

Payments in Financial Services: Is Technology Enhancing Value?

By Chryssi Chorafa



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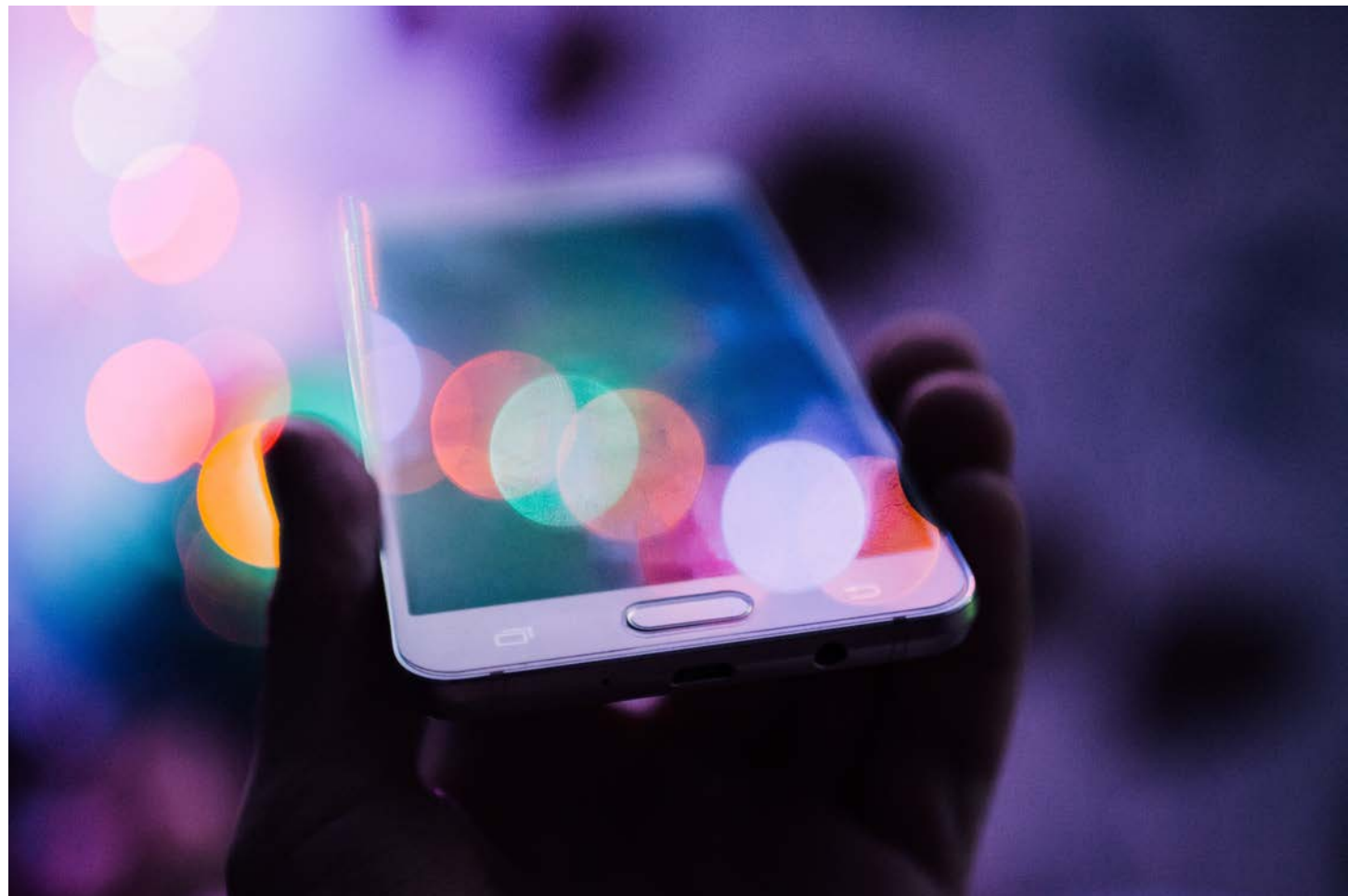


- Director (Founder and ex-CEO) of StarLiX
- Committee Member of BSI
- Mentor, SME and judge at FCA TechSprints
- COO at Kalgera
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- Industry Associate of UCL Centre of Blockchain Technologies
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Agenda

- Types of payments
- Stakeholders
- Payment flows
- Payment developments
- CBDC flows
- Payment risks
- Technology applications (good & bad)
- Technology risks
- Regulation
- Data privacy
- Business model evolution
- What we should keep in mind?



