

Participants in the forum are reminded of their responsibility to observe anti-trust laws.

The EBA Anti-Trust Policy is available at the EBA website.

https://www.abe-eba.eu/media/azure/production/1352/eba_antitrust_policy_20170602_final_clean.pdf

The forum is an open group, where interested stakeholders can discuss and exchange information on industry-wide topics.

The content of the slides presented and the views expressed in the context of the activities of the forum are those of the respective participants in the forum, and do not represent the views of the Euro Banking Association (EBA).

Open Forum on Digital Transformation

The Evolution and Transformation of Payments in the EU: Modern, Safe & Digital!

9 June 2021
Digital meeting

Confidential

Agenda (1/2)

- Welcome and opening remarks by Thomas Egner, Euro Banking Association
- Setting the scene and housekeeping by Kate Pohl
- The Digital Euro – Doesn't it already exist? by Manuel Klein, EY and Why we need a Public and a Private Euro! by Alex Bechtel, Deutsche Bank
- ECB Making Payments Digital – what type of money will we use? by Holger Neuhaus, European Central Bank
- Coffee Break
- Digital Euro, Bitcoin & other Crypto Assets: What's in it for Banks? by Philipp Sandner, Frankfurt School of Finance & Management
- Panel Discussion 1 – The Evolution and Transformation of Payments – with an emphasis on Digital and Digitalization
- Lunch Break

Agenda (2/2)

- Retail Bank Strategies in Times of Disruption by Ron van Wezel, Aite Group
- The Evolution of Instant Payments in a Real-Time World by Simon Jones, ClearBank
- Real-time payments as a driver for innovation by John Ballantyne and Vitus Rotzer, Bottomline

- Coffee Break

- Events Streaming: how simplifying integration and improving performance can prepare for cards and instant payments convergence by Kai Laddiman, TAS Group

- Panel Discussion 2 – The Evolution and Transformation of Payments – with an emphasis on Innovation in Banking

- Wrap-up

Euro Banking Association, Thomas Egner

Secretary General

Euro Banking Association, Kate Pohl

Senior Advisor, Facilitator

EY, Manuel Klein

Senior Consultant

Deutsche Bank, Alex Bechtel

Head of DLT & Digital Asset Strategy

The Digital Euro – Doesn't it already exist?

Manuel Klein

June 09 2021



Manuel Klein
Senior Consultant Technology Consulting
FS Blockchain Solutions

Manuel.Klein@de.ey.com



Building a better
working world

Don't we already have digital money?

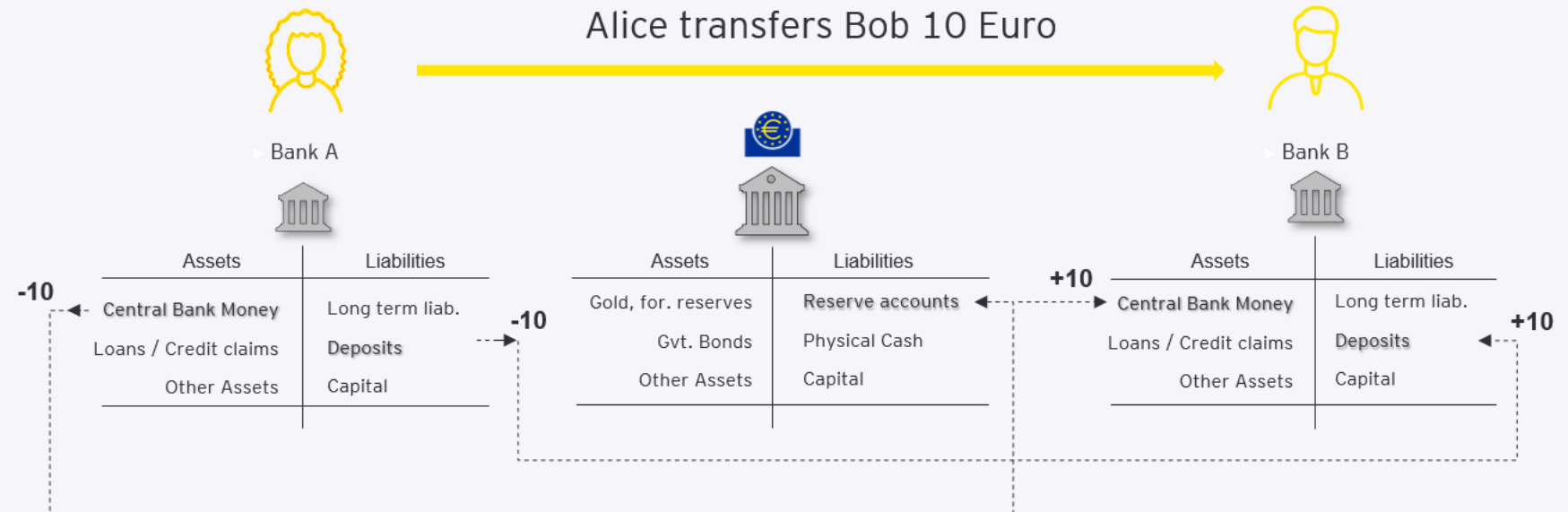
Digitalized Money

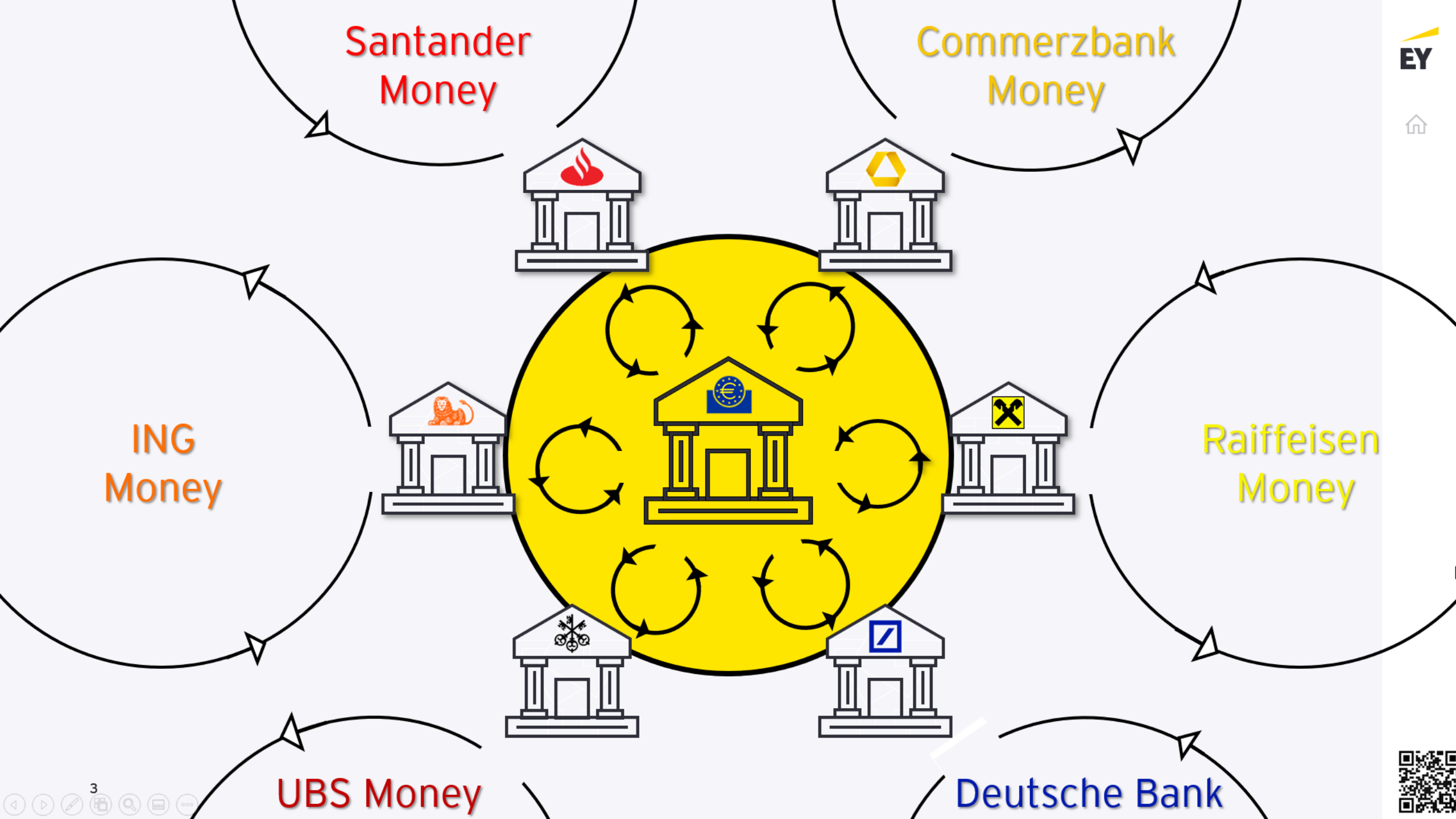
Existing money can be characterized as „digitalized“ money.

Transactions between bank accounts that used to be handled manually can be done digitally. Money, represented as book-entries, can be transferred between bank accounts in a digital manner.

- ▶ **Public Private Partnership**
Two-tier money system consisting of money creation by central banks and commercial banks
- ▶ **Central Bank Money**
Token-based money: Physical Cash
Account-based money: Central bank reserves

- ▶ **Commercial Bank Money**
~90% of money supply M2 is account based money issued by commercial banks
- ▶ **Fungibility**
Between private commercial bank monies is ensured by settlement in central bank reserves





Why do we need a “digitized” Euro?

