



UNIVERSITY *of* NICOSIA

Department of Digital Innovation

MSc in Blockchain and Digital Currency

BLOC 526 - Emerging topics in fintech

Session 7 - Payments and Open Banking

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# Learning objectives and expected learning outcomes

## Summary

Session 7 introduces the financial payments' environment, as the basis for understanding the implications and opportunities from the EU's Payment Services Directive 2. Payments is the space where most fintech activity has been focused on, requiring a critical understanding of the environment where disruptive activity is centred. This session builds up specifically on the payments business model identified in session 3.

## Learning objectives

- Understand how payments work in the retail, wholesale and interbank space
- Develop a picture of the participants in the payments ecosystem
- Provide an introductory overview to the EU's Payment Services Directive 2

## Expected learning outcomes

- Develop an understanding of the financial payments' environment
- Understand the EU's Payment Services Directive 2 and its implications for the payments ecosystem
- Understand the difference between PIS and AIS and their prospects for fintech activity

# Agenda

- Introduction and recap
- Introduction to payments
- The EU Payments Services Directive 2 (PSD2)
- From PSD2 to Open Banking
- Concluding remarks

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## Takeaways from previous session (rephrased)

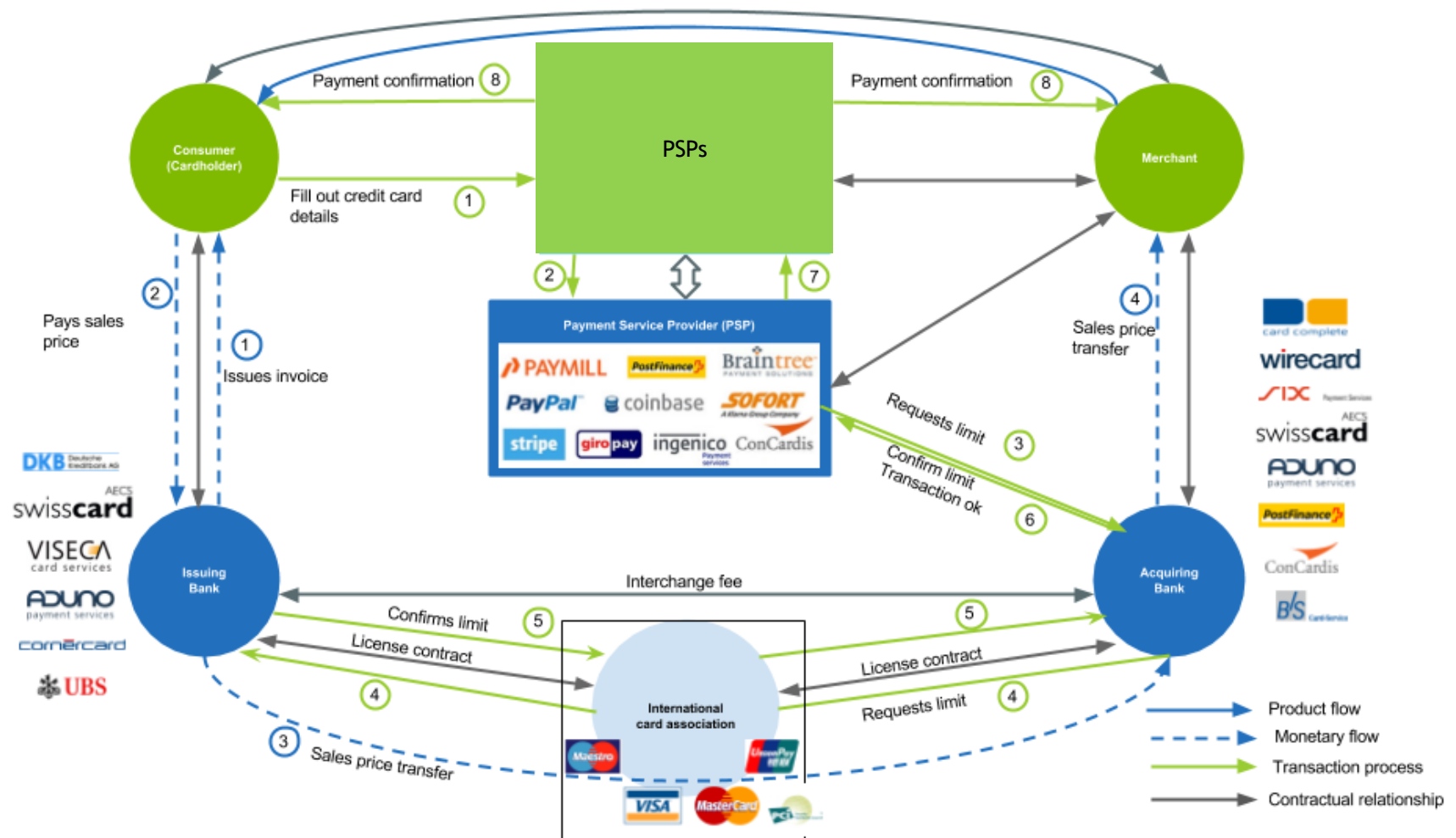
**1. Banking is necessary; banks are not**

- A world of banking without banks is now imaginable
- Banking services can be performed by technology firms
- Customer information is (currently) the biggest barrier to entry

