra check is actually needed, based on how risky a particular payment looks, and how confident they already are it's genuinely you.

3DS is the tool that actually collects that second proof for card payments, the code or app approval that satisfies the SCA rule and confirms it's really you.

#60 – 3D Secure (3DS)



The card number alone isn't enough.
This proves it's really you.

3DS is the tool that actually collects that **second proof** for card payments, the code or app approval that satisfies the **SCA rule** and confirms it's **really you.**

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#61 What Is Fraud?

Payments have a lot of checks built in, proving who you are, keeping details safe, but what are all these checks actually protecting against? The answer is fraud.

Fraud is when someone deliberately tricks a system, or a person, to get money or information they're not entitled to. It's not an accident, and it's not just someone making a mistake, it's someone doing it on purpose, knowing it's wrong.

It can look like lots of different things. Someone using a stolen card number. Someone pretending to be your bank to trick you into sending money. Someone claiming a payment never arrived when it actually did. All different situations, but all fraud, because someone's deliberately trying to get something they shouldn't.

It's a bit like someone cheating in a game, not just losing fairly, but actually breaking the rules on purpose to win something they haven't earned.

Fraud costs everyone in the end, banks, businesses, and sometimes the people it happens to directly, which is exactly why checks like proving who you are, keeping card details safe, and asking for extra proof online all exist in the first place, to make fraud much harder to pull off.

Fraud is when someone deliberately tricks a system or a person to get money or information they're not entitled to, and it's the reason so many payment security checks exist in the first place.

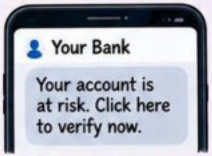
#61 – What Is Fraud?



Not a mistake. Done on purpose, knowing it's wrong.



Stolen card



Fake message



Item never arrived

Fraud is when someone deliberately tricks a system or a person to get money or information they're not entitled to, and it's the reason so many payment security checks exist in the first place.

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#62 Card-Not-Present Fraud

Fraud can happen in person, but it's actually far more common online, and the reason comes down to whether the actual card is there or not.

When you tap a card in a shop, the real chip has to physically be there and gets checked properly. That's hard to fake, someone would need your actual card in their hand.

Buying something online is different. Nobody's checking a chip, you're just typing in numbers. If someone else gets hold of your card number, they don't need your actual card at all, they can type those same numbers in themselves, from anywhere.

That's exactly what makes card-not-present situations a target for fraud, the numbers alone are enough to make a payment, so if those numbers leak, anyone can use them.

This is exactly why online payments lean so heavily on things like extra codes and app approvals, proof beyond just the numbers, to make up for the fact that the card itself was never really there to check in the first place.

Card-not-present fraud is easier to commit because someone only needs the card numbers, not the actual card, which is why online payments rely on extra checks to make up for it.

#62 – Card-Not-Present Fraud

IN A SHOP



Hard to fake, the real card's here.

ONLINE



Just the numbers.
No card needed at all.

Card-not-present fraud is easier to commit because someone only needs the card numbers, not the actual card, which is why online payments rely on extra checks to make up for it.

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#63 Friendly Fraud

Not all fraud comes from a stranger. Sometimes it's the cardholder themselves, and that's called friendly fraud.

It happens when someone makes a genuine purchase, then later disputes it, claiming they never made it or never got what they paid for, even though they actually did. Sometimes it's on purpose, trying to get something for free. Sometimes it's an honest mistake, forgetting a purchase, or not recognising it on a statement.

It's a bit like buying something from a friend, using it, then telling them you never actually bought it, hoping to get your money back while still keeping what you bought.

It's called “friendly” because it's not a stranger attacking the system, it's coming from someone who was actually allowed to make the payment in the first place, which makes it genuinely tricky to catch. The payment itself looked completely normal when it happened.

Friendly fraud costs businesses a lot of money, since disputing a payment can mean the shop loses both the item and the money, even though nothing was actually stolen by an outsider.

Friendly fraud is when a cardholder disputes a genuine payment, claiming it wasn't them or they didn't get what they paid for, even though they did, making it hard to catch since the original payment looked completely normal.

#63 – Friendly Fraud



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#64 Authorised Push Payment (APP) Fraud

Most fraud involves someone else taking your money without permission. APP fraud is different, and in some ways sneakier, it tricks you into sending the money yourself.

APP stands for Authorised Push Payment. A push payment is one where you decide to send money, you choose the amount, you press send. APP fraud happens when a scammer tricks you into doing exactly that, convincing you it's a genuine reason to send money, when it isn't.

It might be someone pretending to be your bank, saying your account's at risk and you need to move your money “somewhere safe.” It might be a fake seller online, taking payment for something that never arrives. It might even be someone pretending to be a family member in trouble, urgently needing money sent.

What makes it so tricky is that you're the one who actually authorised it, you typed in the amount, you pressed send, nobody hacked anything. That's exactly why it's so hard for banks to stop, the payment looks completely normal from their side.

Because the money was sent to a genuine account, just one controlled by a scammer, getting it back afterwards can be really difficult, which is why so much effort goes into stopping it before it happens.

APP fraud is when someone tricks you into sending money yourself, believing it's for a genuine reason, which makes it especially hard to stop because you were the one who actually authorised the payment.

#64 – Authorised Push Payment (APP) Fraud



APP fraud is when someone tricks you into sending money yourself, believing it's for a genuine reason, which makes it especially hard to stop because you were the one who actually authorised the payment.

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#65 Confirmation of Payee (UK) & Verification of Payee (EU)

One of the ways banks try to stop scams like APP fraud is by checking something really simple before you send money, does the name actually match the account.

Confirmation of Payee, used in the UK, checks the name you've typed against the actual name on the account you're sending money to. If they match, you get a green light. If they don't quite match, or don't match at all, your bank warns you before you send anything, giving you a chance to stop and double check.

Europe has its own version, called Verification of Payee, doing basically the same job for euro payments, checking the name lines up with the account before the money moves.

It's a bit like double checking you're handing something to the right person, not just trusting the name they told you, actually confirming it matches who they really are, before you hand it over.

This check doesn't stop every scam, a determined scammer might still find ways around it, but it catches a lot of simple mistakes and obvious mismatches before real money ever moves.

Confirmation of Payee in the UK and Verification of Payee in the EU both check that the name you're sending money to actually matches the account, giving you a chance to stop before a payment goes wrong.

#65 - Confirmation of Payee (UK) & Verification of Payee (EU)



Confirmation of Payee in the UK and Verification of Payee in the EU both check that the name you're sending money to actually matches the account, giving you a chance to stop before a payment goes wrong.

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#66 Fraud Liability Shift

When fraud happens, someone has to actually pay for it, and it's usually whoever made the mistake that let it happen.

If a merchant did everything right, used the proper checks, and fraud still got through anyway, the loss usually falls on the issuer, your bank. But if a merchant skipped a check they should have used, the loss shifts onto them instead, because it was their mistake that let it happen.

It's a bit like if you lend a friend your pen, and they lose it because they were careless with it, that's on them. But if it just broke on its own, through no fault of theirs, that's not really their fault at all.

Cardholders are usually protected too, as long as they didn't do something they shouldn't have, like sharing their PIN with someone else.

Fraud liability shift means whoever made the mistake that let the fraud happen is the one who ends up paying for it.

#66 – Fraud Liability Shift



Fraud liability shift means whoever made the mistake that let the fraud happen is the one who ends up paying for it.

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#67 Risk Scoring / Fraud Models

Every payment gets silently checked by a system that's constantly keeping track of what looks normal and what doesn't, a bit like your mum keeping a mental tab on the good things and the odd things you do.

If you're always home by six, and one day you're suddenly out till midnight, that stands out, even if nothing's actually wrong, it's just different from usual. Payments work the same way. The system knows roughly how you normally spend, how much, where, how often.

When a payment happens, it gets compared against that normal pattern, and given a score, how risky does this one look. A payment that matches your normal habits sails straight through. One that looks unusual, a strange amount, a strange place, gets a closer look, maybe extra proof, maybe even declined, just to be safe.

Risk scoring is a system keeping track of what's normal for you, so it can spot when something looks different and decide whether to trust it or check more closely.

#67 – Risk Scoring / Fraud Models



Risk scoring is a system keeping track of what's normal for you, so it can spot when something looks different and decide whether to trust it or check more closely.

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#68 What Is A Cross-Border Payment?

A cross-border payment is a payment where money moves from one country to another, almost always crossing into a different currency along the way.

Say you're paying for something in India, but your card is issued by a bank in the UK. Your bank holds pounds, the seller's bank needs rupees, and somehow the payment has to bridge that gap, converting currency and crossing a border at the same time.

That's harder than it sounds. Payment rails inside one country are well connected and fast, built specifically for that country's banks. But there's no single global rail connecting every bank in the world, so cross-border payments often have to travel through several banks and systems just to arrive, especially if the two countries involved don't deal with each other often.

Every extra step, the currency conversion, the extra banks involved, the unfamiliar route, adds cost and time compared to a payment that stays within one country.

A cross-border payment is money moving between two countries, almost always crossing into a different currency, which is why it usually takes longer and costs more than a payment that stays within one country.

#68 – What Is A Cross-Border Payment?