► Cost-Reduction

Peer-to-peer transmission and the elimination of intermediaries can significantly reduce transaction costs

► Settlement

Elimination of manual processes, clearing systems and many intermediaries allow payments to be settled instantaneously

► Automatization

Transactions can be executed and programmed:
Smart contracts allow transactions to be tied to conditions that must be met for the transaction to be executed automatically.
Paying agents that process corporate actions can be automated

► Pay per Use Mechanisms

Sensors on expensive machines can measure usage and send it to a smart contract that triggers payments automatically

► Machine-to-Machine Payments / Internet of Things (IoT)

In the Internet of Things, devices are given a chip and a wallet. This enables the integration of devices into payment transactions and payments between machines

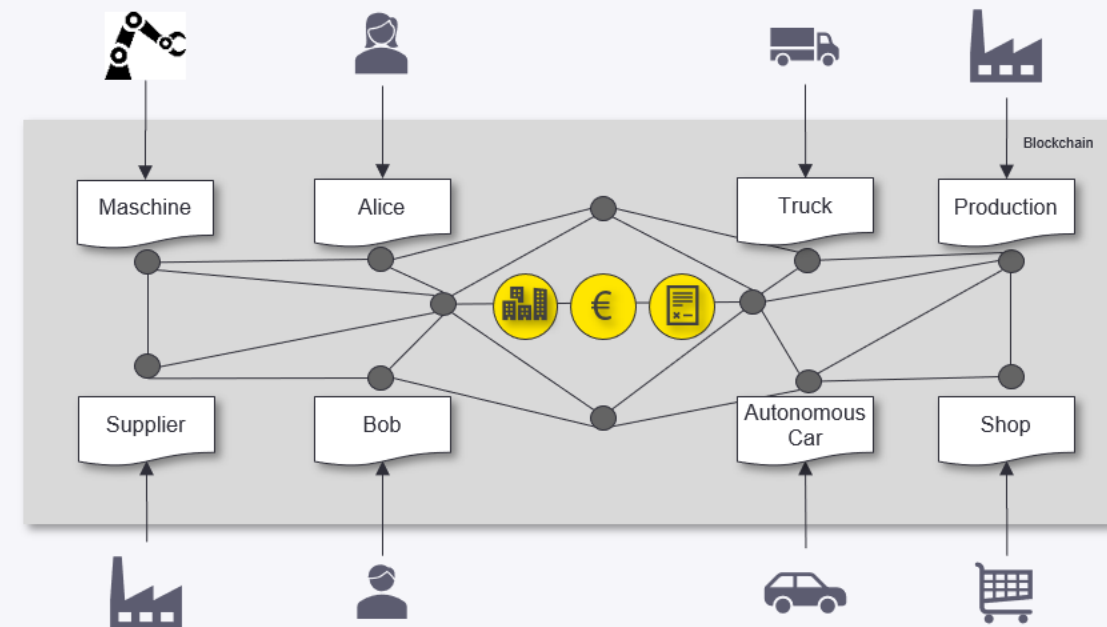
► Delivery vs. Payments

Settlement of trading processes in the financial system can be automated by digitization and tokenization of assets. Smart contracts ensure settlement of the asset (delivery) and the payment

Digitized Money

New technology enables “digitized” money

Money itself can be represented by bits and bytes and transferred in digital, tokenized form without intermediaries



Will CBDCs provide a solution?

▶ Wholesale CBDC

Solution for many of the desired advantages in the **interbank market**.

A combination with digitized assets can solve the **T+2 settlement delay**.
However, there is **no commitment for wholesale CBDCs**.

Private initiatives can step in and create **synthetic CBDCs** by backing payment tokens 100% in central bank reserves:

Recent publication of Bank of England signaled potential cooperation by offering **omnibus accounts** for reserves

▶ Retail CBDC

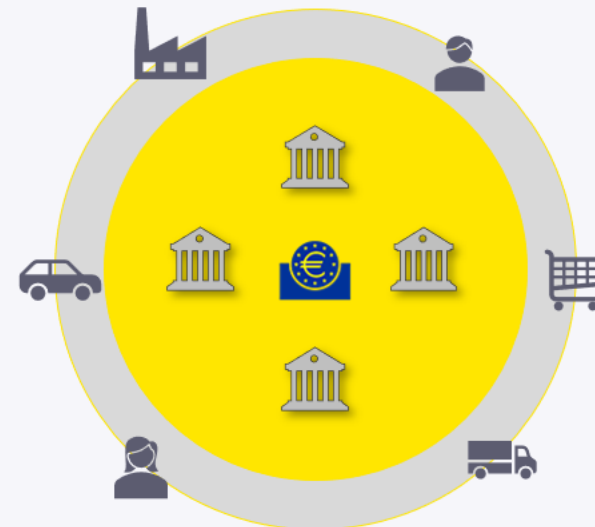
Designs of retail CBDCs are still far from clear: Will they be ...

- ▶ DLT based?
- ▶ able to be used for **programmable transactions**?
- ▶ used in **industrial use cases (B2B)**?

▶ Do no Harm

Central banks follow maxim to **not disintermediate banks**.

This signals limited use cases of CBDC, potential focus on features of physical cash



Will stablecoins provide a scalable solution?

▶ MiCAR

Regulatory compliance with **e-money directive**: Tokens must be backed by bank deposits or **safe assets** (government bonds or other HQLA)

▶ Collateral silos

If successful, stablecoin providers become large collateral silos, resulting in a lack of collateral for monetary policy purposes and potential to distort prices on short term government bond markets and the economy

▶ Counterparty risks

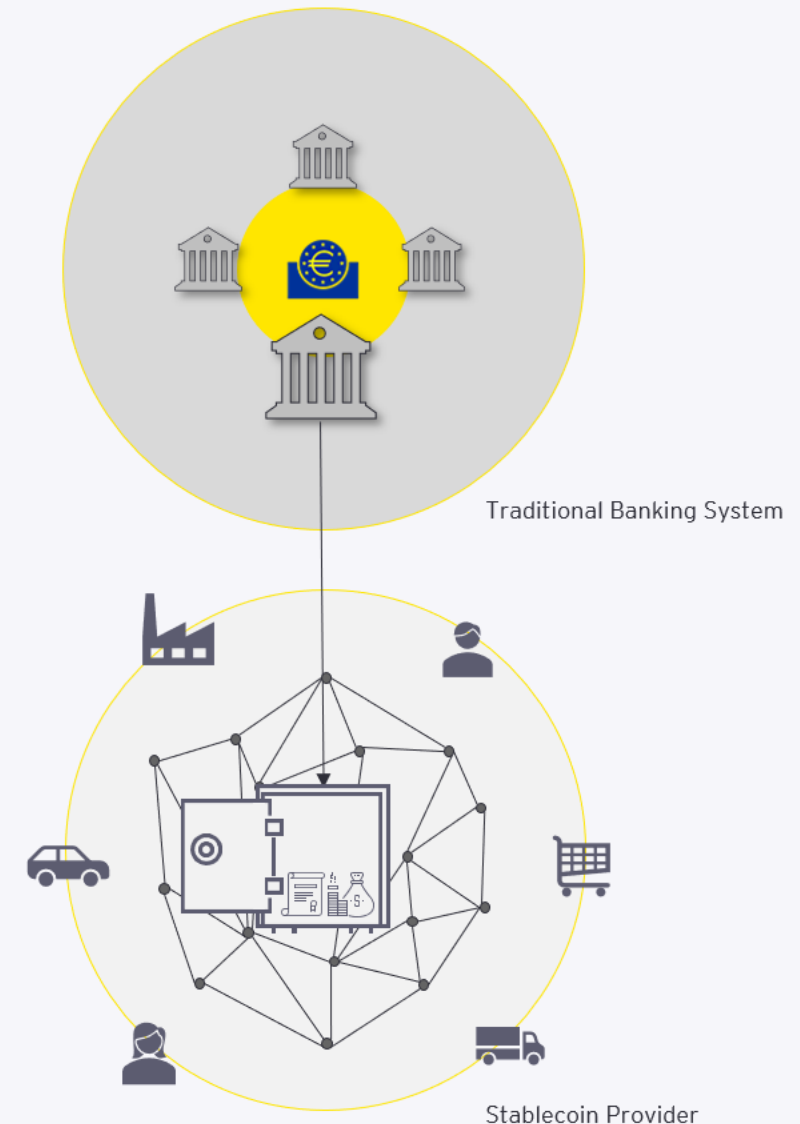
Exposure of credit, liquidity, market risk of the deposit taking bank or MMMF

▶ Financial Risks

Runs on stablecoins might lead to liquidity crises at banks that back the stablecoins and that do not have enough liquid assets.

▶ Siloed solutions

Users have to accept the token which can only redeemed at the issuer - Payments are siloed from traditional banking and payments



How can Commercial Banks Provide a DLT Based Retail-Euro?