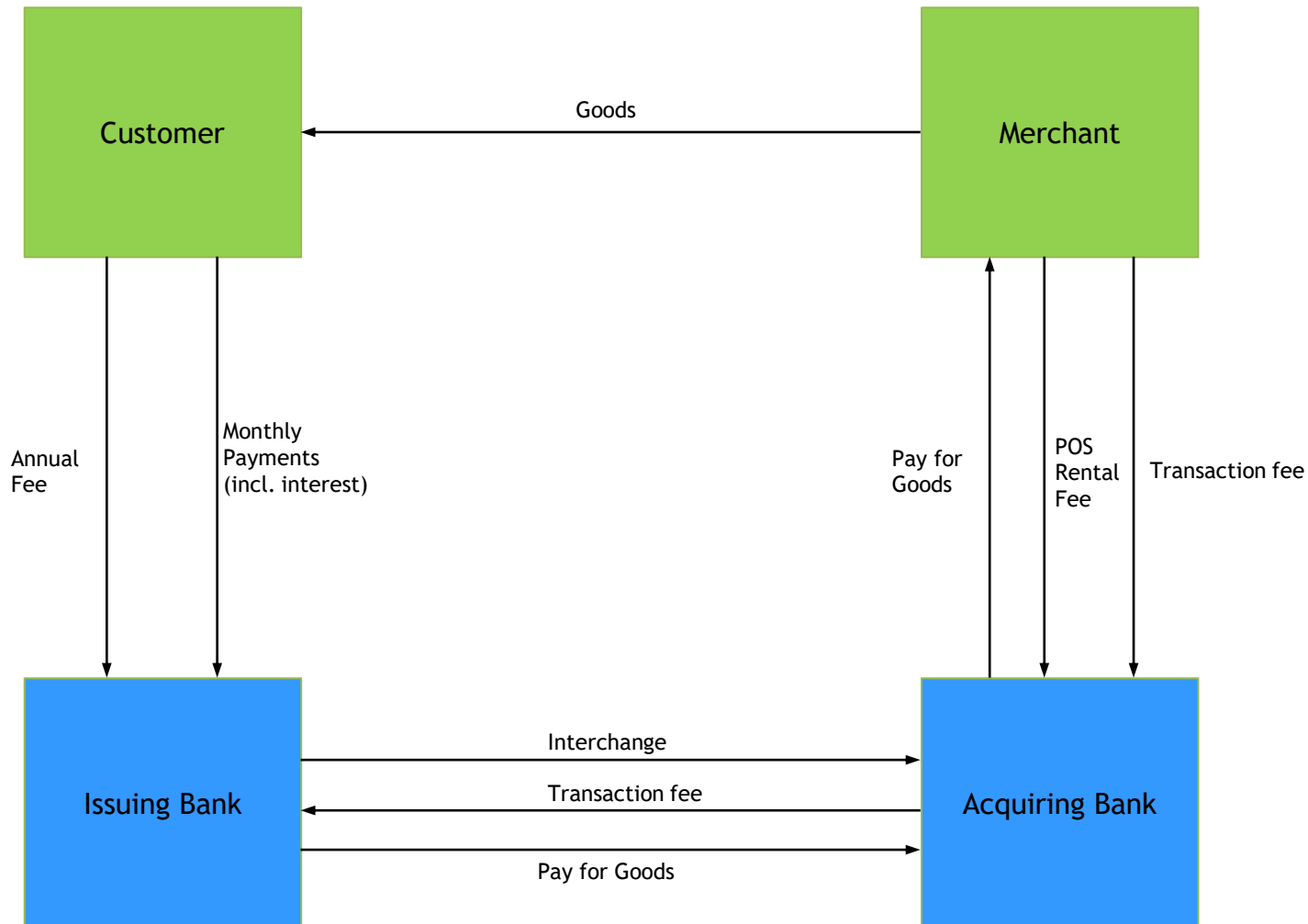
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# The payments ecosystem is quite complex, with several parties involved



# The ecosystem can be simplified in what is commonly known as the four party payments model





# In a complex ecosystem there are also several complex terms

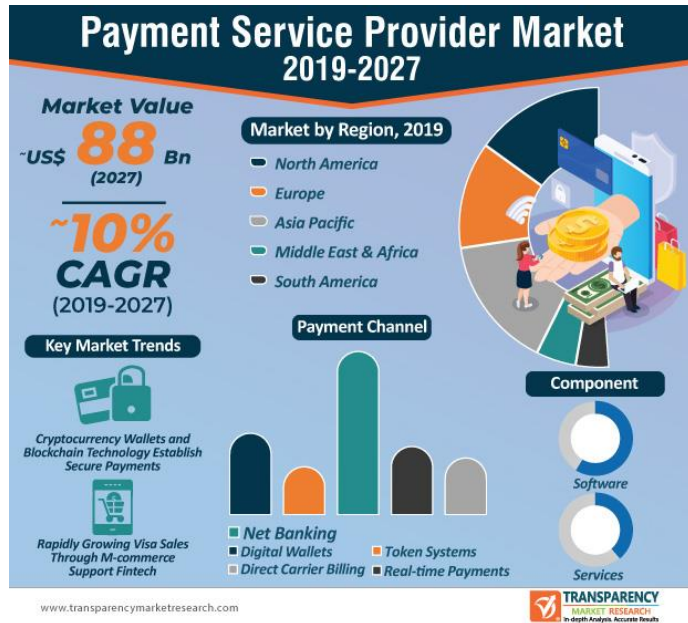
| Term  | Description   |
|---|---|
| Payment gateway   | A service that helps merchants initiate ecommerce, in-app, and point of sale payments for a broad variety of payment methods. The gateway is not directly involved in the money flow; typically it is a web server to which a merchant's website or POS system is connected. It often connects several acquiring banks and payment methods under one system.                                |
| Payment processor   | A system that connects to a shopper's bank and a merchant's bank in order to make a payment transaction on behalf of a merchant. Usually, a payment processor obtains the payment information from a payment gateway.   |
| Payment Service Provider (PSP)/<br>Payment aggregators/<br>Merchant aggregators | A company that combines the functions of both a payment gateway and a payment processor, and can connect to multiple acquiring and payment networks. Also known as payment aggregator/ Merchant aggregator. An aggregator will allow a merchant to accept card payments and bank transfers without having to set up a merchant account with a bank or credit card association.              |
| Point of sale (POS)   | A point of sale solution is the combination of hardware and software that lets a shopper purchase goods and services in a brick-and-mortar store.   |
| Card networks (or<br>card schemes)  | Though the largest card networks are Visa, Mastercard, American Express, Discover, and UnionPay, a card network is not the same as a credit card company. Card networks set the technical infrastructure and rules for payment processing, and they charge for the service.   |
| Chargeback  | When a shopper does not agree with a charge on a card, he or she can ask for a refund. If the merchant refuses, the shopper can ask her bank to raise a chargeback. This is the starting point of a dispute process to who is liable for the transaction, based on evidence presented by both parties. Reasons for a chargeback can include fraud, defective goods, or goods not delivered. |
| Interchange fee   | A fee paid by the merchant – through the acquiring bank and to the shopper's issuing bank – for each card-based transaction. The fee amount can depend on the card type, transaction value, and merchant category.  |
| Risk management<br>(fraud detection)  | A set of services and techniques to analyze and assign a risk score to each payment transaction. Filtering high-risk transactions allows merchants to minimize the number of fraudulent payments and therefore maximize the revenue. Performing accurate risk management is extremely complex and involves big data analysis.   |