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#69 FX Spread/Margin

An exchange rate is how much one currency is worth in another, how many rupees you'd get for one pound, for example. That rate changes all the time, based on how much people around the world are buying and selling each currency.

There's a “real” exchange rate at any given moment, the actual going rate between two currencies, the one you'd see if you searched it up online. But when a bank, card, or app actually converts your money for you, they almost never give you that exact real rate.

Instead, they use a slightly worse rate, and keep the small difference for themselves. That difference is called the spread, or margin.

It's a bit like a shop that swaps foreign coins for local ones at a fair, they don't do it for free, they keep a small cut of every swap, even if they never mention it directly.

This matters because the spread is often hidden. Unlike a card fee that's clearly listed, the spread just shows up as a slightly worse exchange rate, without ever being called a fee at all.

An exchange rate is how much one currency is worth in another, and the spread, or margin, is the small cut kept by whoever converts your money, hidden inside a slightly worse rate than the real one.

#69 – FX Spread/Margin



An exchange rate is how much one currency is worth in another, and the spread, or margin, is the small cut kept by whoever converts your money, hidden inside a slightly worse rate than the real one.

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#70 Correspondent Banking & Nostro/Vostro Accounts

There are thousands of banks across the world, and it's impossible for your bank to have a direct relationship with every single bank in every country. So if you have to send money to a different country and to a bank where there isn't a direct connection, you need the help from a correspondent bank.

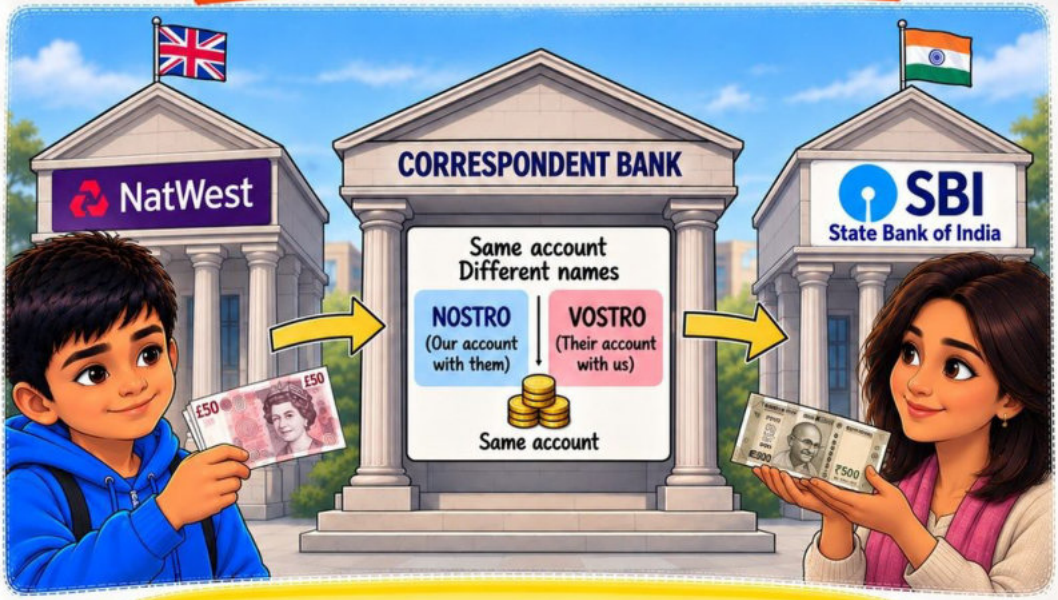
A correspondent bank is a bit like a middleman bank, one that already has a relationship with both your bank and the destination bank, even if those two banks have never dealt with each other directly. Your payment gets passed along this chain of connected banks until it reaches somewhere that can finally get it to the right place.

To make this work, banks keep special accounts with each other, called nostro and vostro accounts. A nostro account is your bank's money, held at another bank, in that other country's currency. A vostro account is the exact same account, just described from the other bank's point of view, it's their money, held with you.

It's a bit like having a friend in another country hold some of your money for you in advance, so when you need to send someone there cash, your friend can hand it over locally, instead of you trying to send it all the way from scratch.

Correspondent banking uses a chain of connected banks to move money between banks that don't deal with each other directly, using nostro and vostro accounts, the same account seen from each side, to actually hold the money along the way.

#70 – Correspondent Banking & Nostro/Vostro Accounts



Correspondent banking uses a chain of connected banks to move money between banks that don't deal with each other directly, using nostro and vostro accounts, the same account seen from each side, to actually hold the money along the way.

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#71 Multi-Currency Settlement

When money is moving from one country to another, and from one currency to another, it needs to arrive in the right account, in the right currency. This is done through multi-currency settlement.

With a payment inside one country, settlement is fairly simple, money just moves from one bank to another, in one currency. Cross-border settlement is trickier, because at some point during the journey, the money has to change from one currency into another, and that conversion has to happen alongside the actual movement of funds.

Banks handle this by settling in stages, money moves between banks in one currency up to a certain point, gets converted, then continues on in the new currency the rest of the way, often through the correspondent banking chain and nostro/vostro accounts already involved.

It's a bit like a relay race where the baton actually changes shape partway through, the runners still have to pass it along smoothly, but at one point it transforms into something slightly different, and the race continues.

Because more steps and more banks are involved, multi-currency settlement usually takes longer than a same-currency, same- country payment, often a day or more, rather than seconds.

Multi-currency settlement is the final step where cross-border money actually lands in the right account, converting currency partway through the journey, which is why it usually takes longer than a domestic payment.

#71 – Multi-Currency Settlement



Multi-currency settlement is the final step where cross-border money actually lands in the right account, converting currency partway through the journey, which is why it usually takes longer than a domestic payment.

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#72 Cross-Border Settlement Risk

When money is being converted and moved between banks in different countries, there's a gap, a moment where one side has paid out, but the other side hasn't received their money yet. That gap is what can create cross-border settlement risk.

Because banks in different countries operate in different time zones, and sometimes even different working days, one side of a payment can be sent hours before the other side actually arrives. If something goes wrong in that gap, a bank fails, a system breaks, a connection drops, one side could end up having paid out, with nothing coming back the other way.

It's a bit like agreeing to swap lunches with a friend at school, you hand yours over at first break, but they don't hand theirs over until after school. If something happens in between, you've given yours away with nothing back yet.

Banks manage this risk carefully, using systems designed to make sure both sides of a swap happen as close together as possible, and choosing correspondent banks and routes they trust, precisely because this gap is where things can go wrong.

Cross-border settlement risk is the risk that comes from a gap in timing, one side of a payment being sent before the other side arrives, which is why banks work hard to keep that gap as small as possible.

#72 - Cross-Border Settlement Risk



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#73 Cross-Border Interchange

Interchange is a small fee the seller's bank pays your bank every time you use your card. Cross- border interchange is the same basic idea, just applied when the buyer and the seller's banks are in different countries.

When a payment crosses a border, the risk and the work involved usually goes up, more banks in the chain, currency conversion, less familiarity between the two sides. Because of that, cross-border interchange is normally higher than domestic interchange, sometimes quite a bit higher.

It's a bit like a delivery fee, sending a parcel across town costs less than sending the exact same parcel to a different country, more distance, more handling, more steps along the way, so it costs more to move.

This is one of the quiet reasons your card might cost a bit more to use abroad, or why some shops charge extra for international cards, the interchange behind that payment simply costs more than it would for a card issued in the same country.

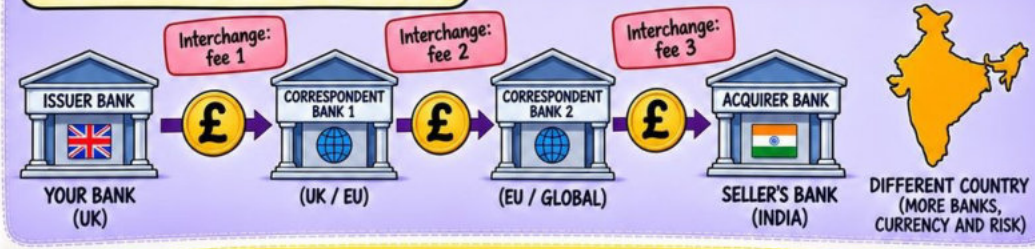
Cross-border interchange is the fee the seller's bank pays your bank when a card payment crosses a border, and it's usually higher than domestic interchange because more banks, currency, and risk are involved.

#73 - Cross-Border Interchange

DOMESTIC PAYMENT



CROSS-BORDER PAYMENT



Cross-border interchange is the fee the seller's bank pays your bank when a card payment crosses a border, and it's usually higher than domestic interchange because more banks, currency, and risk are involved.

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#74 Dynamic Currency Conversion (DCC)

When you pay abroad with a card, sometimes the machine or website asks you a question, do you want to pay in the local currency, or in your own currency instead? That choice is called dynamic currency conversion, or DCC.

If you choose your own currency, the shop or their payment provider does the conversion themselves, right there at the point of sale, and shows you the exact amount you'll be charged, in pounds, before you confirm.

Years ago, banks often charged hefty fees just for using your card abroad at all, so choosing DCC and knowing your exact cost upfront sometimes made sense, avoiding a nasty surprise fee later on. But most banks and cards have moved away from those charges now, which means DCC has lost the one reason it used to genuinely help.