▶ Transfer = Settlement

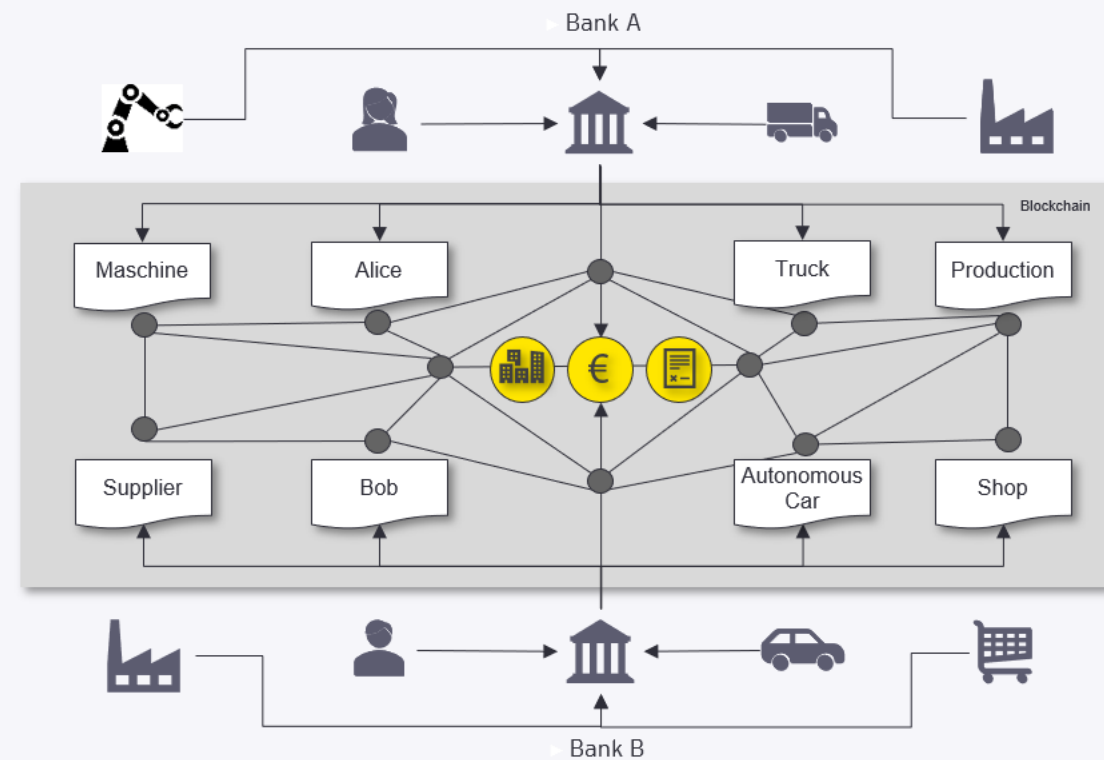
Payment tokens aim to settle transaction when they are transferred

▶ Commercial bank money is a liability of the issuing bank

This poses difficulties for tokenized bank deposits to be used for settlement

▶ Solutions to enable settlement

- ▶ “Diem” of European banks that uses bank assets as collateral
 - ▶ Use HLQA on segregated accounts to back individual commercial bank money token
 - ▶ Bilateral Interbank credit lines
 - ▶ Multilateral (on chain) Clearing
 - ▶ Connection to existing payment system for instant or intraday settlement through APIs from DLT to e.g. SCTInst
 - ▶ Instant settlement in Wholesale CBDC
- ▶ We at EY are happy to help finding solutions for your needs for DLT Payments using regular commercial bank deposits



EY's consulting services to support market participants & challengers

EY services in the area of digital assets and digital money



Strategy, business and technology

Strategic consulting on digital assets & digital money issues such as new business models, product strategy and ecosystems

Use case assessment for make-or-buy decisions including support in the selection of vendors and service providers.

Design of innovation roadmap and development of target operating model for products and custodian solutions

Implementation support for the setup of the digital assets & digital money infrastructure and Proof-of-Concepts



Finance, risk and compliance

Assessment of risks and controls prior to the introduction of the blockchain/DLT product/the services

Advice on **accounting and financial reporting** for digital assets transactions

Support in the design and implementation of governance - and internal **control structures**

Cyber security analysis and fraud risk assessment concerning the safekeeping and transfer of digital assets



Legal and regulatory requirements

Support with **STOs/token launches** (including prospectus, term sheets, regulatory approvals, etc.)

Advice for **licensing and authorization procedures** as well as the general issue of capital market law

Adherence to **compliance** policies in connection with KYC/AML, customer service and the German Securities Trading Act.

Monitoring of regulatory and legal developments

Capital markets, asset management & payments knowledge

Legal/tax

Issuance

Trading

Clearing/
settlement

Regulation

Risk/finance

Custody



Die globale EY-Organisation im Überblick

Die globale EY-Organisation ist einer der Marktführer in der Wirtschaftsprüfung, Steuerberatung, Transaktionsberatung und Managementberatung. Mit unserer Erfahrung, unserem Wissen und unseren Leistungen stärken wir weltweit das Vertrauen in die Wirtschaft und die Finanzmärkte. Dafür sind wir bestens gerüstet: mit hervorragend ausgebildeten Mitarbeitern, starken Teams, exzellenten Leistungen und einem sprichwörtlichen Kundenservice. Unser Ziel ist es, Dinge voranzubringen und entscheidend besser zu machen — für unsere Mitarbeiter, unsere Mandanten und die Gesellschaft, in der wir leben. Dafür steht unser weltweiter Anspruch *Building a better working world*.

Die globale EY-Organisation besteht aus den Mitgliedsunternehmen von Ernst & Young Global Limited (EYG). Jedes EYG-Mitgliedsunternehmen ist rechtlich selbstständig und unabhängig und haftet nicht für das Handeln und Unterlassen der jeweils anderen Mitgliedsunternehmen. Ernst & Young Global Limited ist eine Gesellschaft mit beschränkter Haftung nach englischem Recht und erbringt keine Leistungen für Mandanten. Informationen dazu, wie EY personenbezogene Daten erhebt und verwendet, sowie eine Beschreibung der Rechte, die Personen gemäß des Datenschutzgesetzes haben, sind über ey.com/privacy verfügbar. Weitere Informationen zu unserer Organisation finden Sie unter ey.com.

In Deutschland ist EY an 20 Standorten präsent. „EY“ und „wir“ beziehen sich in dieser Publikation auf alle deutschen Mitgliedsunternehmen von Ernst & Young Global Limited.

© 2021 Ernst & Young GmbH
Wirtschaftsprüfungsgesellschaft
All Rights Reserved.

ey.com/de



Why we need a public and private digital euro

EBA Open Forum on Digital Transformation

9 June 2021

Alexander Bechtel



Alexander Bechtel

- Since 08/2020** Head of Digital Assets & Currencies Strategy at **Deutsche Bank**
- Since 06/2019** **Podcast** on Digital Money
- 2016 – 2021** **PhD** University of St. Gallen and Stanford University
- 2018 – 2019** External consultant **ECB**
- 2013 – 2016** **Master** in Quantitative Economics and Finance University of St.Gallen



Deutsche Bank



University of St.Gallen

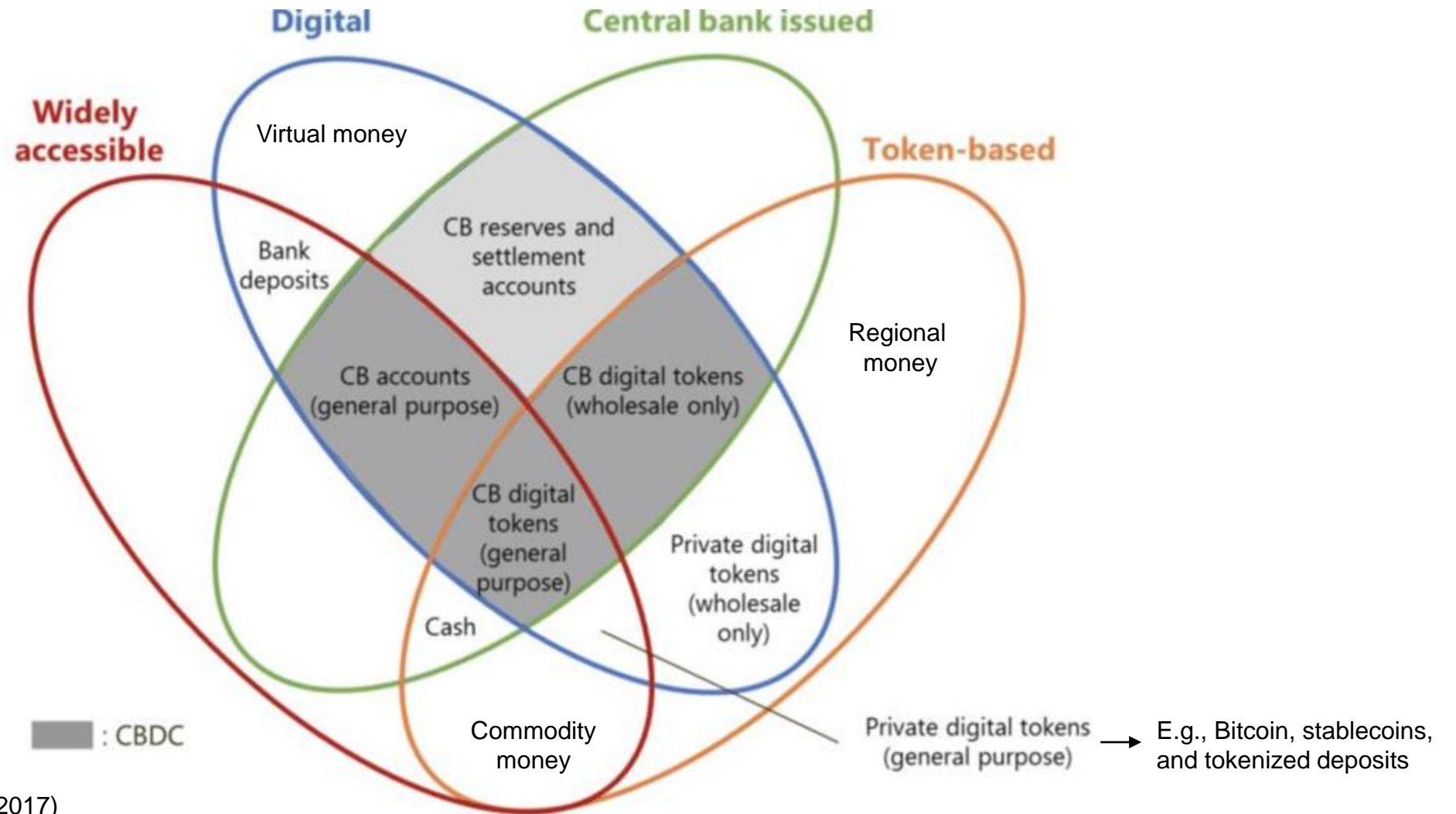


DIGITAL EURO ASSOCIATION



www.alexanderbechtel.com

Taxonomy of money: money flower



Adapted from Bech und Garrett (2017)