Similarly to banking and insurance, payments is not a uniform business model but rather an amalgamation of several

|                        |   |   |   |  |   |   |   |   |
|------------------------|---|---|---|--|---|---|---|---|
| Acquirers / processors |    |    |    |    |    |    |    |    |
|                        |    |    |    |    |    |    |    |    |
| Card networks          |    |    |    |    |    |    |    |    |
|                        |    |    |    |    |    |    |    |    |
| Issuers                |    |    |    |    |    |    |    |    |
|                        |    |    |    |    |    |    |    |    |
| Gateways               |    |    |    |    |    |    |    |    |
|                        |    |    |    |    |    |    |    |    |
| ISOs / MSPs*           |    |    |    |    |    |    |    |    |
|                        |   |   |   |   |   |   |   |   |
| Noncard payments       |  |  |  |  |  |  |  |  |
|                        |  |  |  |  |  |  |  |  |

\* Independent Sales Organization (ISO); Member Service Provider (MSP)

# The Payment Service Provider Market is expected to grow tremendously over the following years



## Drivers of growth

- Rising adoption of smartphones and digital devices
- Rapid increase in financial inclusion specifically in developing countries
- Increasing competitiveness in the Fintech industry
- Strong network infrastructure and
- Increasing adoption of digital mode of payments such as wallets and token

## Market size and growth

- US\$ 40 Bn in 2019 out of a global payments market of \$1.9tr
- Expected to grow at a CAGR of ~10% to ~US\$88bn by 2027

## Geographic sources of growth

- Asia Pacific remains the dominant leader with market size of US\$ 12bn in year 2019
- Emerging markets - Asia Pacific and Middle East & Africa, followed by South America will continue to be the key drivers of growth



# The PSP market is large and fragmented

There are more than 900 payment providers in the world. More than 300 offer services for Europe and North America

## Handful of mega players (# 6)

| Name           | Est. Rev.        | HQ Location |
|----------------|------------------|-------------|
| Wirecard       | \$1B to \$10B    | Germany     |
| Ingenico Group | \$500M to \$1B   | France      |
| Adyen          | \$500M to \$1B   | Netherlands |
| Qliro Group    | \$500M to \$1B   | Sweden      |
| Klarna         | \$100M to \$500M | Sweden      |

## Few large sized players (# 6)

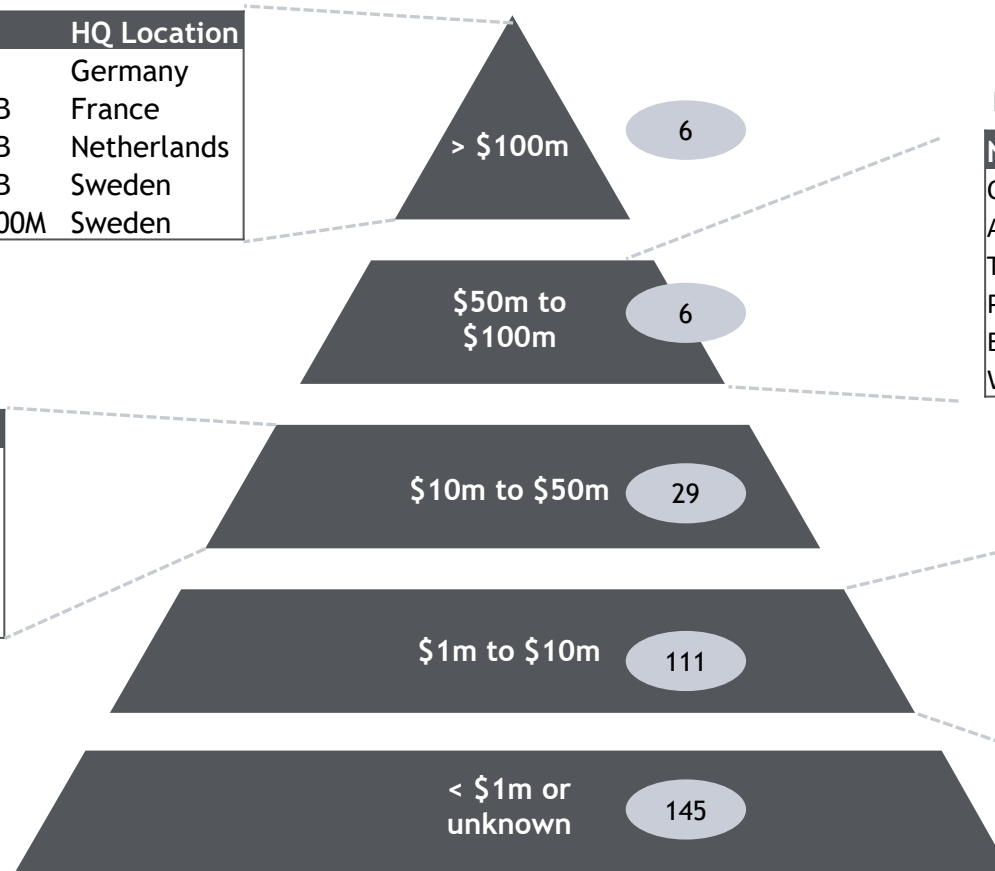
| Name           | HQ Location    |
|----------------|----------------|
| Checkout       | UK             |
| AfterPay       | Netherlands    |
| Trustly        | Sweden         |
| PaymentSense   | UK             |
| ECommPay       | UK             |
| W.A.G. payment | Czech Republic |