The exchange rate used for DCC is usually worse than the rate your own bank gives you if you simply pay in the local currency instead, and let your bank handle the conversion.

It's a bit like being offered to swap your foreign coins back at the airport before you fly home, technically convenient, but usually at a worse rate than if you'd just kept them in the original currency a little longer.

Dynamic currency conversion lets you pay in your own currency abroad, but it usually comes with a worse exchange rate, which is why paying in the local currency instead is normally the better choice.

#74 - Dynamic Currency Conversion (DCC)



Dynamic currency conversion lets you pay in your own currency abroad, but it usually comes with a worse exchange rate, which is why paying in the local currency instead is normally the better choice.

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#75 Remittances

A remittance is a cross-border payment sent by a person, not a business, usually to family or friends back home. Someone working abroad sending money to their parents, a relative helping cover school fees, or supporting family during a difficult time, these are all remittances.

The exact route that money takes between two countries, which banks, which corridor, matters a lot here. Some routes between two countries are well used and cheap, lots of banks connected, lots of competition. Others are much less common, meaning fewer connections, more steps, and higher costs to send the exact same amount.

Companies like Western Union, Wise, and Remitly exist specifically to make remittances easier, often finding cheaper, faster corridors than going through a traditional bank.

There are also remittance cards now, where one person holds a primary card, tops it up with money, and a family member in another country holds a secondary card linked to the same account, able to spend or withdraw that money straight away. Some remittances even move directly from one card to another, using the card network itself, like Mastercard or VISA, to send money from a card in one country to a card in another, anywhere in the world.

Because remittances are often sent by people who can least afford high fees, the cost and speed of different corridors matters enormously, and a lot of effort in payments goes into making these routes cheaper and faster for everyday people.

A remittance is a cross-border payment sent by a person, usually to family, and how cheap or fast it is depends heavily on the specific corridor, the route between the two countries, that the money travels along.

#75 – Remittances



A remittance is a cross-border payment sent by a person, usually to family, and how cheap or fast it is depends heavily on the specific corridor, the route between the two countries, that the money travels along.

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#76 In-Person Payments: Wallets, QR, Biometrics & More

Tapping a card isn't the only way to pay in a shop anymore, there are now several different ways to pay in person, all doing the same basic job, proving it's you, and letting the payment go through, just using different tech to get there.

A digital wallet, like Apple Pay or Google Pay, lets you tap your phone instead of a card, checking it's really you with your fingerprint, face, or passcode first.

QR code payments work differently, instead of tapping, you scan a code, either the shop's code with your phone, or your own payment code being scanned by the shop, linking straight to your card or wallet to complete the payment.

Biometric payments go a step further, using your actual body as the payment method itself, a palm scan, or a face scan, linked directly to your card details, no phone or card needed at all. Wearables, like a payment ring or smartwatch, work similarly, your card details built into something you're already wearing.

There are even smaller options too, NFC payment stickers, a small sticker loaded with your card details, that can be stuck onto almost anything, a phone case, a keyring, and tapped just like a card.

In-person payments now include wallets, QR codes, biometrics, wearables, and even NFC stickers, all different ways of proving it's you and completing a payment, without necessarily needing a physical card at all.

#76 - In-Person Payments: Wallets, QR, Biometrics & More











In-person payments now include wallets, QR codes, biometrics, wearables, and even NFC stickers, all different ways of proving it's you and completing a payment, without necessarily needing a physical card at all.

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#77 Online Payments: One-Click, Social, P2P & Pay by Bank

Paying online has changed a lot too, beyond just typing card details into a checkout form, there are now several faster, more connected ways to pay.

One-click, or in-app, checkout means your card or wallet details are already saved and pre- approved, so buying something is just one tap, no re-entering card numbers, no re-authenticating each time. Wallets like Apple Pay and Google Pay work online too, not just in shops, often showing up as a one-tap option at checkout.

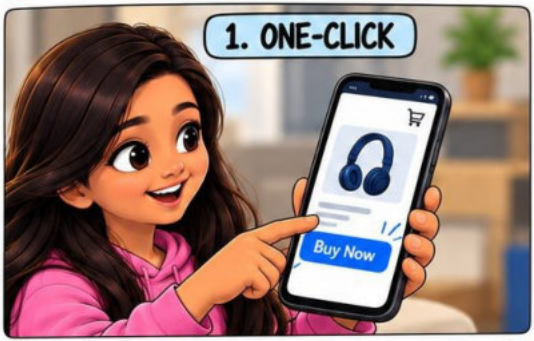
Social commerce means paying without ever leaving an app like Instagram or TikTok at all, seeing something, buying it, and paying for it, all inside the same app you were already scrolling through.

Peer-to-peer payment apps, like Venmo or PayPal, let you send money directly to another person, splitting a bill, paying a friend back, without needing their bank details at all, just their username or number.

Pay by Bank is another option, paying straight from your bank account at checkout, using open banking, instead of entering card details at all.

Paying online now includes one-click checkout, wallets, paying directly inside social apps, peer-to-peer apps, and paying straight from your bank account, all making online payments faster and more connected than typing in card details each time.

#77 - Online Payments: One-Click, Social, P2P & Pay by Bank









Paying online now includes one-click checkout, wallets, paying directly inside social apps, peer-to-peer apps, and paying straight from your bank account, all making online payments faster and more connected than typing in card details each time.

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#78 Invisible & Automated Payments: Voice, Subscriptions &

Some payments barely feel like a payment at all, no tapping, no typing, sometimes not even a clear “checkout” moment, and this group covers exactly that.

Invisible payments happen automatically in the background. A car with a payment method linked can automatically pay the toll every time it passes a toll booth, no tapping, no approving, it just happens. Some shops, like Amazon's walk-in stores, work similarly, cameras and sensors track what you pick up, and you simply walk out, charged automatically, no till, no checkout at all. The same idea is now showing up at concerts and events too, walking through with items or drinks already being charged automatically as you go.

Voice-activated payments let you pay just by speaking, asking a smart speaker or assistant to reorder something, or approve a payment, with your voice used as part of the proof it's really you.

Subscription payment management covers the growing pile of automatic payments most people now have, streaming, apps, games, and apps like Apple's or Google's subscription hub exist specifically to help track and cancel all of them in one place, rather than each one hiding separately.

Micropayments are tiny, individual payments, sometimes just a few pence, paying per article, per song, or for small amounts of in-game currency, amounts too small to bother with a full checkout process for each one.

These are payments that happen automatically with barely any effort, triggered by passing a toll booth, walking out of a shop, or simply your voice.

#78 - Invisible & Automated Payments: Voice, Subscriptions & Micropayments









These are payments that happen automatically with barely any effort, triggered by passing a toll booth, walking out of a shop, or simply your voice.

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#79 Embedded Finance

Embedded finance is when a financial service, a payment, a loan, an account, shows up directly inside an app that isn't a bank at all, built right into the experience, instead of sending you off to a separate banking app to sort it out.

Paying inside a ride-hailing app without leaving it, or a shopping app letting you spread the cost at checkout, these are both embedded finance, financial services quietly built into apps whose main purpose isn't banking at all.

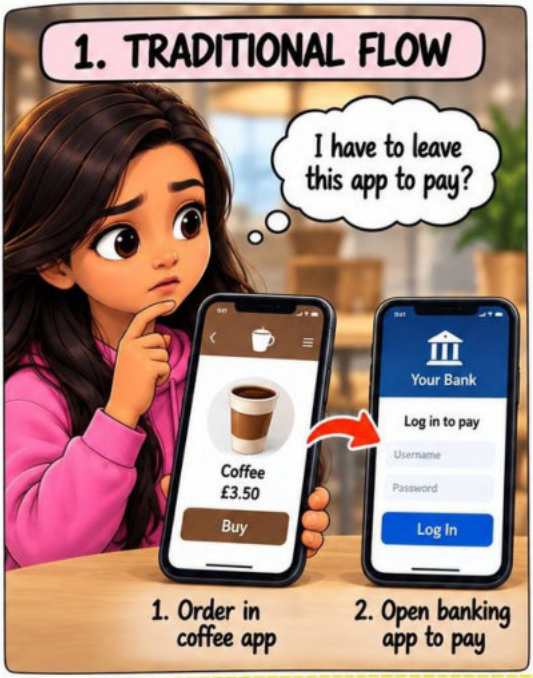
The company behind the app usually isn't a bank itself, they're partnering with one behind the scenes, using that bank's licence and infrastructure, while the actual financial service appears seamlessly inside their own app, under their own brand.