«Old» and «new» money

Conventional forms of money



Cash



Commercial bank money



Central bank reserves



Commodity money (e.g., gold)



Regional money



Virtual money

New forms of money



Cryptocurrencies (e.g., Bitcoin)



Stablecoins, tokenized deposits



Central Bank Digital Currencies



Money of the state



Money of the corporations



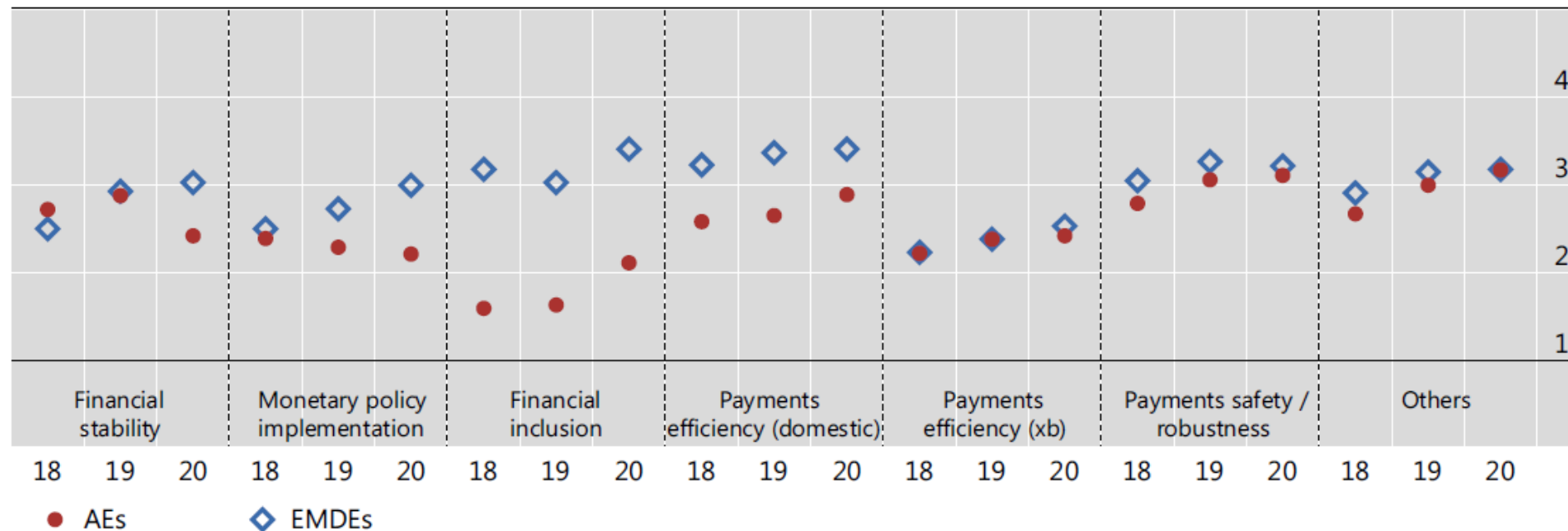
Money of the people

BIS CBDC Survey 2021: Motivations for issuing a retail CBDC

Motivations for issuing a retail CBDC

Average importance

Graph 3



(1) = "Not so important"; (2) = "Somewhat important"; (3) = "Important"; (4) = "Very important".

Source: BIS central bank survey on CBDCs.

ECB report: Reasons to issue a digital euro



Support digitalization and independence of the European economy



Provide alternative if role of cash as a means of payment declines



Address competition from non-euro-denominated forms of money



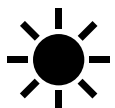
Extend monetary policy toolkit



Increase resilience of payment system in case of extreme events



Strengthen the international role of the euro



Decrease costs and ecological footprint of the monetary systems

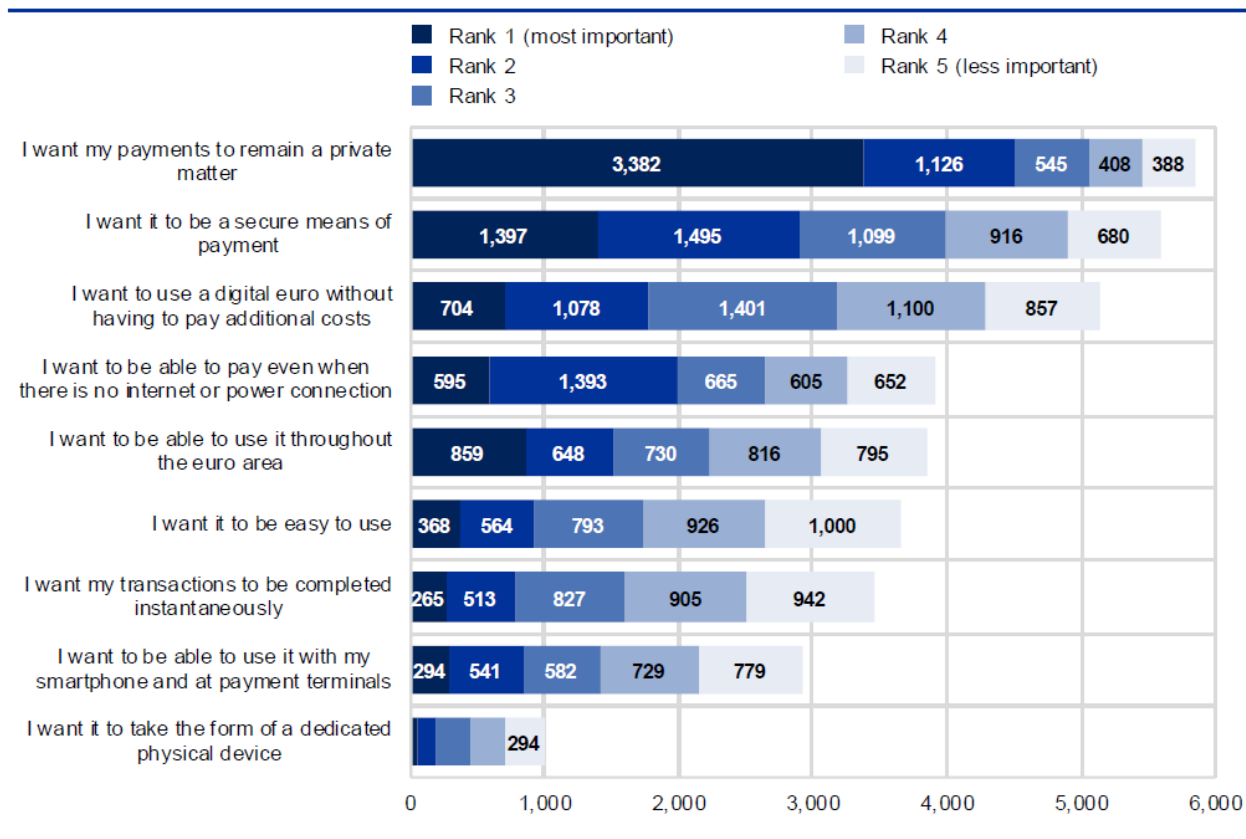
ECB consultation results

How would you rank, in order of importance, the features that a digital euro should offer?

1. I want to be able to use it throughout the euro area.
2. **I want my payments to remain a private matter.**
3. I want to be able to use it with my smartphone and at payment terminals.
4. I want to be able to pay even when there is no internet or power connection.
5. I want it to be easy to use.
6. **I want to use a digital euro without having to pay additional costs.**
7. I want it to take the form of a dedicated physical device.
8. **I want it to be a secure means of payment.**
9. I want my transactions to be completed instantaneously.

Chart 4

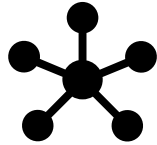
Preference for some digital euro features based on top five rankings



Note: Number of respondents not shown for the option "I want it to take the form of a dedicated physical device": rank 1 (47), rank 2 (139), rank 3 (254), rank 4 (263).