## Many medium players (~ 30)

| Name          | HQ Location |
|---------------|-------------|
| Currencycloud | UK          |
| Ebury         | UK          |
| Viva Wallet   | Spain       |
| CurrencyFair  | UK          |
| RatePAY       | UK          |

## Many small players (~ 110)

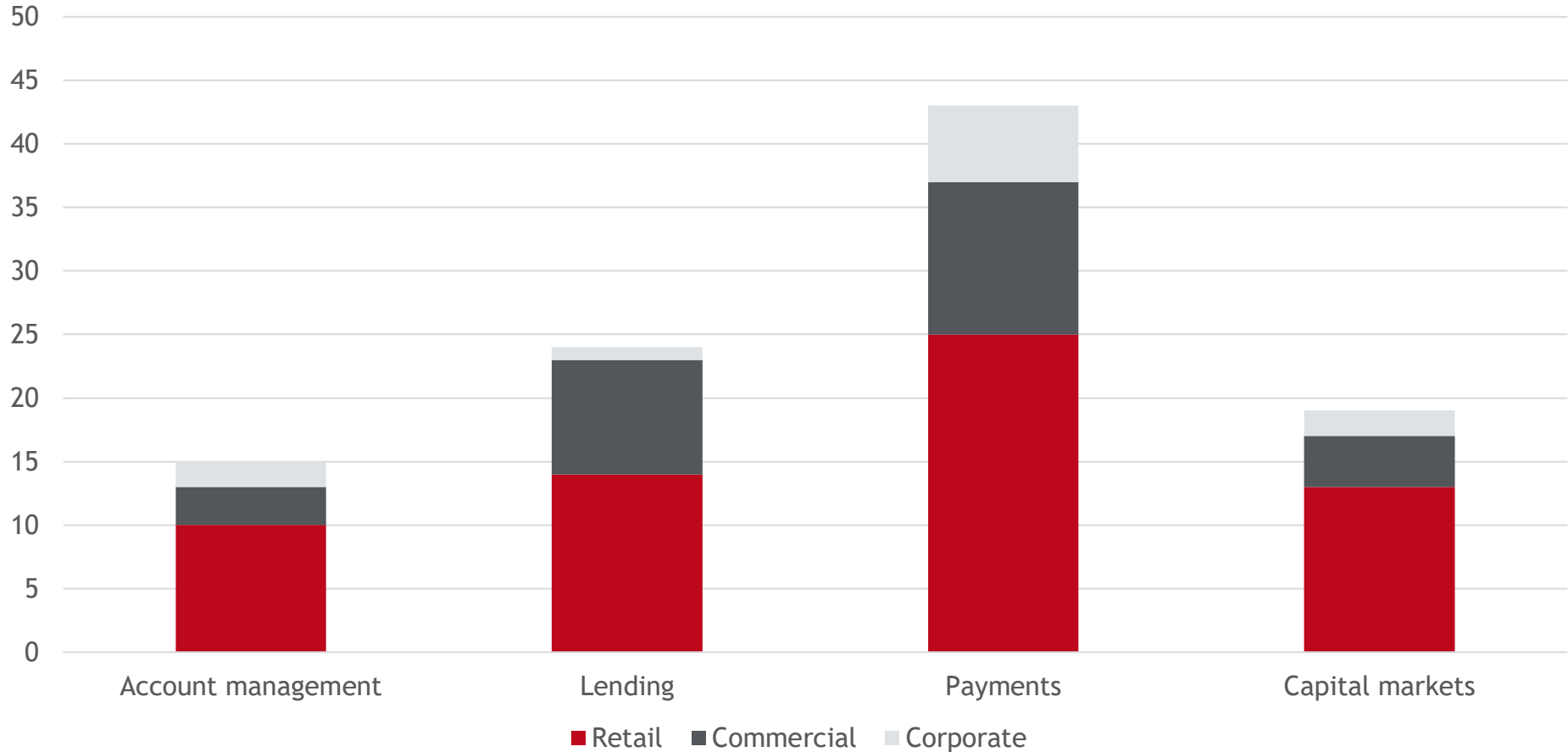
| Name     | HQ Location |
|----------|-------------|
| Soldo    | UK          |
| Mollie   | Netherlands |
| Form3    | UK          |
| Satispay | Italy       |
| Kantox   | UK          |



Number of PSPs in Europe by estimated revenues

# Unsurprisingly, payments is the biggest focus of fintech firms across all customer segments

Customer segments and products of leading fintechs (2015, % of total)



Source: McKinsey & Co.