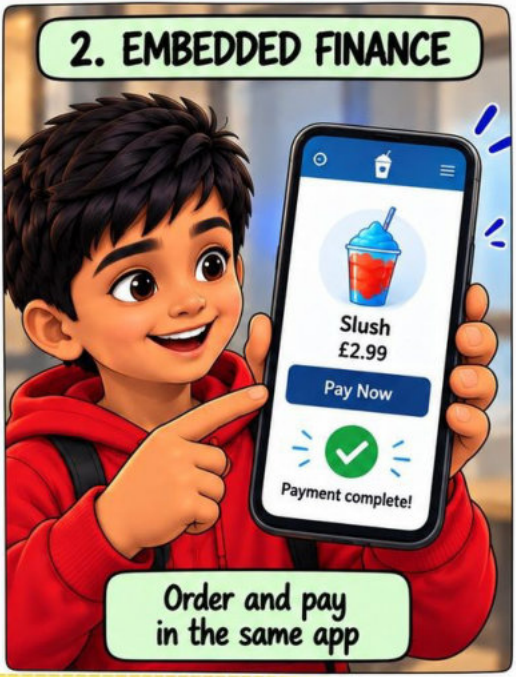
It's a bit like a school trip that includes lunch built into the ticket price, you're not popping off separately to buy food somewhere else, it's already part of the one experience, arranged behind the scenes by someone else.

Embedded finance has grown hugely because it removes friction, instead of leaving an app to go handle money somewhere else, the financial service just appears exactly where and when you need it.

Embedded finance is when a financial service appears directly inside a non-financial app, built into the experience itself, usually powered by a bank partner working quietly behind the scenes.

#79 - Embedded Finance





Embedded finance is when a financial service appears directly inside a non-financial app, built into the experience itself, usually powered by a bank partner working quietly behind the scenes.

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#80 Banking-as-a-Service (BaaS)

Banking-as-a-Service is what actually makes embedded finance possible behind the scenes, a bank letting other companies plug directly into its banking infrastructure and licence, instead of building a bank from scratch themselves.

Building a proper bank is hard, it takes years, a banking licence, and huge amounts of regulation to satisfy. BaaS solves that by letting a licensed bank offer up its infrastructure, accounts, cards, payments, to other companies, who build their own app or product directly on top of it.

The company using BaaS gets to launch something that feels and works like a bank product, cards, accounts, payments, without ever becoming a bank themselves, the licensed bank behind the scenes is doing the heavily regulated part.

It's a bit like a food delivery app not owning a single restaurant itself, it's built entirely on top of restaurants that already exist, just presenting the experience through its own app.

BaaS is the reason so many non-bank apps have been able to offer banking-like features so quickly, they're not building a bank, they're renting one.

Banking-as-a-Service is a licensed bank letting other companies build products directly on top of its banking infrastructure, which is what makes embedded finance possible without every company needing to become a bank itself.

#80 - Banking-as-a-Service (BaaS)



Banking-as-a-Service is a licensed bank letting other companies build products directly on top of its banking infrastructure, which is what makes embedded finance possible without every company needing to become a bank itself.

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#81 Buy Now, Pay Later (BNPL)

Buy Now, Pay Later lets you take something home today, and split the cost into smaller payments afterwards, instead of paying the full amount all at once at checkout.

At checkout, instead of paying the full price immediately, you choose to pay in instalments, often spread over a few weeks or months. The BNPL provider pays the shop the full amount straight away, and you pay the provider back gradually instead.

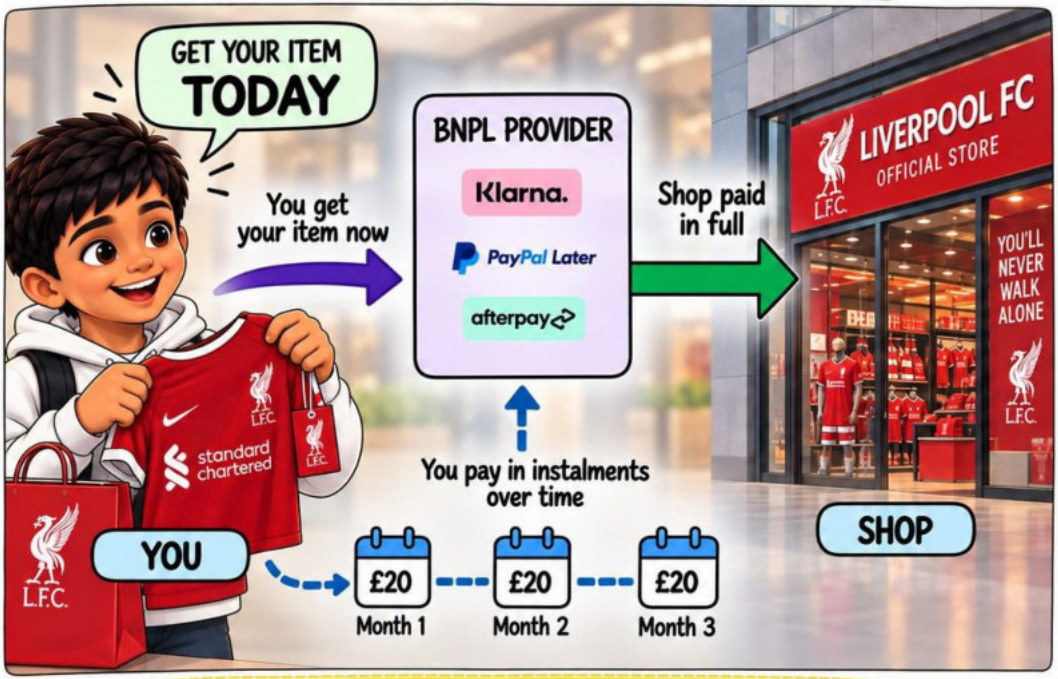
This is different from a credit card in one big way, BNPL is usually tied to one specific purchase, agreed at the moment you buy it, rather than an ongoing line of credit you can keep spending from whenever you like.

It's a bit like splitting the cost of a group present with friends, everyone still gets the gift given straight away, but each person only pays their share bit by bit afterwards.

BNPL has grown hugely in online shopping, because it removes the immediate full cost as a barrier, letting people buy something now, and spread the impact on their spending money over the following weeks.

Buy Now, Pay Later lets you take something home today and pay for it in instalments afterwards, with the provider paying the shop upfront and you paying them back gradually instead.

#81 - Buy Now, Pay Later (BNPL)



Buy Now, Pay Later lets you take something home today and pay for it in instalments afterwards, with the provider paying the shop upfront and you paying them back gradually instead.

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#82 Flexible Credentials (Visa Flexible Credential / Mastercard One

Normally, a debit card spends money you already have, a credit card spends money you're borrowing, and a prepaid card spends only what's been loaded onto it, each one a separate card. A flexible credential lets one single card move between these, switching at the moment you pay.

With a flexible credential, you might tap your card at checkout, and choose right there whether to pay from your own balance, borrow instead, or even split the purchase into instalments, all using the exact same card. Sometimes this choice is made by the cardholder, sometimes it's decided automatically, based on rules set up in advance.

This is built by the card networks themselves, Visa calls its version the Visa Flexible Credential, and Mastercard has its own equivalent, often called One Credential. Instead of the card being locked into one single type of spending, the network lets it flex, based on what's chosen at the time.

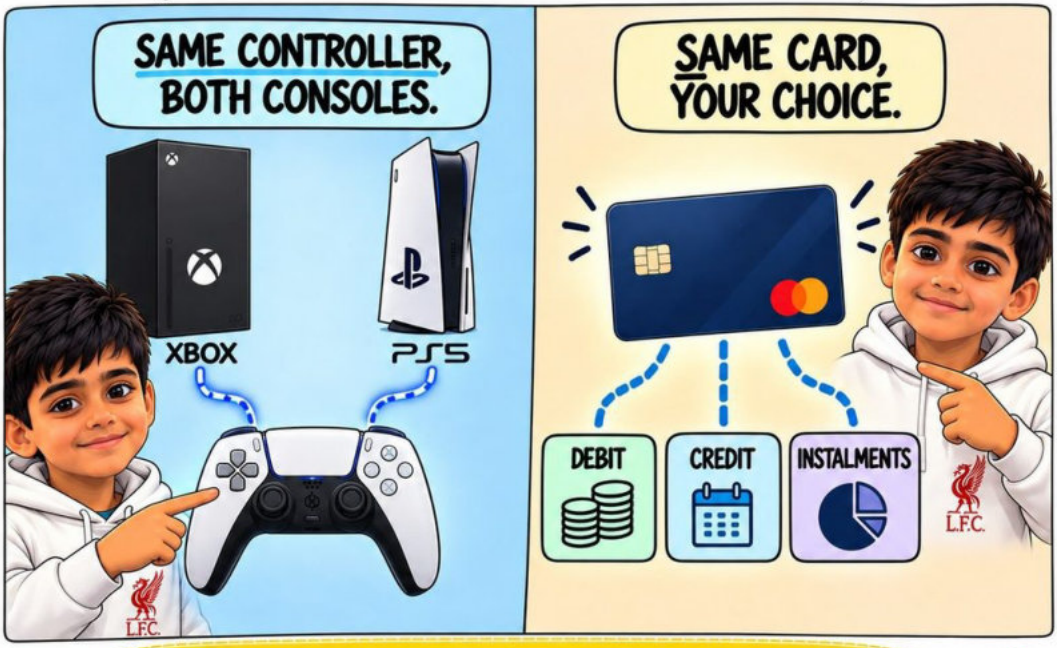
It's a bit like a games controller that works with both your Xbox and your PS5, same controller in your hand, just switching to behave the right way depending on which console you're actually using it with.

This matters because it removes the need to carry several separate cards, debit, credit, prepaid, and BNPL, when really, it's all just different ways of funding the exact same purchase.