Division of labor CBDC and private (stable)coins

CBDC



Resilient payment system



Offline capabilities



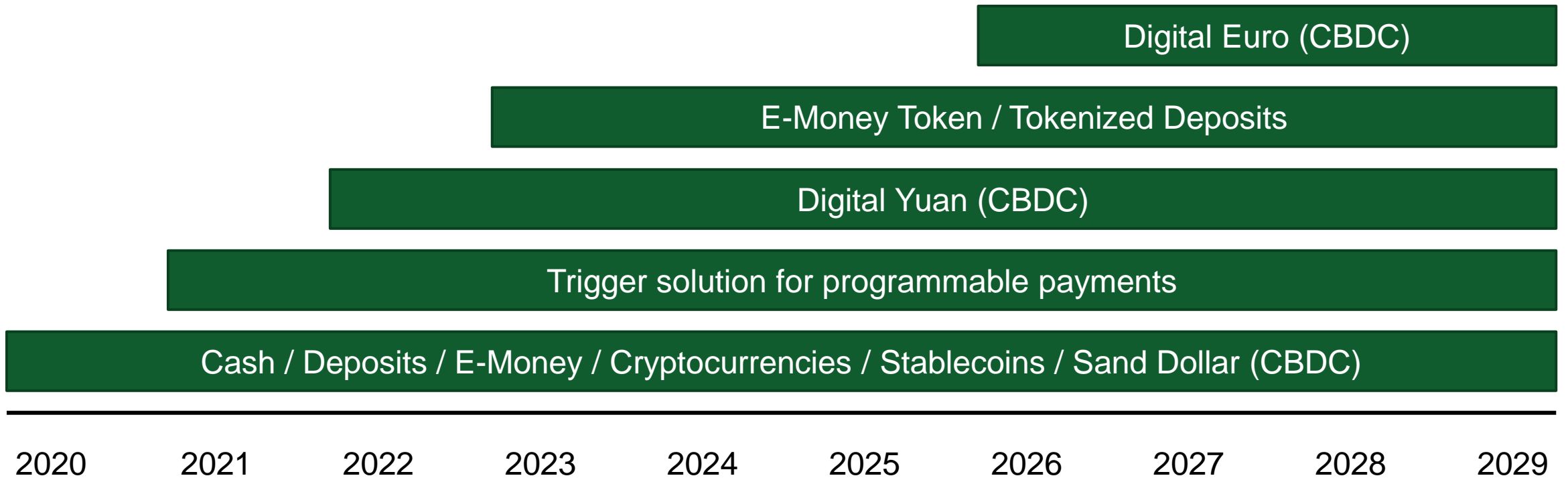
Anonymity/Privacy

Private (stable)coins, incl. tokenized deposits



Programmable payments, machine-to-machine payments, micropayments, pay-per-use, delivery vs. payment, etc.

Timeline





Thank you!

European Central Bank, Holger Neuhaus

Head of Division



EUROPEAN CENTRAL BANK

EUROSYSTEM

Making payments digital –
what type of money will we
use?

EBA Open Forum on
Digital Transformation

9/6/2021

Holger Neuhaus
Head of Division
DG Market Infrastructure and Payments

The views are my own and do not necessarily reflect those of the ECB.

Types of money



Liability of a central bank

- i. **Cash:** physical form, to *general public*
- ii. **Central bank deposits:** *digital form*, limited access

→ **CBDC/Digital euro: complement to cash and deposits**



Liability of a private entity

- i. Commercial bank money
- ii. E-money
- iii. Some 'stablecoins' if these entail a claim/liability on an identifiable entity (e.g. "e-money tokens" under MiCA)



Not a liability

- i. Crypto-assets that do not entail a claim/liability on any identifiable entity*

* I.e. crypto-assets as defined in [Occasional Paper Series No 223](#), ECB, 2019.

Note: MiCA also classifies 'stablecoins' as crypto-assets.

Overview

- 1** **Diagnosis**
- 2** European retail payments strategy
- 3** A closer look at BigTech and stablecoins
- 4** Digital euro
- 5** Way forward

Towards a European customer experience

SEPA key for payments integration, delivering SEPA credit transfers and direct debits in 2008/2009

But not yet complete:

- absence of e-mandates,
- IBAN-discrimination,
- lacking processing interoperability of automated clearing houses
- no pan-European card scheme(s) nor scheme interoperability
- lagging cards standardisation
- missing pan-European eID/eSignature-solutions for payments



Innovation and competition

Instant payments: make SEPA fit for innovations – *deployment and uptake need to follow*

Pan-European processing infrastructure for instant payments, Eurosystem enables full reachability – *accompanying measures being implemented by banks and ACHs*

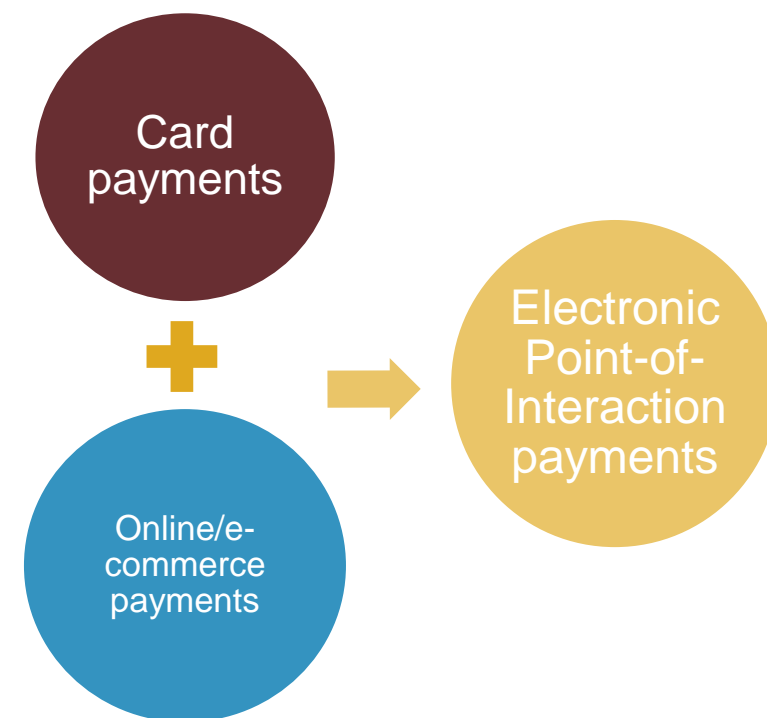
Modern European law* is in place, the legal basis for innovative payment services based on access to payment account – *standardisation of interface** needs to continue, third-party providers and banks need to agree on functionalities*

* PSD2 = revised Payment Services Directive 2

** API = Application Programming Interface

European sovereignty in retail payments

- **Visa** and **MasterCard** handled **70%** of card payment transactions in Europe in 2018 (up from 52.5% in 2009)
- In absence of European e-commerce solution, online payments are **dominated** by **PayPal**, followed by international card schemes
- **BigTech** might move more deeply into the provision of retail payments



Overview

- 1 Diagnosis
- 2 European retail payments strategy**
- 3 A closer look at BigTech and stablecoins
- 4 Digital euro
- 5 Way forward

Main goals of the European retail payments strategy

- In November 2019, the Eurosystem relaunched its European retail payments strategy, with its main goal:
 - support and foster development of pan-European payment solutions in shops and online (Point of Interaction)
- In October 2020, the strategy was complemented, adding following main goals:
 - full deployment of instant payments,
 - support for innovation and an innovative payments ecosystem,
 - improvement of cross-border payments (into/out EU)



Pan-European Point of Interaction payment solution

The Eurosystem will support **market initiatives** that are willing to adhere to five key objectives

- **European Payments Initiative (EPI)** welcomed by ECB and European Commission in July 2020
- We are open to engage with and eventually welcome **other initiatives**



European Payments Initiative (EPI)

- Developing a solution for card, online and mobile payments with **unified card and digital wallet** usable across Europe
- Founding member banks from Belgium, Germany, Spain, France, Netherlands, Poland and Finland, + two non-bank acquirers
- Membership (non-founding) expansion at a later stage



Further main strategic goals

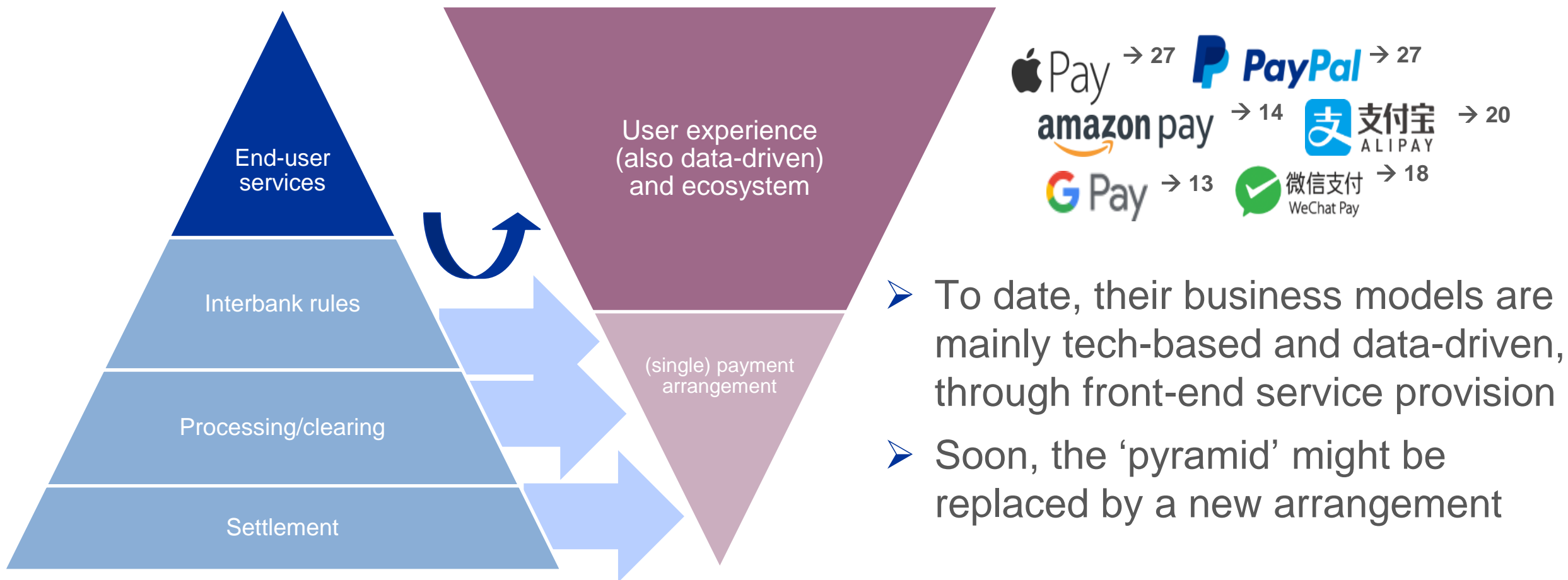
- **Instant payments** offer a modern, fast way to pay* and open-up possibilities for new business models
- Actively supporting an **innovative European ecosystem for payments**. For banks and non-banks, like fintechs
- Support global initiative on **improving cross-border payments**, to facilitate global economic activity (beyond euro area and EU)