# Takeaways

**1. The payments ecosystem is a core focus of fintech firms**

- Lighter regulation, heavy reliance on technology and market growth make payments an attractive segment for fintechs

“If you think nobody cares if you are alive, try missing a couple of car payments”

Earl Wilson

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# The 2<sup>nd</sup> European Payment Services Directive (PSD2) was a watershed moment for the payments industry

## DIRECTIVE (EU) 2015/2366 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 25 November 2015

on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No 1093/2010, and repealing Directive 2007/64/EC

### PSD2 Objectives

#### Enhance competition

- Allows new players to access customers' payment accounts
- New players are registered, licensed and regulated at EU level
- Removes barriers for new players, which should enhance competition and lower costs
- New players can make payments on behalf of clients and provide them with an overview of various payment accounts

#### Protect consumers

- Any accessing of customer accounts is only after explicit prior consent
- Strong Customer Authentication (SCA) is rendered necessary for all electronic transactions

#### (Facilitate innovation)

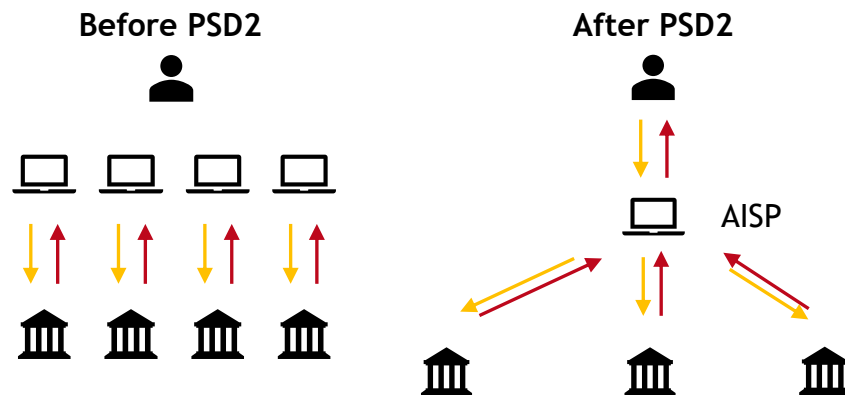
- Not an explicit objective, but probably one of the most important consequences...



# PSD 2 introduces two new types of ‘players’ to the payments landscape

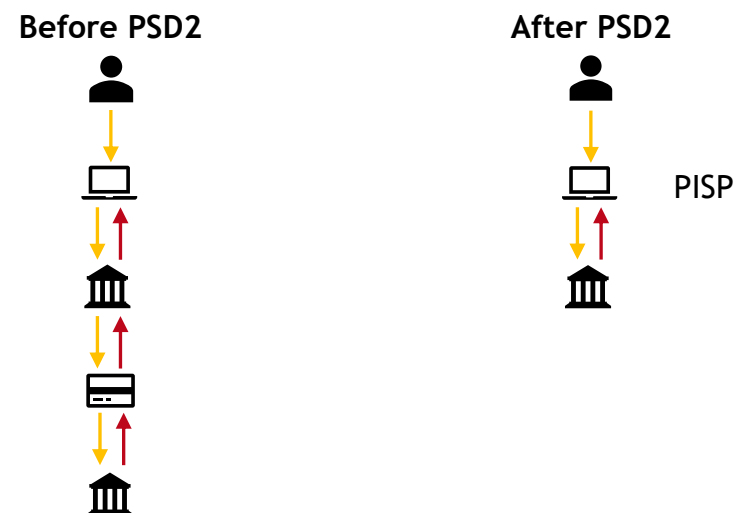
## Account Information Service Providers (AISPs)

- AISPs are the service providers with access to the account information of bank customers
- Such services could analyse a user’s spending behaviour or aggregate a user’s account information from several banks into one overview



## Payment Initiation Service Providers (PISPs)

- PISPs are the service providers initiating a payment on behalf of the user
- This solution involves fewer parties and does not require the customer to reveal its payment card details
- PSD2 creates a software “bridge” between the customer’s and the retailer’s accounts



**Banks no longer compete against banks only, but everyone else offering financial services. PSD II will fundamentally change the payments value chain, business model profitability & customer expectations**

# Takeaways

## 2. PSD2 constitutes a tectonic shift in the payments landscape

- EU-wide registered institutions can have access to customer information and initiate services on their behalf
- Banks are losing their monopoly on their customers' data

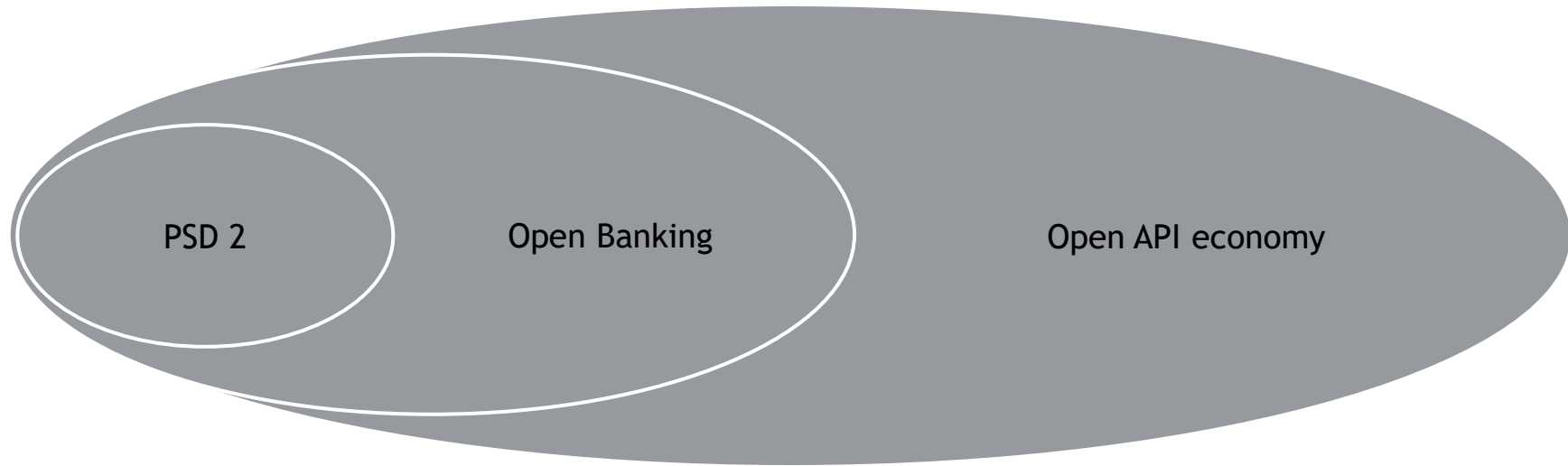
“The future of open banking will be fraught with false dawns, but will give rise to ‘better banking’ - just maybe not from the banks.”