A flexible credential is a single card that can switch between debit, credit, prepaid, or instalment-based spending, chosen at the moment of payment, instead of needing several separate cards.

#82 - Flexible Credentials

(Visa Flexible Credential / Mastercard One Credential)



A flexible credential is a single card that can switch between debit, credit, prepaid, or instalment-based spending, chosen at the moment of payment, instead of needing several separate cards.

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#83 Super Apps

A super app is a single app that bundles together lots of completely different services, messaging, ride-hailing, shopping, and payments, all in one place, instead of needing a separate app for each one.

Rather than switching between a chat app, a taxi app, a food delivery app, and a banking app, a super app puts all of that inside one single app, with one login, and often one shared wallet powering payments across every single service inside it.

WeChat in China is the best-known example, people can chat, pay, order food, book a taxi, and far more, all without ever leaving the one app. Grab, used across Southeast Asia, works similarly, starting out as ride-hailing and growing to cover food delivery, payments, and more. Apps like Revolut take a slightly different angle, bundling together banking, spending, saving, and investing all in one app, a super app built entirely around finance. There is also Paytm in India.

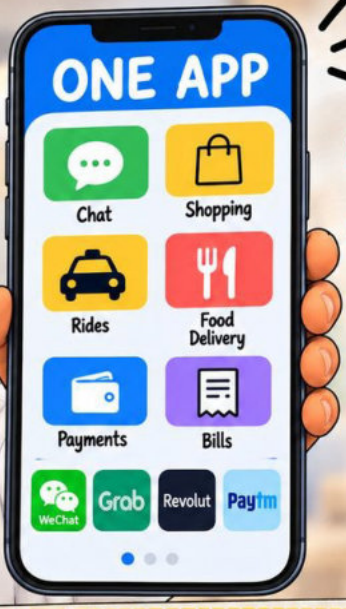
It's a bit like a games console that isn't just for gaming, but also streams your shows, plays your music, and lets you chat with friends, one device doing everything, instead of needing a separate device for each thing.

Super apps bring together nearly everything covered in this part, wallets, embedded finance, BaaS, flexible credentials, all working together inside one single app experience.

A super app bundles many different services, messaging, shopping, rides, and payments, into one single app, with one login and often one shared wallet powering everything inside it.

#83 - Super Apps





- Many everyday services
- One app
- One login
- Often one shared wallet
- Simple and convenient

A super app bundles many different services, messaging, shopping, rides, and payments, into one single app, with one login and often one shared wallet powering everything inside it.

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#84 Why Payments Are Regulated

Payments need to be regulated because they involve real money, real personal data, and real trust, and getting any of those wrong can genuinely hurt people.

Without regulation, there'd be nothing stopping a company from taking customers' money and simply losing it, misusing personal data, or charging unfair, hidden fees with no consequences. Regulation sets the minimum standard every company has to meet, checked, enforced, and taken seriously.

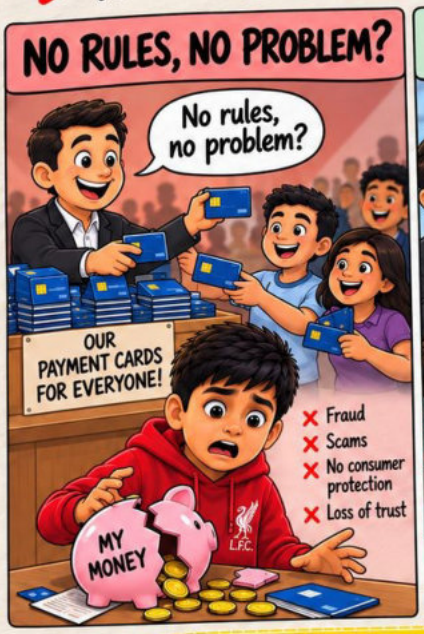
Regulators don't just write rules and walk away, they also give new ideas room to grow safely. Some regulators run something called a regulatory sandbox, a supervised space where a new company or product can test something genuinely new with real customers, under close watch, before it has to meet every single rule a fully established company normally would.

It's a bit like a school having rules about how exams are run, not to make things difficult, but because without those rules, some students could cheat, results could be unfair, and nobody would trust the outcome at all.

Regulation isn't there to slow payments down for no reason, it exists because trust is the entire foundation payments are built on, and trust has to be earned and protected, not assumed.

Payments are regulated because they involve real money, real data, and real trust, and regulation sets the standard every company has to meet, while still giving new ideas room to be tested safely.

#84 - Why Payments Are Regulated







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#85 PSD2/PSD3

PSD2 is one of the most important pieces of payments regulation in Europe and the UK, and it's short for the Second Payment Services Directive.

Before PSD2, only your own bank could really do much with your account, see your balance, move your money. PSD2 changed that, forcing banks to open up, safely and only with your permission, so other companies could build things on top of your bank account too. This is exactly what made open banking possible, letting an app see your spending or make a payment directly from your account, as long as you've said yes.

PSD2 also made strong customer authentication a legal requirement, the rule that online and certain other payments need two different types of proof it's really you, not just a card number.

PSD3 is the next version, still being finalised, expected to update and tighten these rules further as payments keep changing, closing gaps that have shown up since PSD2 first came in.

It's a bit like updating school rules every so often, the original rules covered what was needed at the time, but as things change, new versions come in to cover what the old ones missed.

PSD2 is the regulation that forced banks to open up account access safely and made strong customer authentication a legal requirement, and PSD3 is the newer version updating those rules for how payments work today.

#85 - PSD2/PSD3

BEFORE PSD2

Your bank account was a closed vault, only your bank could access it.



WITH PSD2

With your permission, trusted third parties can access your account securely.



PSD3

BUILDS ON PSD2

- Stronger rules
- Broader coverage
- Better consumer protection
- Designed for today's payments

PSD2 is the regulation that forced banks to open up account access safely and made strong customer authentication a legal requirement, and PSD3 is the newer version updating those rules for how payments work today.

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#86 E-Money Regulation & Safeguarding of Funds

An EMI, Electronic Money Institution, can hold your money and let you spend it, but it isn't a bank, so it has to follow its own set of rules, and that's called e-money regulation.

E-money regulation exists because EMIs are handling real customer money, without being full banks, so there needs to be a separate rulebook making sure that money is looked after properly, and that customers using an EMI-powered app or card are still genuinely protected.

The biggest protection inside that rulebook is called safeguarding. It means an EMI isn't allowed to just keep your money mixed in with their own business funds, they have to hold it separately, untouched, so that even if the company itself ran into serious trouble, your money is still there, protected, and can be returned to you.

It's a bit like a team's match-day ticket money being kept in a separate account from the club's everyday running costs, so even if the club had money troubles elsewhere, the ticket money itself stays safe and untouched, ready to be refunded if the match ever got cancelled.

Some EMIs start out life inside a regulatory sandbox, testing their product carefully with real customers before meeting the full weight of e-money regulation, but once they're fully regulated, safeguarding rules like this apply in full.

E-money regulation is the rulebook EMIs must follow, and safeguarding is its core protection, keeping customer money held separately and untouched, so it stays safe even if the company itself runs into trouble.

#86 - E-Money Regulation & Safeguarding of Funds

MIXED FUNDS = RISK

Without proper safeguarding, customer money and business money can be mixed together.

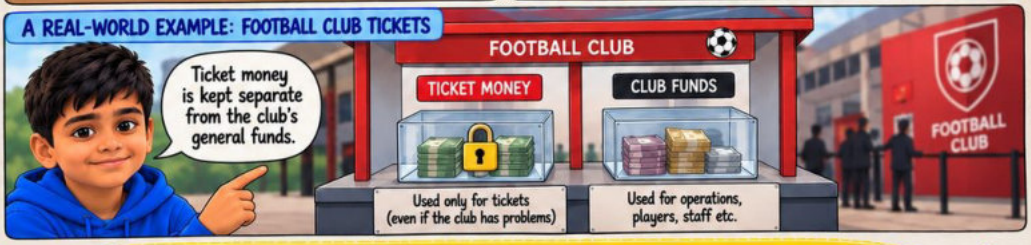


SEPARATE FUNDS = PROTECTION

E-money regulation requires customer money to be kept separate and safeguarded.



A REAL-WORLD EXAMPLE: FOOTBALL CLUB TICKETS



E-money regulation is the rulebook EMIs must follow, and safeguarding is its core protection, keeping customer money held separately and untouched, so it stays safe even if the company itself runs into trouble.

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#87 GDPR & Data In Payments

Every payment leaves behind personal data, your name, your card details, what you bought, sometimes where you were when you bought it. GDPR is the law that controls how companies are allowed to collect, use, and protect that data.

GDPR stands for General Data Protection Regulation. It applies across the UK and Europe, and it covers far more than just payments, but payments involve some of the most sensitive personal data there is.

Under GDPR, a company can't just collect your data and do whatever it wants with it. They have to explain what they're collecting and why, keep it secure, only use it for the reason they said, and delete it when it's no longer needed.

It's a bit like lending someone your notebook to check one homework answer, they're allowed to look at that one page, not read the whole thing, copy it, or keep it forever.

GDPR is the law controlling how companies collect, use, and protect personal data, and in payments, where sensitive details like card numbers and spending habits are involved, that matters enormously.