* A challenge for the payments industry is the 'instant' performance of AML/CTF checks and sanctions screening.

Overview

- 1 Diagnosis
- 2 European retail payments strategy
- 3 A closer look at Big Tech and stablecoins**
- 4 Digital euro
- 5 Way forward

Big Tech may fundamentally change retail payments



- To date, their business models are mainly tech-based and data-driven, through front-end service provision
- Soon, the 'pyramid' might be replaced by a new arrangement

* Numbers indicate EU countries in which those solutions are available as of August 2020 according to the companies' websites.

Stablecoins

- Stablecoins are digital units of value that aim to minimise fluctuations in their price against a currency or other asset, or a basket thereof
 - Global stablecoins that leverage large and cross-border consumer platforms can rapidly reach a significant scale

Benefits of global stablecoins

- + enable end-user digital lifestyle
- + enhance global cross-border payments

Risks of global stablecoins

- jeopardise financial stability and monetary sovereignty
- curb competition and the strategic autonomy of the payment system


- Prudent approach needed based on a comprehensive policy, regulatory, and oversight response
 - **Until this response has been put in place and stablecoin initiatives have complied with the relevant requirements, they should not come into operation**

Overview

- 1 Diagnosis
- 2 European retail payments strategy
- 3 A closer look at BigTech and stablecoins
- 4 Digital euro**
- 5 Way forward

Key messages in the Report on digital euro

*Digital euro would be a **central bank liability** made available in **digital form** for use in **retail payments***


 **Complementing**, not substituting, cash and wholesale central bank deposits


 **Synergies** with industry and private initiatives

 Digital euro **not necessary so far**

Possible advantages in a range of scenarios, particularly:

 Supporting digitalisation in the European economy

 Address declining use of cash as a means of payment

 Tackling sovereignty concerns related to international private digital means of payment or foreign central bank digital currencies in the euro area

...the **Eurosysteem needs to be prepared** should the need to introduce a digital euro arise in the future, and to address both the risks of issuance and not issuance

Digital euro: a complement to private initiatives



- Maintaining **co-existence** of several means of payments
- Private sector will remain more **innovative**
- Central banks do not have ambition to:
 - take-up the front-end or
 - take away deposits from banks' balance sheets
- CBDC would be offered preferably **through supervised service providers**

Public consultation

**Record participation:
> 8,000 replies***

Design: strong preference for Privacy (43%), followed by **Security** (18%); **Pan-European reach** (11%); **No additional cost** (9%); **Offline** (8%)

Respondents expect:

- **Integration** with existing payment infrastructures and **important role for banks, payment institutions and other intermediaries** in providing digital euro services and **promote innovation**
- Digital euro to make **cross-border payments** faster and less costly

Respondents expressed willingness to adopt, test or contribute to the design of a digital euro

** 94% citizens, 6% professionals. Most contributions: 47% from Germany, 15% from Italy and 11% from France; and only few came from female citizens (11%)*

Possible launch of a digital euro project



Towards mid-2021 the Eurosystem will consider whether to launch a digital euro project

Start with an investigation phase:

... to obtain answers to open questions raised in the report

... to develop a minimum viable product that would be able to meet Eurosystem requirements and the needs of prospective users

... does not commit the Eurosystem to issuing a digital euro in the future



The objective is to ensure that the Eurosystem is prepared to issue a digital euro if it decides to do so in the future.

Overview

- 1 Diagnosis
- 2 European retail payments strategy
- 3 A closer look at BigTech and stablecoins
- 4 Digital euro
- 5 **Way forward**

Concluding remarks

- Despite SEPA achievements, gaps remain: slow uptake of instant payments, absent card scheme, no e-commerce payments solution
 - Retail payments strategy to meet European stakeholders' needs and expectations for an increasingly digital economy and society
 - Expansion of Big Tech in payments – possibly with a completely new arrangement based on global stablecoins
 - Preparatory work should the need to introduce a digital euro arise
 - More European integration, more innovation, more competition, and more sovereignty
- What type of payment solutions, money, or assets will we use?**

Coffee Break
11:00 – 11:20 CET

**Frankfurt School of Finance & Management,
Philipp Sander
Professor**

The Future of Finance: Crypto Assets, Bitcoin, Tokenized Assets and the Digital Euro.



Prof. Dr. Philipp Sandner
Blockchain Center
Frankfurt School of Finance & Management

E-Mail: p.sandner@fs.de
Internet: www.fs-blockchain.de



Frankfurt School Blockchain Center



Prof. Dr. Philipp Sandner

Head of Frankfurt School
Blockchain Center



WHAT WE DO

The Frankfurt School Blockchain Center was **founded in 2017** by Professor Philipp Sandner. We are a **think tank and research center** which investigates implications of the blockchain technology for companies and their business models.



Consulting,
prototypes
& research



Education
& trainings



Startups advisory
& incubation



Community
& events

Prof. Dr. Philipp Sandner

Frankfurt School Blockchain Center

Mail: p.sandner@fs.de

- Head of the **Frankfurt School Blockchain Center (FSBC)**
- Professor at the faculty of the Frankfurt School of Finance & Management
- Board of Directors of **Avaloq Ventures**
- Board of Directors of **Blockchain Founders Group**
- **Member of the Fintech Council (FinTechRat)** of Germany's Federal Ministry of Finance
- Blockchain technology in general, crypto assets such as Bitcoin and Ethereum, the digital programmable Euro, tokenization of assets and rights, digital identity.