Types of payments

- **Cash:** physical coins and notes
- **Debit cards:** cards linked to bank accounts
- **Credit cards:** purchases on credit
- **Contactless payments**
- **Mobile payments:** Ali pay, Apple pay
- **Digital wallets:** Paypal

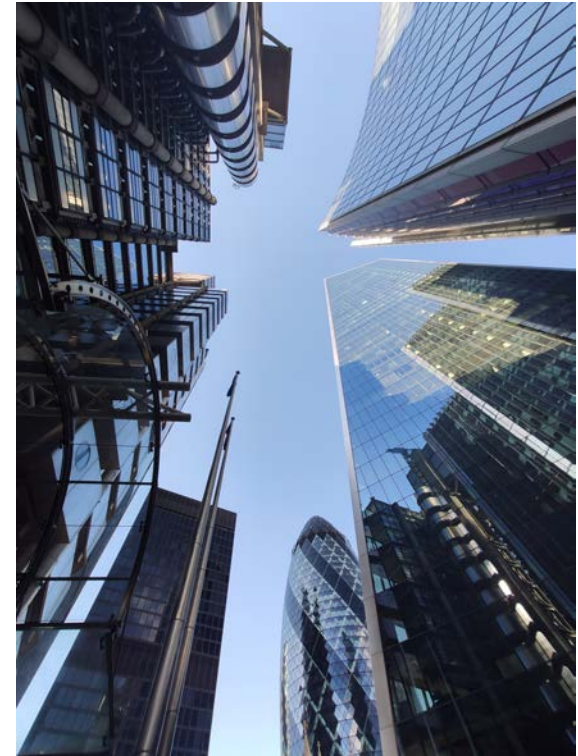


- **Intrabank transfers:** transfers between bank accounts
- **Interbank transfers:** transfers between two banks
- **Cash withdrawals:** ATM
- **Cash deposits:** to bank accounts
- **Loan repayments:** personal/business loans
- **Government fund transfer**

Stakeholders



- Senders
- Beneficiaries
- Banks
- Electronic Money Institutions
- Authorised Payment Institutions
- Card schemes
- Central Banks
- Regulatory Authorities