#87 - GDPR & Data In Payments
Pay
TRAVEL CARD
5412 XXXX XXXX 3456
A SHARMA
GDPR
Name
Card Details
Purchase
Location
COMPANY
Just check this one page.
Homework
1.
2.
3.
4.
5.
GDPR is the law controlling how companies collect, use, and protect personal data, and in payments, where sensitive details like card numbers and spending habits are involved, that matters enormously.
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#88 Interchange Fee Caps

Interchange is a small fee paid every time a card is used, from the seller's bank to your bank. It isn't just left to banks and networks to decide freely though, in many places, regulators step in and cap how high it can be, and that's called an interchange fee cap.

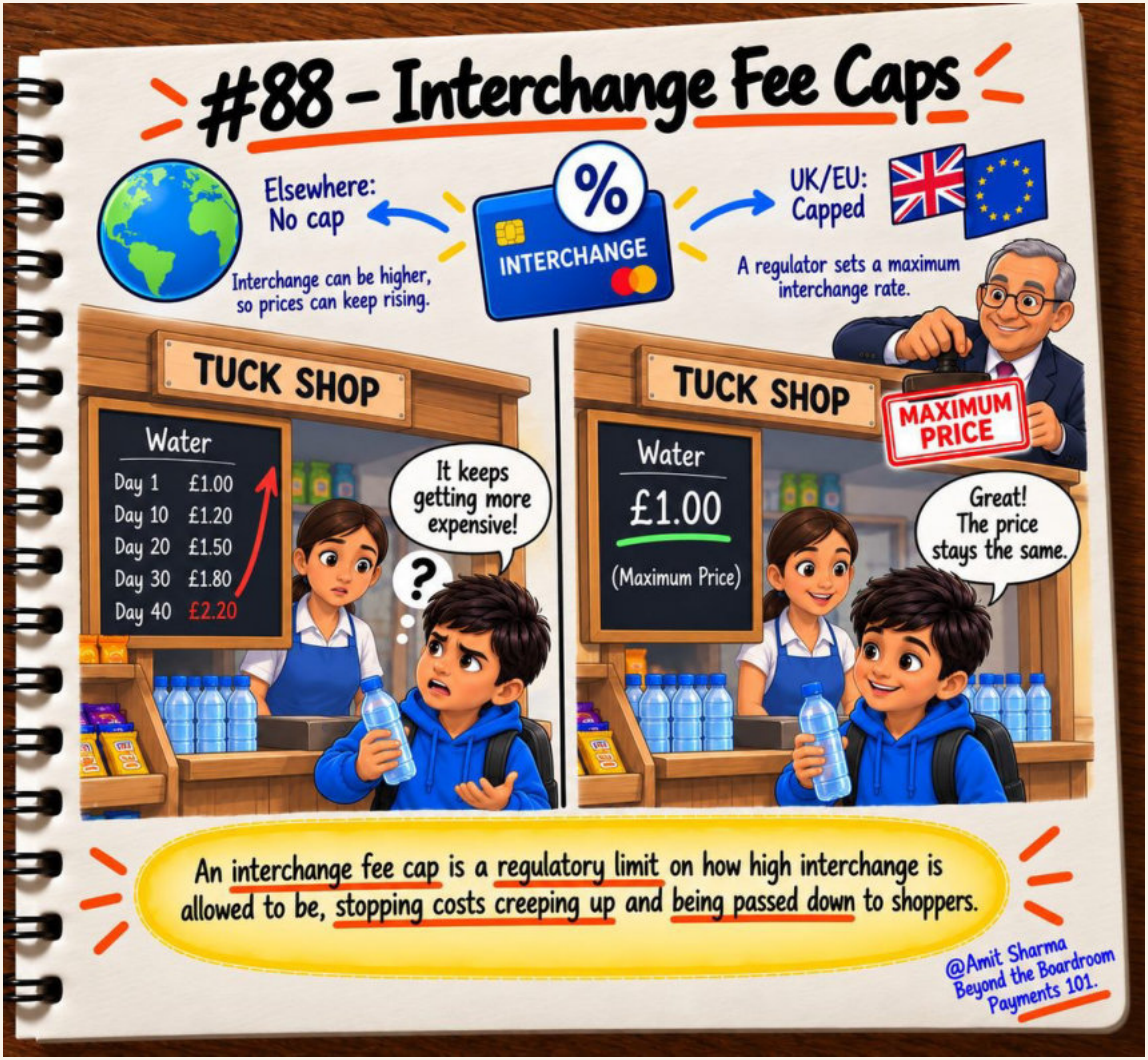
Before caps existed, interchange could be set quite high, with the cost often passed down to shoppers through higher prices. Regulators in the UK and EU stepped in, setting a maximum percentage interchange is allowed to reach.

It's a bit like a school capping how much the tuck shop can charge for a bottle of water, stopping prices creeping up just because they can.

Interchange fee caps don't apply everywhere, some countries still leave interchange largely uncapped, which is part of why card costs can look different from country to country.

An interchange fee cap is a regulatory limit on how high interchange is allowed to be, stopping costs creeping up and being passed down to shoppers.

#88 – Interchange Fee Caps



An interchange fee cap is a regulatory limit on how high interchange is allowed to be, stopping costs creeping up and being passed down to shoppers.

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#89 Consumer Duty

Consumer Duty is a UK rule that says financial companies have to actually put customers first, not just follow the letter of the rules, but genuinely act in their best interest.

Before Consumer Duty, a company could sometimes tick every box on paper while still treating customers poorly, confusing pricing, unclear terms, products that weren't really right for the person buying them. Consumer Duty raised the bar, requiring companies to think about real customer outcomes, not just compliance.

It covers things like making sure products are actually good value, that customers understand what they're signing up for, and that companies genuinely support customers when something goes wrong, rather than making it difficult on purpose.

It's a bit like a coach who doesn't just follow the training plan on paper, but actually checks in on whether each player is improving, understanding, and doing okay, not just ticking off drills.

Consumer Duty is a UK rule requiring financial companies to genuinely act in customers' best interest, not just technically follow the rules.

#89 - Consumer Duty



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#90 Financial Inclusion Regulation

Financial inclusion means everyone having fair access to basic banking, a bank account, a way to get paid, a safe way to save money, no matter their situation.

Not everyone finds this easy though. Some people struggle to prove their identity in the usual way, don't have a fixed address, or simply can't meet the checks a bank normally asks for. Financial inclusion regulation exists to make sure the system doesn't leave these people behind, pushing banks and companies to still find fair ways to serve them, rather than just turning them away.

A basic bank account is one example, a simple account with no fees and no overdraft, specifically designed so almost anyone can access basic banking, even if a full, feature-packed account isn't available to them yet.

It's a bit like making sure a school trip includes options for every student, not just the ones who can easily afford the priciest version, so nobody gets left out entirely.

Financial inclusion means everyone having fair access to basic banking, and financial inclusion regulation makes sure banks and companies find fair ways to serve people who'd otherwise be left out.

#90 – Financial Inclusion Regulation



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#91 Blockchain Basics

Imagine a class group chat with 30 people in it. Everyone can see every message, and everyone has their own copy of the whole conversation on their own phone. Nobody's in charge of the "real" version, your copy and everyone else's copy just match.

Now imagine someone tried to change a message they sent earlier. It wouldn't work, because 29 other phones still have the original message sitting right there as the source of truth.

A blockchain works the same way, but instead of messages, it's a list of transactions. Imagine sending someone £2,000. If that was just written down in one place, say, on one piece of paper, someone could later come along and say, "No, it was only £200," and it would be really hard to prove otherwise. One record, easy to argue with, easy to fake.

A blockchain solves this by not trusting just one record at all. Instead, thousands of computers around the world each keep their own copy of that same transaction. So if anyone later tried to say it was a different amount, all those thousands of computers would disagree straight away, because they all show the same thing.

To fake it, someone wouldn't just need to change one record, they'd need to somehow change thousands of copies, held by different computers all over the world, all at the exact same time. That's what makes it so hard to cheat.

Each new transaction gets bundled into something called a block, and every block links onto the one before it, forming a chain, which is where the name blockchain comes from.

A blockchain is like a digital notebook recording transactions and assets, copied across thousands of computers within a network, providing a single source of truth.

#91 - Blockchain Basics





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#92 Cryptocurrency

Imagine paying someone in chocolates, or stickers, instead of pounds. Everyone agrees chocolates are worth something, but no bank or government is behind them, deciding how many exist, or guaranteeing their value.

Cryptocurrency is a bit like that, but digital. It's a type of money that isn't controlled by any bank or government at all. Instead, it runs on a blockchain, thousands of computers keeping track of who owns what, together.

Bitcoin was the first and most famous cryptocurrency, but there are now thousands of others, each with its own rules about how many coins can ever exist.

Because no bank or government controls it, cryptocurrency's value can swing wildly, sometimes doubling in weeks, sometimes crashing just as fast, decided purely by what people are willing to pay for it.

Cryptocurrency is digital money that runs on a blockchain, controlled by no single bank or government, with a value that can rise and fall dramatically based purely on what people are willing to pay for it.

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#93 Stablecoin

Cryptocurrency can swing wildly in value, doubling one month, crashing the next. A stablecoin is a type of cryptocurrency built specifically to avoid that, designed to stay steady, usually matched closely to a real currency like the pound or the dollar.