David Brear, 11:FS

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# PSD2 can be understood as the stepping stone for Open Banking, if not for an Open API Economy



## PSD2

- PISPs
- AISPs

## Open Banking

“The sharing and leveraging of customer-permissioned data by banks with third party developers and firms to build applications and services”

## Open API economy

The set of business models and practices designed around the use of APIs

- E.g., Uber only became possible due to Google Maps’ open API

Source: Michael Salmony

# Open banking applications

## Account Aggregation

Account aggregation automatically collects financial information from accounts at different institutions (bank, credit card, investments, etc.) brings it to one place.

Checking / Current Account



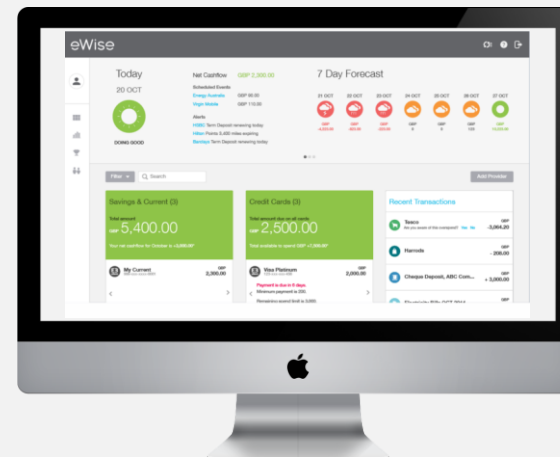
Credit Card Account



Investment Account

*charles* SCHWAB

Account Aggregator

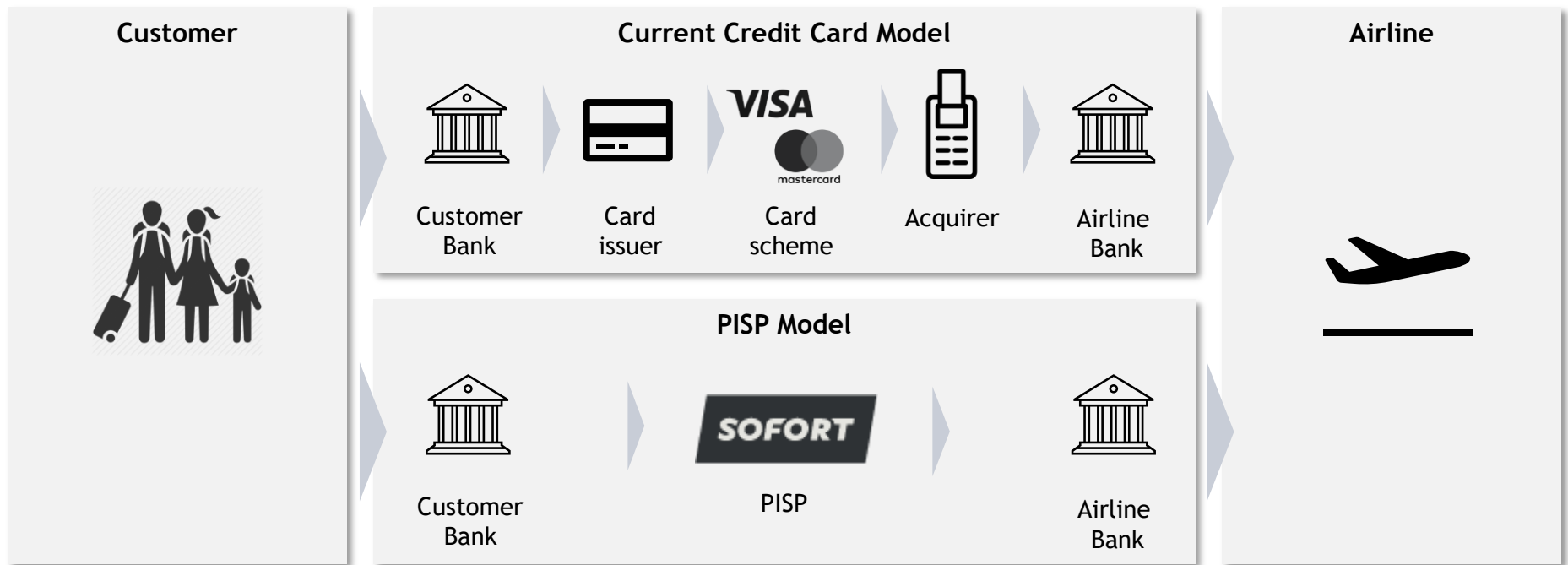


# Open banking applications

## Payment Initiation

A Payment Initiation Service Provider (PISP) lets you pay companies directly from your bank account rather than using your debit or credit card