Example: Payment flows

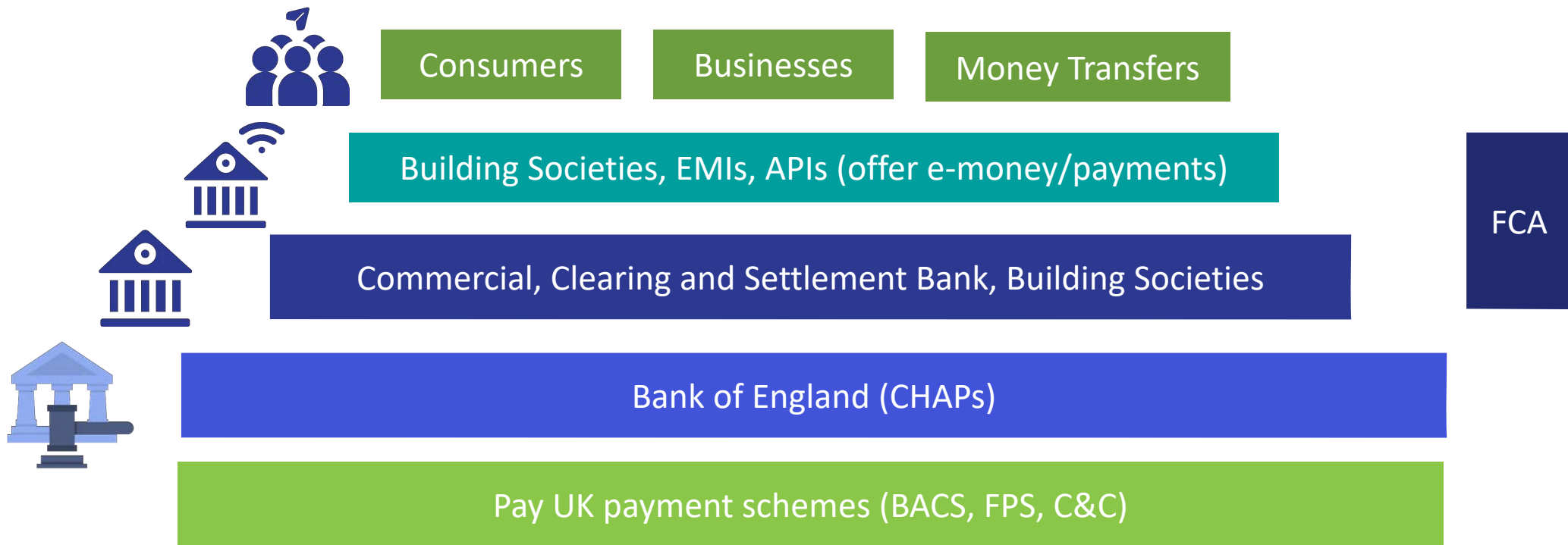
Interbank transfer



Intrabank transfer

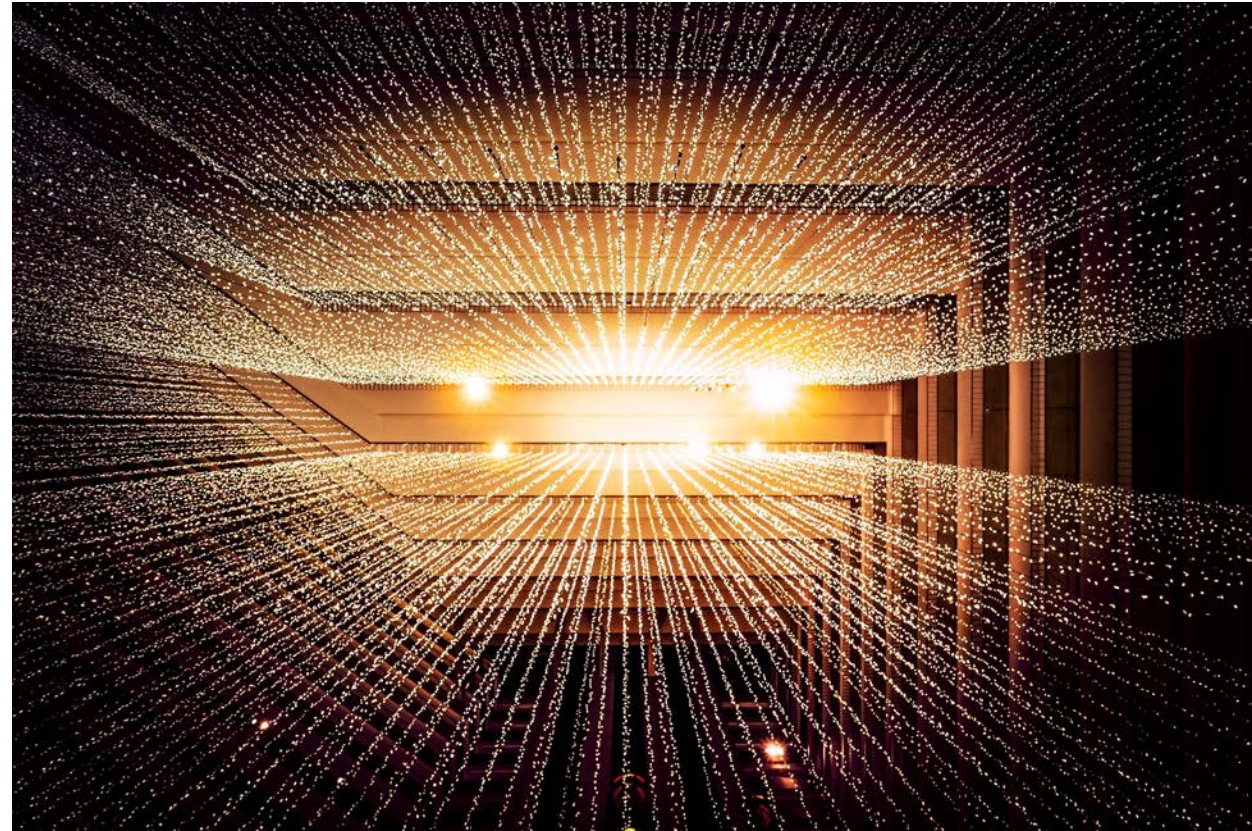


Payment stakeholder hierarchy



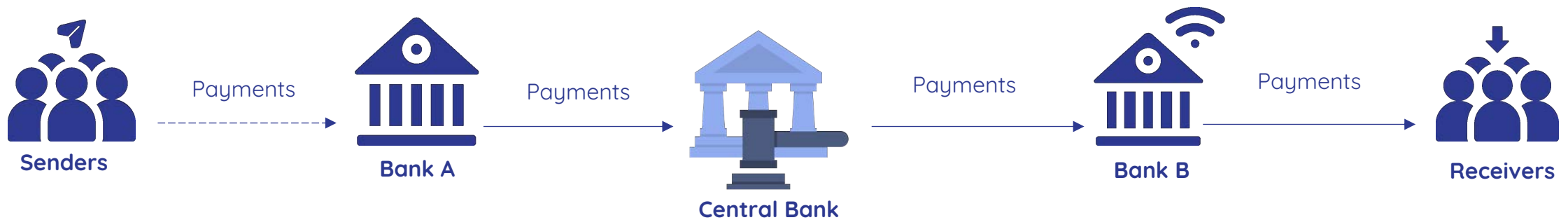
Payment developments

- **ISO 20022:** structured payment data to analyse, track, and achieve harmonisation
- **NPA:** clearing and settlement through a single central infrastructure
- **CBDC:** digital pounds replacing coins and notes to make payments
- **Stablecoins:** digital asset backed by an asset or basket of assets to make payments

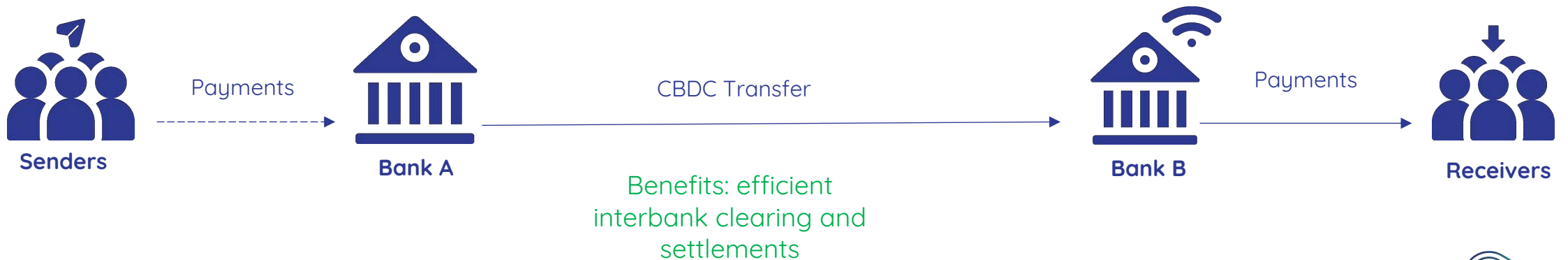


CBDC transaction flows

Interbank transfer



CBDC transfer



Payment related risks

- **Fraud:** Authorised Push Payment Fraud , phishing, romance scams and other
- **Security risks:** data breaches, cyber attacks and other
- **Operational risks:** system failures, system vulnerabilities, ICT incidents
- **Currency Exchange risks:** FX volatility
- **Counterparty risks:** counterparty default unable to fulfil payment obligations
- **Regulatory risks:** freezing of permissions, change of regulatory status
- **Liquidity risks:** insufficient funds, cashflow mismanagement
- **Reputation risks:** Money laundering, PEPs, sanctions, adverse media
- **Settlement risks:** delays in processing and settling transactions
- **Volatility risks:** lack of collateral value (stablecoins), cryptocurrencies