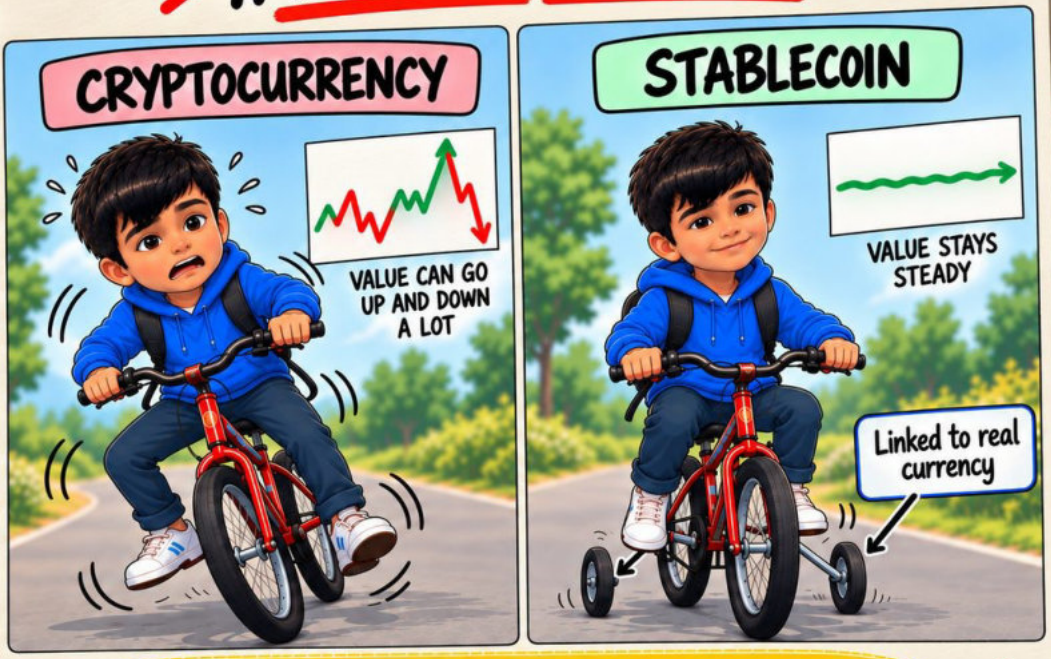
It still runs on a blockchain, just like other cryptocurrency, thousands of computers keeping track of who owns what. The difference is what's backing its value, and the effort put into keeping that value from swinging around.

It's a bit like the difference between a wobbly bike with no stabilisers, and one with stabilisers fitted, both are still bikes, but one is built to stay a lot steadier. For a stablecoin, its link to a real currency is the stabiliser, keeping it steady.

Stablecoins are useful because they let people use blockchain-based money for everyday spending or saving, without worrying that its value might crash suddenly.

A stablecoin is a type of cryptocurrency designed to stay steady in value, usually matched closely to a real currency like the pound or dollar, unlike other cryptocurrency, which can swing wildly.

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#94 Fiat-Backed vs. Algorithmic Stablecoins

There are different types of stablecoin, fiat-backed and algorithmic, and they work in very different ways.

A fiat-backed stablecoin is the simpler one. For every stablecoin issued, a real pound or dollar is held in reserve, untouched. One coin, one real pound behind it.

An algorithmic stablecoin has no real money behind it at all. Instead, it uses code, automatically creating or destroying coins to try to keep the price steady, purely through maths, not anything physical.

That maths can break under pressure though. If enough people lose confidence and try to sell at once, the price can crash fast, with nothing solid behind it to stop the fall. Several algorithmic stablecoins have collapsed this way, losing almost all their value within days.

It's a bit like a bike with real metal stabilisers bolted on, versus a bike with imaginary stabilisers created by a clever computer program, one has something solid holding it up, the other relies on the system working perfectly, every time.

A fiat-backed stablecoin holds real currency in reserve for every coin issued, while an algorithmic stablecoin relies purely on code to stay steady.

#94 – Fiat-Backed vs. Algorithmic Stablecoins





A fiat-backed stablecoin holds real currency in reserve for every coin issued, while an algorithmic stablecoin relies purely on code to stay steady.

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#95 CBDC (Central Bank Digital Currency)

A CBDC is digital money issued directly by a country's central bank, not a company, not a bank, the central bank itself, the same institution that already controls a country's physical cash.

Right now, when you hold pounds in your bank account, you're actually trusting your bank, not the Bank of England directly. A CBDC would be different, it's digital money issued and backed directly by the central bank itself, the same way a physical pound coin or note is.

Several countries are exploring or testing their own CBDC, including the UK, which has been looking into something nicknamed the "digital pound." None of this replaces cash, it's designed to exist alongside it, giving people another option.

A CBDC still needs to move through the payments system just like any other money, banks, apps, and payment rails would all still play a role in actually letting people spend it day to day.

There are two types, a retail CBDC is for the public to spend directly, like a digital version of cash. A wholesale CBDC is only for banks, used to settle large payments between themselves, never touched by ordinary people.

A CBDC is digital money issued directly by a central bank, rather than a regular bank or company, designed to exist alongside cash, not replace it.

#95 - CBDC (Central Bank Digital Currency)



ISSUED BY THE CENTRAL BANK

RETAIL
for the public





Exists alongside cash, not instead of it.

WHOLESALE
banks only



For banks settling between themselves.

A CBDC is digital money issued directly by a central bank, rather than a regular bank or company, designed to exist alongside cash, not replace it.

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#96 Tokenized Deposits

A tokenized deposit is ordinary money you already have in your bank account, pounds sitting in your normal account, represented on a blockchain instead of just sitting in your bank's regular system.

It's still the exact same money, still your bank holding it, still protected the same way a normal deposit would be. The only difference is that a digital token exists on a blockchain representing that money, letting it move and settle using blockchain- style speed and technology.

This is different from a stablecoin or a CBDC, a stablecoin is usually issued by a private company, and a CBDC comes directly from a central bank. A tokenized deposit is neither, it's simply your everyday bank money, given a blockchain-based digital form.

Banks are interested in tokenized deposits because they could make moving large amounts of money between banks faster and smoother, without changing who's actually holding the money, or how safe it is.

A tokenized deposit is ordinary bank money represented on a blockchain, still held and protected by your bank the same way, just given a faster, more flexible digital form.

#96 - Tokenized Deposits

STABLECOIN



Issued by a private company.

CBDC



Issued by the central bank.

TOKENIZED DEPOSIT



Still your money.
Still your bank.
Just a digital token form.

Issued by your own bank.

A tokenized deposit is ordinary bank money represented on a blockchain, still held and protected by your bank the same way, just given a faster, more flexible digital form.

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#97 Smart Contracts In Payments

A smart contract is a set of instructions written into a blockchain that automatically carries out a payment when certain conditions are met, no person needed to step in and manually approve it.

Imagine agreeing with a friend, "if it rains on Saturday, you owe me £5." Normally, someone has to remember, check the weather, and actually hand over the money. A smart contract does all of that automatically, checking the condition itself, and instantly sending the money the moment it's true, no reminder needed, no person deciding in the moment.

It works because the instructions are written directly into the blockchain, once it's set up, it runs exactly as programmed, without anyone able to change their mind or quietly back out.

This is useful in payments because it removes the need to trust a person to follow through. The code itself guarantees it happens, instead of relying on someone's word.

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#97 - Smart Contracts In Payments





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#98 DeFi

DeFi stands for Decentralised Finance. It's a whole different way of doing banking, lending, borrowing, trading, saving, but built directly on a blockchain, with no bank involved at all.

Normally, banks and other companies sit in the middle of financial services, deciding who can use them, and taking a cut along the way. DeFi removes all of that. It runs entirely on public blockchains instead, open for anyone to use directly.

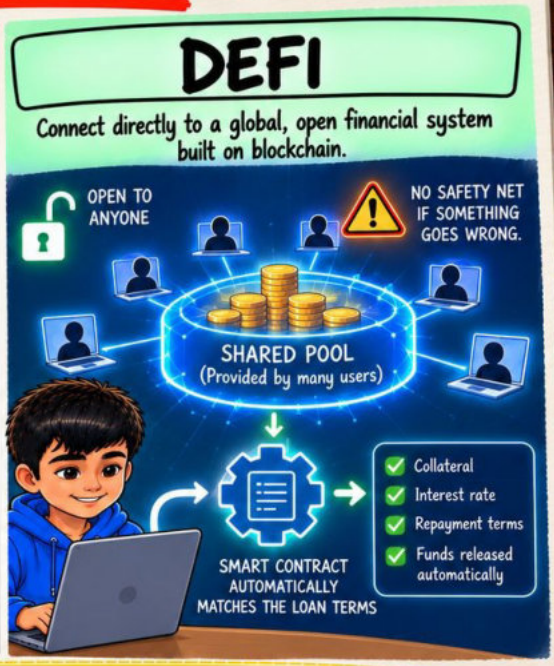
The money still has to come from somewhere though. In a normal bank, other customers' deposits are what get lent out. DeFi works in a similar way, other users lock their own cryptocurrency into a shared pool, and that pooled money is what gets lent out, with code handling the matching and terms automatically, instead of a bank.