Deutsche Bank is piloting a direct payment system for IATA (International Air Transport Association)

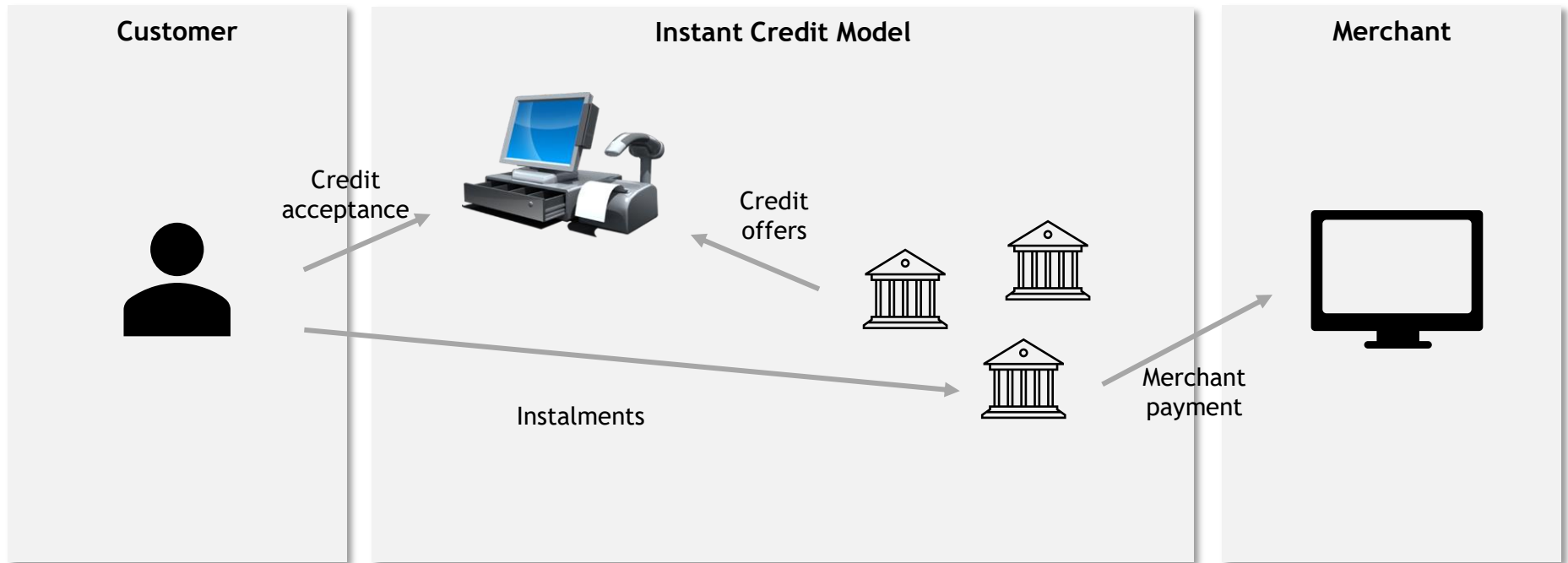


# Open banking applications

## *Instant Finance - multiple bids*

Using open banking data, multiple firms can extend instant credit at the Point of Sale (PoS) and the customer can choose the preferred lender

According to the Bank of England, average credit card interest in the UK was 21.49% in 2021...