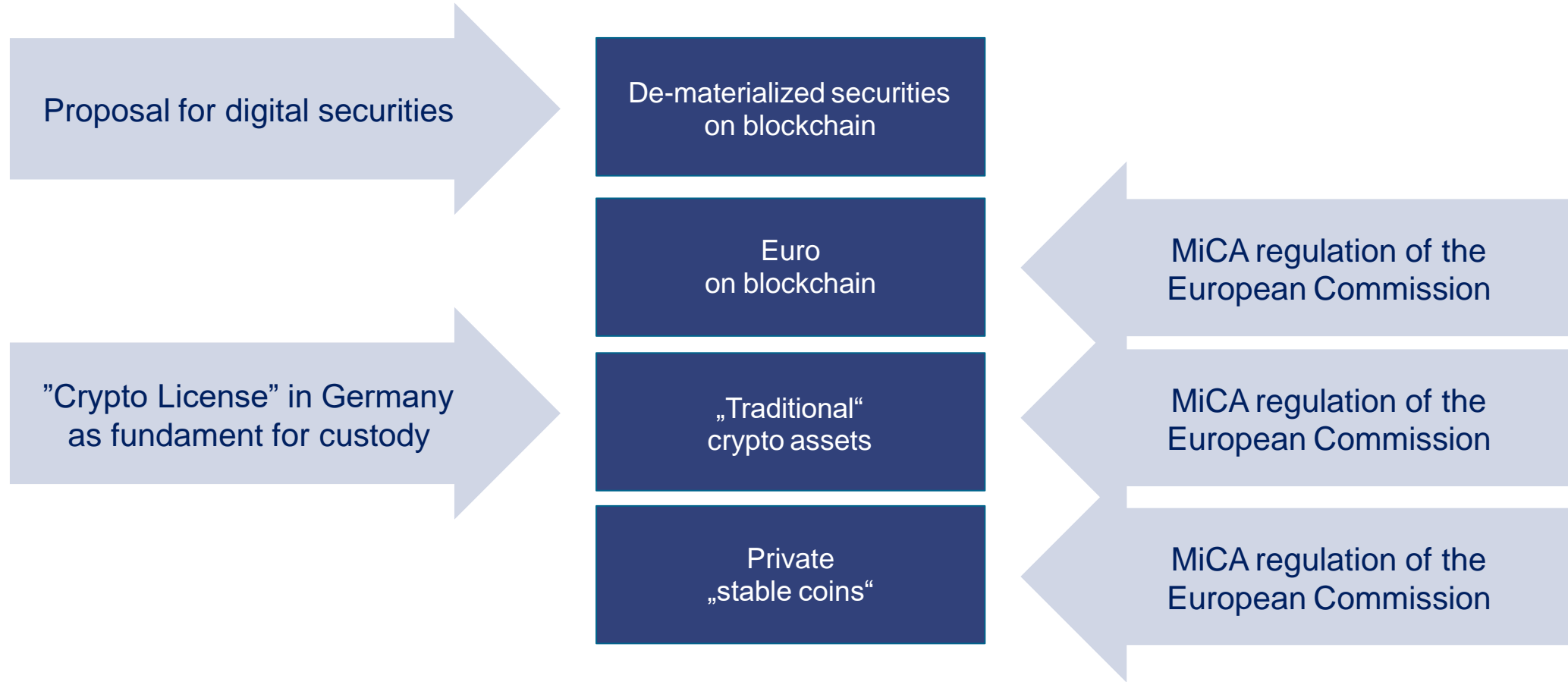
OUR PARTNERS

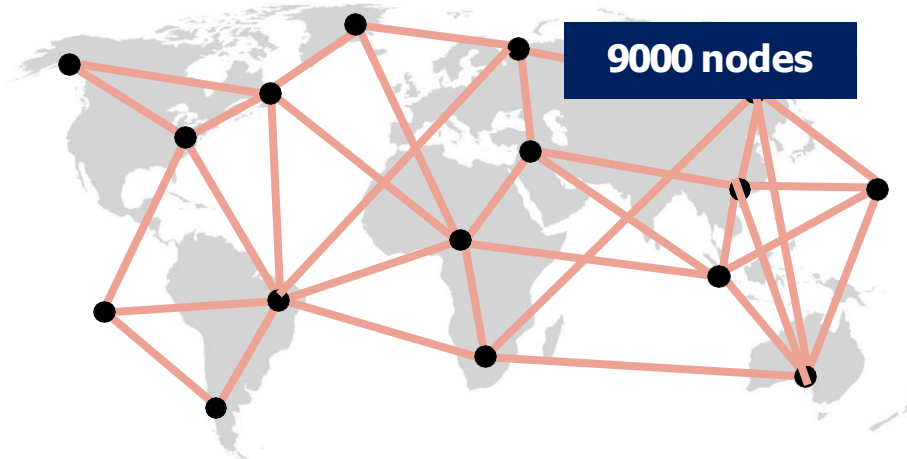


An aerial view of a city skyline, featuring several prominent skyscrapers. The image is overlaid with a blue-tinted network of white lines and dots, suggesting a digital or interconnected theme. The text "Growth and regulation" is centered in white, bold font.

Growth and regulation

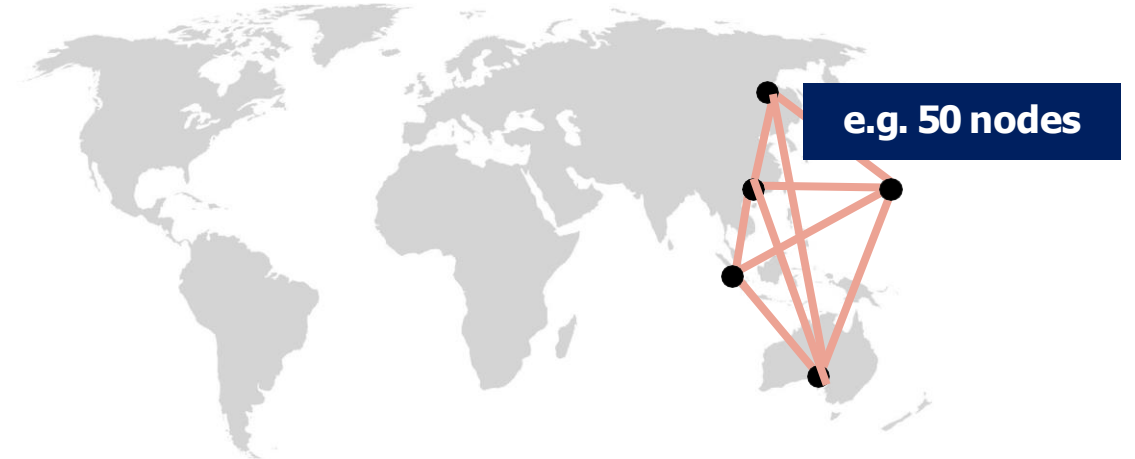
There will be no finance, no capital market without blockchain





- Bitcoin (9,000 nodes), Ethereum (16,000 nodes)
- Everybody can set up a node; unrestricted
- Geographically dispersed
- No legal body, no access by government
- Large network, lower throughput

Public Blockchain¹



- Consortium of banks (e.g. 50 nodes)
- Only selected parties can participate
- Nodes are participants and have a legal entity
- Legal entity that is liable and can be contacted
- Slim network, higher throughput

Enterprise Blockchain¹

¹Note: The term Blockchain is used here synonymously with DLT

An aerial view of a city skyline, featuring several prominent skyscrapers. The image is overlaid with a blue-tinted network of white lines and dots, suggesting a digital or interconnected theme. The text "Digital euro" is centered in white.

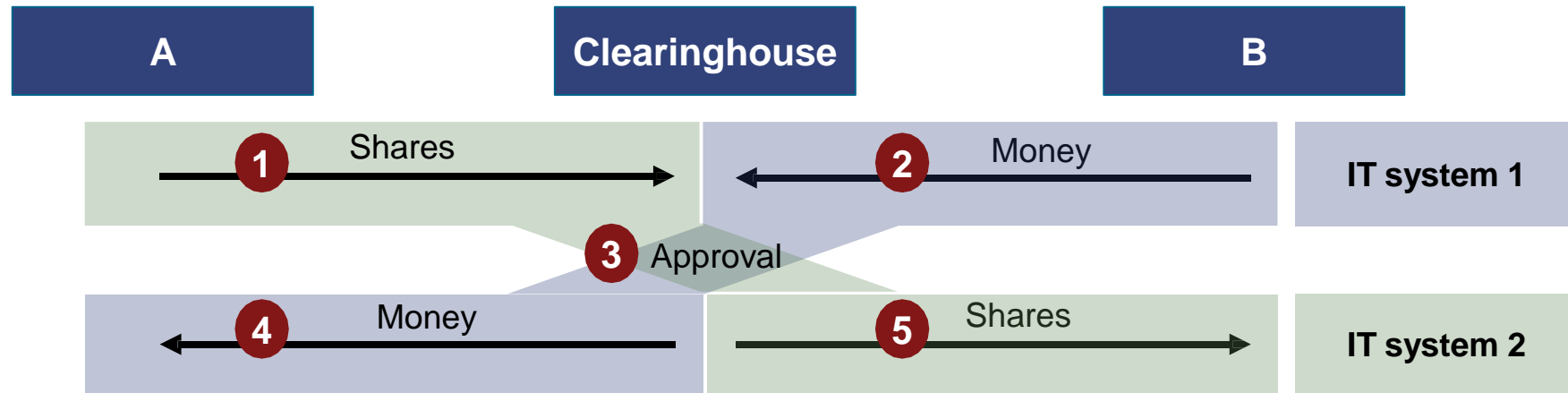
Digital euro

In which domains could a digital euro be used as of 2022?

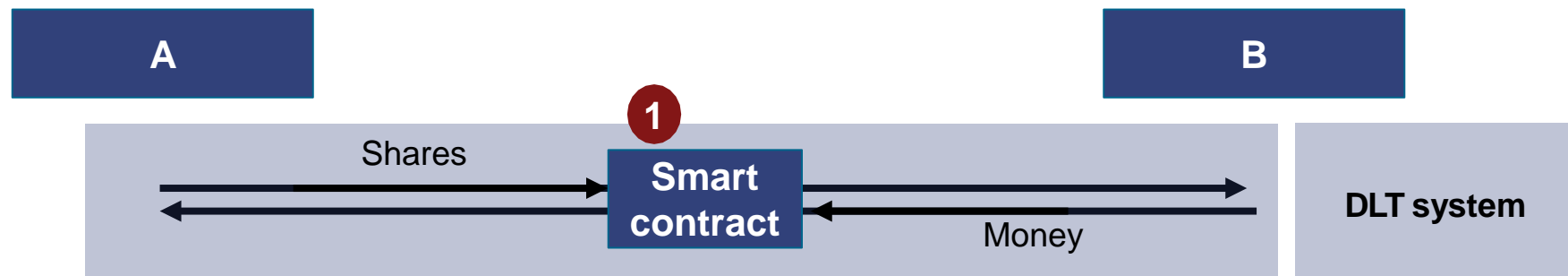
01	Industrial area (Industrie 4.0, logistics, data monetisation)
02	Capital market (delivery vs. payment)
03	Remittances (international payments, cross border payments)
04	Machine economy (IoT, micro payments, streaming money)
05	Crypto assets (trading, DeFi, storage of value)

Blockchain technology provides an infrastructure for transactions. Delivery vs. payment (DVP) will therefore be replaced by atomic swaps.