Because there's no bank checking who you are, DeFi is open to almost anyone with an internet connection. But that same openness means far less protection, no regulation, no one to complain to, and no safety net if something goes wrong.

DeFi is a whole financial system, lending, borrowing, saving, and trading, built directly on a blockchain instead of through banks, offering open access but far less protection if something goes wrong.

#98 – DeFi





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#99 Programmable Money

Programmable money is money that has rules built directly into it, so it behaves in a certain way automatically, without anyone needing to check or approve anything by hand.

Imagine pocket money that could only ever be spent on books, automatically, with no way to use it on anything else, not because anyone's watching, but because the money itself is built that way. That's the idea behind programmable money, the rules live inside the money, not in a person checking each time.

Smart contracts automatically carry out one single payment once a condition is met. Programmable money goes further than that, it's not just one payment triggered automatically, the rules travel with the money itself, everywhere it goes, however many times it's spent.

A government could issue money that can only be spent on specific things, like school supplies. A business could send money that only unlocks once a delivery is confirmed. The rules travel with the money, rather than needing a person to enforce them each time.

Programmable money is money with rules built directly into it, so it behaves automatically, spending only in the ways it's designed to, without needing a person to check or approve it each time.

#99 – Programmable Money







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#100 Agentic Commerce (AI Agents Making Payments)

Every payment depends on knowing who's actually authorising it, normally that's simple, it's you, tapping your card or pressing send yourself. Agentic commerce changes that, it's when an AI agent makes a payment on your behalf, without you pressing anything in the moment at all.

Imagine telling an AI assistant, "book me the cheapest flight to Delhi under £400," and it goes off, searches, finds one, and actually pays for it itself, no further approval needed from you at that exact moment.

For this to work safely, the agent needs a way to prove it's genuinely allowed to act on your behalf, a kind of digital identity, so a bank or shop can trust that this payment, made by an AI rather than a person, is still genuinely authorised by you.

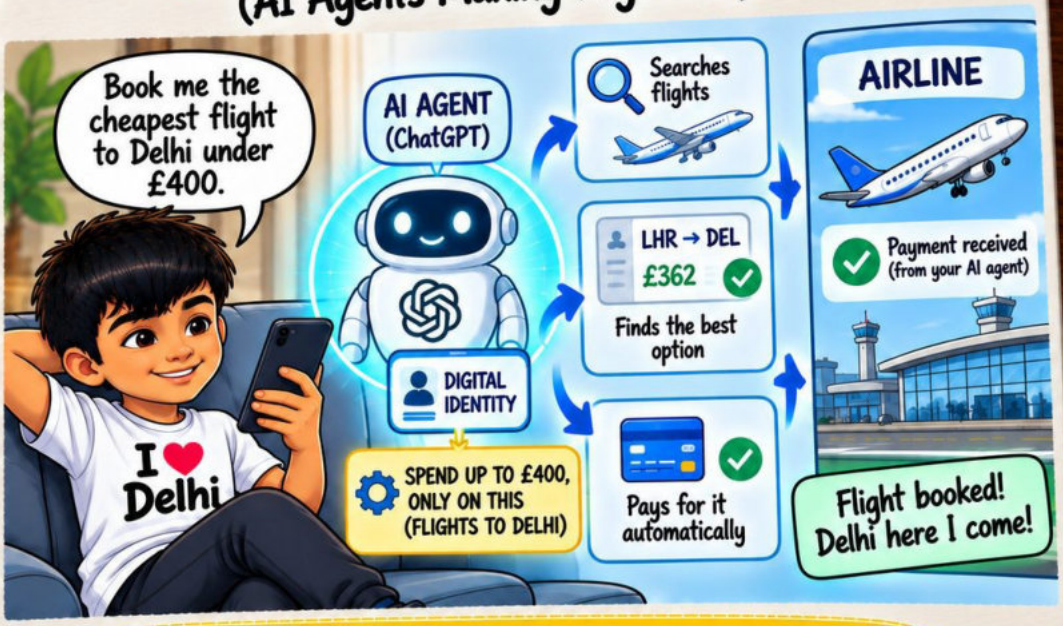
It's a bit like giving a trusted assistant your card and clear instructions, "spend up to this much, only on this," except here, the assistant is an AI, and the rules it follows are set in advance, rather than decided in the moment.

This is still a very early idea in payments, but it's growing fast, as AI agents start handling more everyday tasks, more payments are likely to happen this way too, decided and executed by an agent, not a person, in the moment.

Agentic commerce is when an AI agent makes a payment on your behalf, using a trusted digital identity to prove it's genuinely authorised, rather than you approving each payment yourself in the moment.

#100 - Agentic Commerce

(AI Agents Making Payments)



Agentic commerce is when an AI agent makes a payment on your behalf, using a trusted digital identity to prove it's genuinely authorised, rather than you approving each payment yourself in the moment.

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#101 Interoperability: The Future Of Money Across Rails

Money can take so many different forms, and move in so many different ways, cards, bank transfers, blockchains, each one built separately, often not talking to each other at all. Interoperability is about fixing that, making all these different systems work together properly.

Right now, sending money from a bank account to a cryptocurrency wallet, or from one country's instant payment system to another's, often means going through several extra steps, conversions, and delays, simply because the two systems weren't built to talk to each other directly.

Interoperability means building bridges between these different rails, so money can move smoothly between them, a bank transfer connecting easily to a blockchain, one country's system linking cleanly to another's, without needing a dozen extra steps in between.

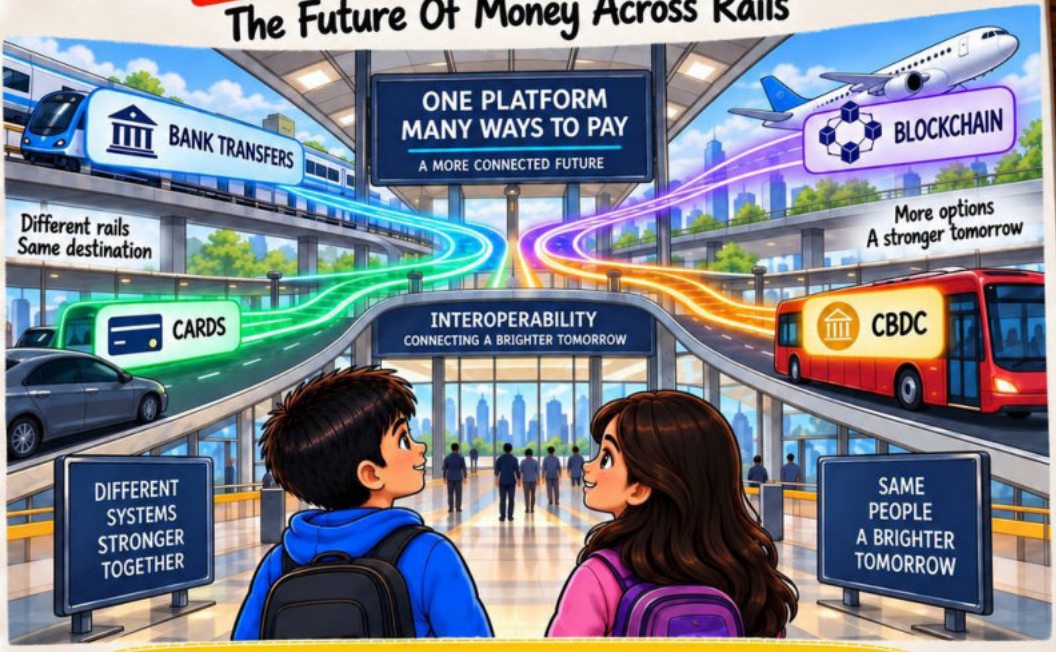
It's a bit like train, bus, plane, and road networks all being connected through one shared platform, instead of having to get off a train, cross town, and figure out a completely different system just to continue your journey, everything simply connects.

This matters because the future of money isn't likely to be just one single system, it's cards, bank transfers, blockchains, CBDCs, and whatever comes next, all existing at once. Interoperability is what determines whether all of that works together smoothly, or stays stuck in separate, disconnected pieces.

Interoperability means building bridges between different payment systems, cards, bank transfers, blockchains, and more, so money can move smoothly between them, rather than staying stuck in separate, disconnected systems.

#101 – Interoperability:

The Future Of Money Across Rails



Interoperability means building bridges between different payment systems, cards, bank transfers, blockchains, and more, so money can move smoothly between them, rather than staying stuck in separate, disconnected systems.

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101 Down. 0 To Go.

That's it. All 101 concepts, from what a payment actually is, right through to AI agents making payments on your behalf, to interoperability and the future of payments.

If you read this front to back, well done, that's not a small thing to sit through. And if you skipped around and only read the bits you needed, that's exactly how this book was meant to be used.

Payments will keep changing. New rails, new regulation, new ways to move money that don't exist yet. But the basics in this book, what a payment is, how it actually moves, who's involved behind the scenes, those don't really go out of date. They're the foundation everything else gets built on.

If this helped you understand something you were struggling with, that was the whole point. Pass it on to someone who might feel the same way.

Thanks for reading and I would love to have your comments and feedback on this.

Amit Sharma

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