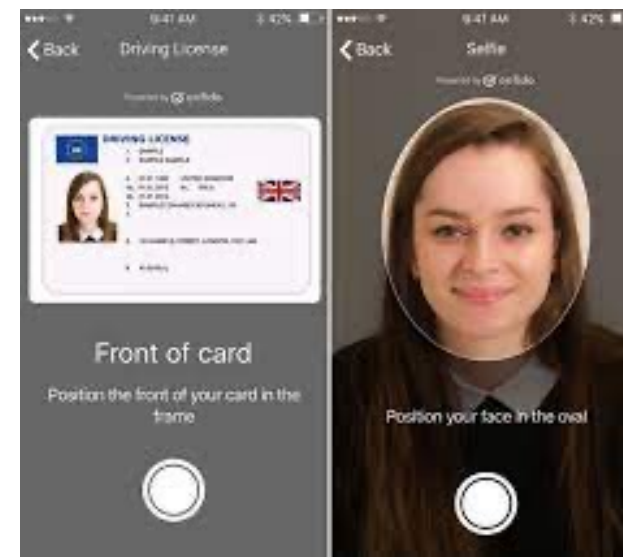
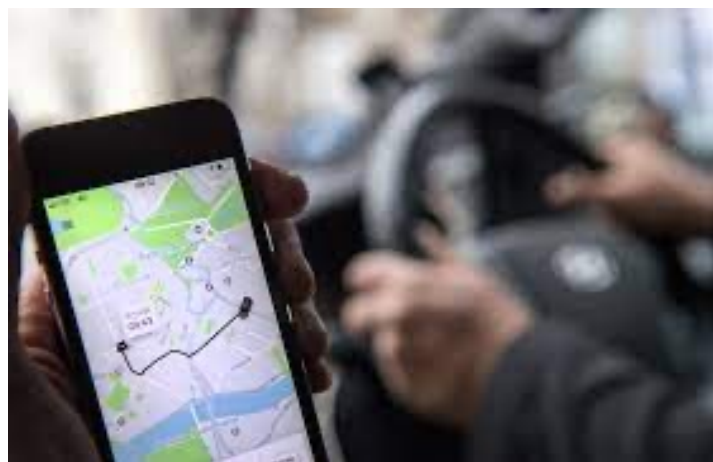
Technology

Technology has been transforming payments services to enhance:

- scalability
- flexibility
- efficiency

- **Data** – lead to the creation of algorithms to identify, detect, provide transactional insights
- **AI** – to identify and predict transactional patterns, fraudulent transactions, bad actors
- **APIs** – lead to interaction of multiple payment systems to automate processes and exchange information
- **Distributed ledgers** – new payment infrastructure for efficient interbank settlements
- **Cloud** – supporting payment platforms to enable businesses to scale

Applications of Technology in Payments



Applications of AI in Compliance



KYC: facial recognition - IDV



Voice recognition



Transaction monitoring

Flip the coin...it can be used by fraudsters



Deep fake



Deep voice fake scam



Cyber attacks

Technology risks

- **Financial crime:** use of AI to falsely impersonate a person
- **Lack of operational resilience:** system failures and vulnerabilities by third-parties
- **Lack of Vendor Security:** inadequate security measures in third-party payment service providers
- **Data breaches:** unauthorized access or theft of sensitive payment data
- **Social Engineering Attacks:** manipulation of individuals private and sensitive data
- **Unauthorised access:** breaches in authentication systems
- **Cyber attacks:** targeted attacks on payment systems such as ransomware
- **Insufficient encryption:** weak encryption of payment data
- **Smart Contract Risks:** vulnerabilities in smart-contracts



Ransomware attack on vendor causes outages at 60 credit unions

Dozens of US credit unions have been hit by outages following a ransomware attack on a cloud computing vendor.

Source: Finextra, 2023

Regulation

PSD3:

- enables payment service providers to share fraud-related information
- Improves transparency for consumers
- further levelling the playing field between banks and non-banks
- strengthens harmonisation and enforcement
- standardises customer data and technical interfaces

PSD3 and GDPR:

- possibility but no obligation for customers to share their data with data users
- full control by customers over who accesses their data and for what purpose

Consumer Duty:

- deliver good outcomes (products, services, price, value, customer support) for retail customers
- consider the needs, characteristics and objectives of their customers

JMLSG: comply with UK anti money laundering (AML) and counter terrorist financing (CTF) legislation

DORA: digital operational resilience act for payment firms and third-parties

Data Privacy

Data privacy concerns and risks with:

- Card payments?
- Online banking?
- Digital Wallets?

- **Personal information exposure**
- **Lack of data security**
- **Transactional metadata** (browser data, information, location...)
- **Location data privacy issues**
- **Third party access and sharing**
- **Data retention and security**
- **Incident timely response of data breaches**
- **Misuse of transactional data**

How are business models evolving?

- Software as a Service
- Platform as a Service
- Banking as a Service
- Compliance as a Service
- Transactional fees
- Subscription packages



As forces collide...



- Innovation
- Regulation
- Business model evolution
- Business operational resilience
- Technology
- Risks

Leaders should focus on the **North Star**



Thank you!

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