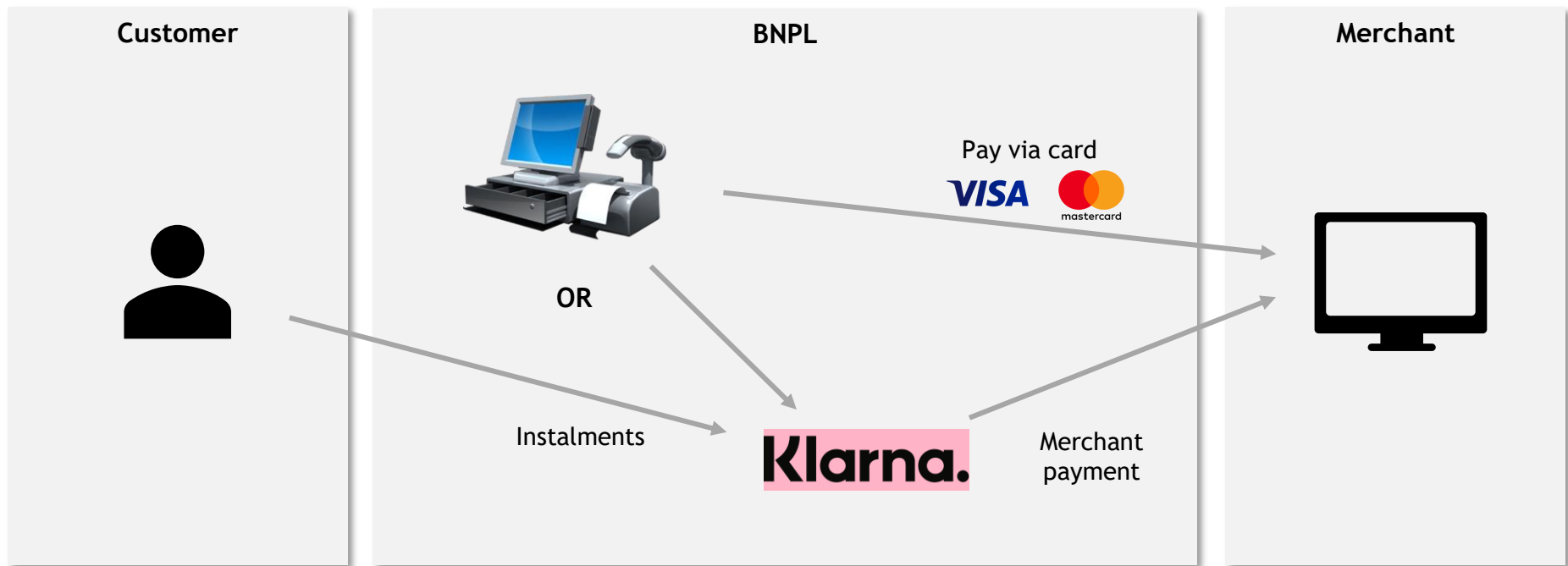


# Open banking applications

## *Instant Finance - interest free instalments (Buy Now Pay Later)*

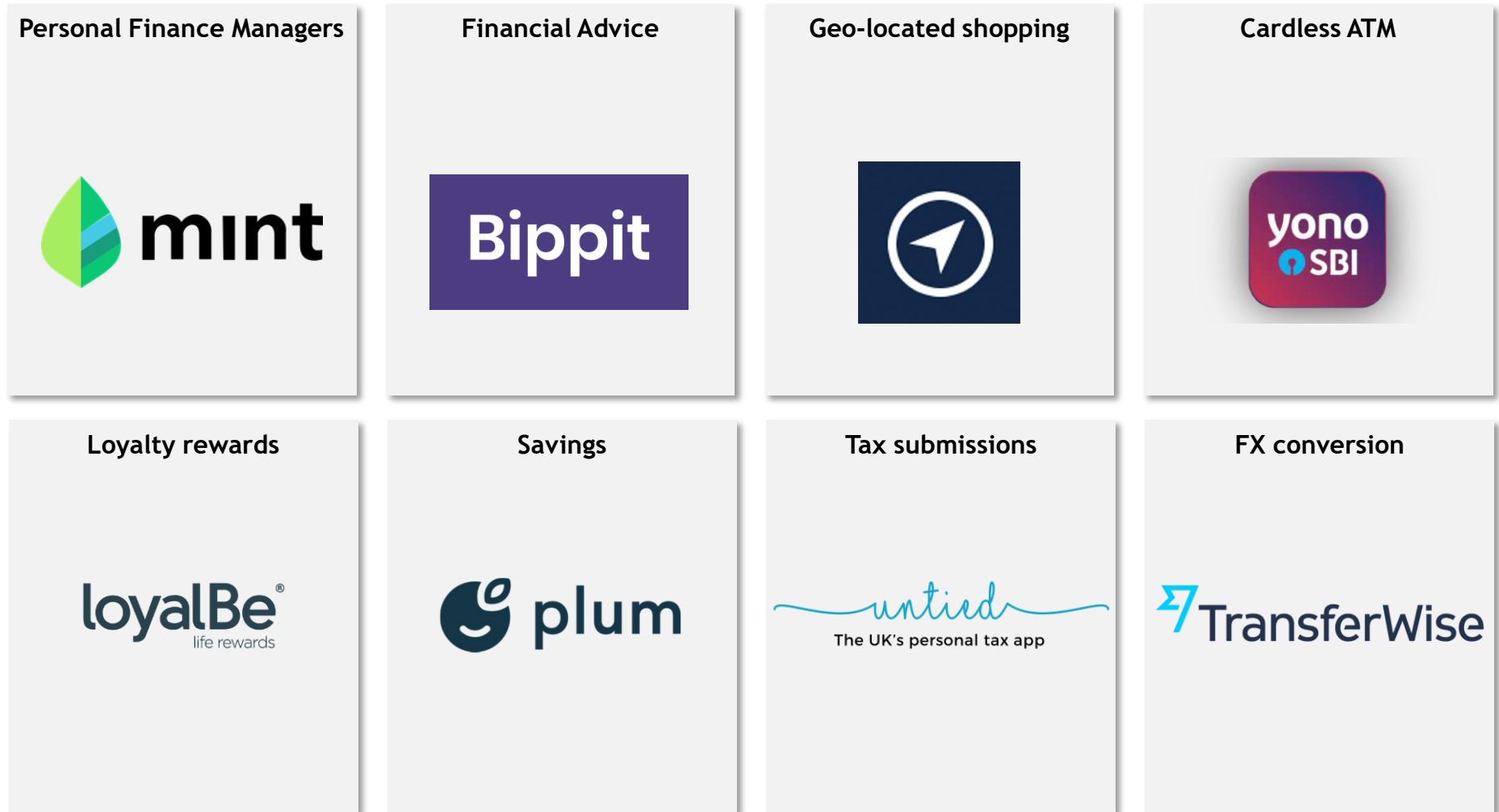
Using open banking data, firms can extend instant credit at the Point of Sale (PoS) with (interest free) instalments (Buy Now Pay Later - BNPL)

BNPL firms make money by charging the merchant a fee - merchants benefit due to increased sales





The list of potential open banking applications is rather long...



# Takeaways

## 3. Open Banking can transform our interaction with our money

- Using the foundations laid by PSD2, Open Banking offers options that are not tied to one's financial institution
- However, this does not come without potential pitfalls

“Ignoring technological change in a financial system based upon technology is like a mouse starving to death because someone moved their cheese”

Chris Skinner

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# Summary of takeaways

## 1. The payments ecosystem is a core focus of fintech firms

- Fragmentation, heavy reliance on technology and continuous growth make payments an attractive segment for fintechs

## 2. PSD2 constitutes a tectonic shift in the payments landscape

- EU-wide registered institutions can have access to customer information and initiate services on their behalf
- Banks are losing their monopoly on their customers' data

## 3. Open Banking can transform our interaction with our money

- Using the foundations laid by PSD2, Open Banking offers options that are not tied to one's financial institution
- However, this does not come without potential pitfalls

Any questions?

Q & A



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## Questions?

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