How does a transaction currently works? (2-3 days; fees)



How does a transaction works on a DLT system (atomic swap)? (seconds, no fees)

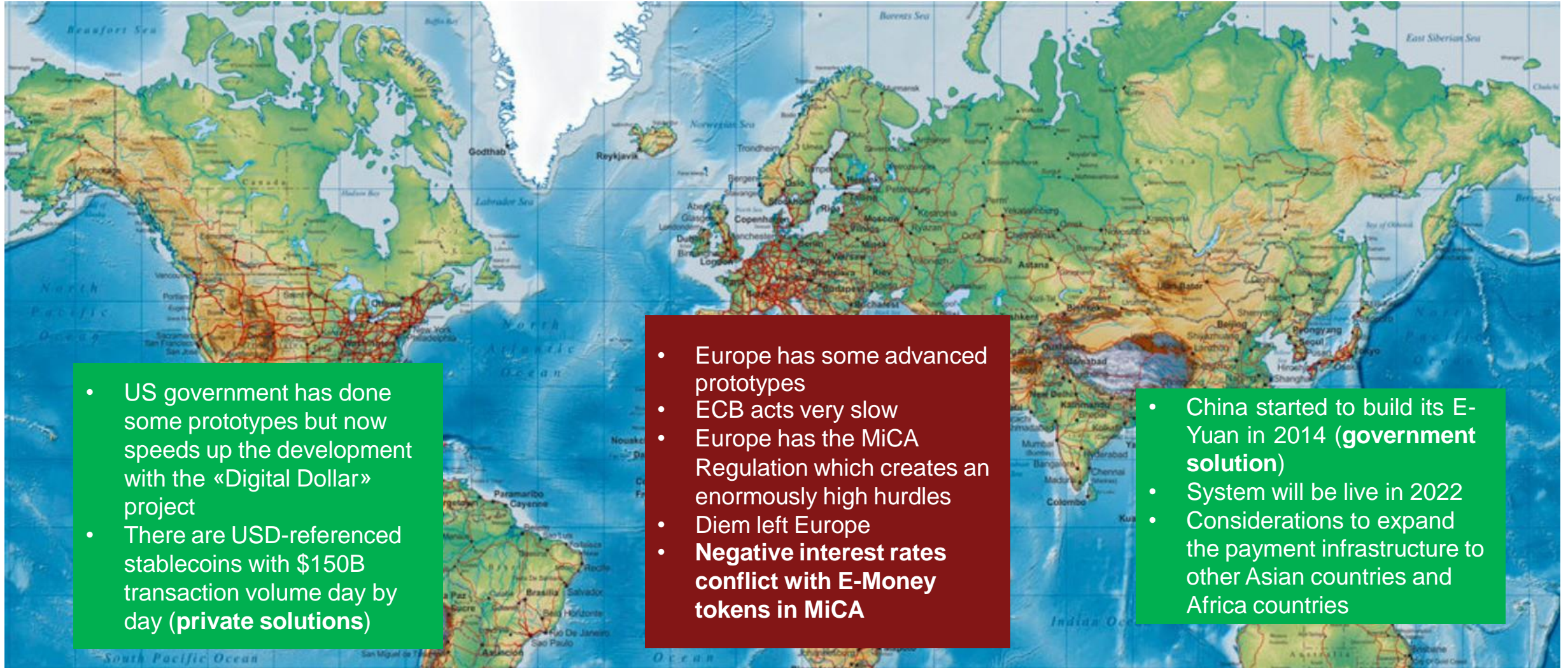


Four solutions to implement the digital euro

Nr.	Digital euro	Contract execution system (pillar 1)	Digital payment infrastructure (pillar 2)		Monetary unit (pillar 3)	
			System operator	Technology		
1	Euro on bank accounts	DLT	Commercial bank	No DLT (account-based)	Euro (commercial bank money)	2021
2	Euro stablecoin (e-money token, EMT)	DLT	Regulated organization (e.g. commercial bank, e-money provider) ¹¹	DLT (token-based)	Euro (potentially under e-money license)	2022
3	sCBDC	DLT	Commercial bank or e-money provider ¹²	DLT (token-based)	Euro (commercial bank money, but 100% backed by central bank reserves)	2023
4	CBDC	DLT	ECB	DLT or no DLT (account- or token-based)	Euro (central bank money, legal tender)	2026-2028

Source: Bechtel, Ferreira, Gross, Sandner (2020)

Digital currencies is about geopolitics



- US government has done some prototypes but now speeds up the development with the «Digital Dollar» project
- There are USD-referenced stablecoins with \$150B transaction volume day by day (**private solutions**)

- Europe has some advanced prototypes
- ECB acts very slow
- Europe has the MiCA Regulation which creates an enormously high hurdles
- Diem left Europe
- **Negative interest rates conflict with E-Money tokens in MiCA**









- China started to build its E-Yuan in 2014 (**government solution**)
- System will be live in 2022
- Considerations to expand the payment infrastructure to other Asian countries and Africa countries

An aerial view of a city skyline, featuring several prominent skyscrapers. The image is overlaid with a semi-transparent blue filter and a white network diagram consisting of interconnected nodes and lines. The text "Bitcoin and other crypto assets" is centered in white, bold font.

Bitcoin and other crypto assets

Ranking of crypto currencies

60% of the market

	Name	Price	24h %	7d %	Market Cap ⁱ	Volume(24h) ⁱ	Circulating Supply ⁱ
☆ 1	 Bitcoin BTC	\$56,276.14	▼ 6.06%	▲ 11.03%	\$1,056,500,192,369	\$63,347,514,594 1,118,535 BTC	ⁱ 18,654,750 BTC
☆ 2	 Ethereum ETH	\$1,774.68	▼ 4.24%	▲ 1.87%	\$204,473,593,094	\$25,250,372,237 14,208,925 ETH	115,061,667 ETH
☆ 3	 Binance Coin BNB	\$255.74	▼ 3.94%	▲ 9.27%	\$39,678,278,995	\$2,450,106,719 9,542,294 BNB	ⁱ 154,532,785 BNB
☆ 4	 Tether USDT	\$1.01	▲ 0.60%	▼ 0.01%	\$38,533,510,832	\$107,612,751,165 107,562,657,224 USDT	38,515,573,409 USDT
☆ 5	 Cardano ADA	\$1.03	▼ 3.53%	▼ 8.43%	\$32,904,631,684	\$4,251,829,279 4,128,256,435 ADA	ⁱ 31,948,309,441 ADA
☆ 6	 Polkadot DOT	\$34.73	▼ 4.84%	▲ 1.35%	\$32,075,809,398	\$2,778,195,054 79,727,899 DOT	920,502,998 DOT
☆ 7	 XRP XRP	\$0.4381	▼ 2.03%	▼ 7.78%	\$19,874,459,452	\$3,098,765,819 7,079,259,304 XRP	ⁱ 45,404,028,640 XRP
☆ 8	 Uniswap UNI	\$30.00	▼ 4.39%	▼ 9.45%	\$15,708,272,591	\$644,323,916 21,401,617 UNI	ⁱ 521,759,972 UNI

Source: CoinMarketCap (2021)

Ranking of crypto currencies



Source: CoinMarketCap (2021)

Development of the Bitcoin price 2014 to 2020

**Logarithm
of price**
























Source: CoinMarketCap (2021)

An aerial view of a city skyline, likely New York City, featuring prominent skyscrapers like the Empire State Building. The image is overlaid with a semi-transparent blue filter and a white network diagram consisting of interconnected nodes and lines. The text "Bitcoin: Where do we stand?" is centered in white.

Bitcoin: Where do we stand?

Largest financial service companies by market capitalization









companies: 277 total market cap: \$5.414 T

Rank	Name	Market Cap	Price	Today	Price (30 days)	Country
	 Bitcoin BTC	\$473.75 B	\$25,496	5.87%	* be your own bank ** not ranked	Worldwide
1	 Visa V	\$460.06 B	\$208.70	1.66%		USA
2	 JPMorgan Chase JPM	\$379.56 B	\$124.52	-0.44%		USA
3	 Mastercard MA	\$334.96 B	\$336.00	2.06%		USA
4	 PayPal PYPL	\$279.61 B	\$238.64	-0.33%		USA
5	 Bank of America BAC	\$259.17 B	\$29.96	-0.30%		USA
6	 ICBC 1398.HK	\$257.97 B	\$0.59	1.57%		China
7	 China Construction Bank CICHY	\$185.31 B	\$14.48	1.69%		China
8	 Agricultural Bank of China ACGBY	\$163.92 B	\$8.83	0.81%		China
9	 SoftBank SFTBF	\$140.75 B	\$76.10	-3.06%		Japan
10	 Bank of China BACHF	\$129.82 B	\$0.33	-2.63%		China

An aerial view of a city skyline, likely New York City, with a prominent skyscraper (Empire State Building) in the center. The image is overlaid with a blue-tinted network of white lines and dots, suggesting a digital or blockchain theme. The text is centered in white, bold font.

The core of Bitcoin: technically guaranteed scarcity

Ranking of crypto currencies

# ▲	Name	Price	24h %	7d %	Market Cap ⓘ	Volume(24h) ⓘ	Circulating Supply ⓘ
☆ 1	 Bitcoin BTC	\$56,276.14	▼ 6.06%	▲ 11.03%	\$1,056,500,192,369	\$63,347,514,594 1,118,535 BTC	18,654,750 BTC
☆ 2	 Ethereum ETH	\$1,774.68	▼ 4.24%	▲ 1.87%	\$204,473,593,094	\$25,250,372,237 14,208,925 ETH	115,061,667 ETH
☆ 3	 Binance Coin BNB	\$255.74	▼ 3.94%	▲ 9.27%	\$39,678,278,995	\$2,450,106,719 9,542,294 BNB	154,532,785 BNB
☆ 4	 Tether USDT	\$1.01	▲ 0.60%	▼ 0.01%	\$38,533,510,832	\$107,612,751,165 107,562,657,224 USDT	38,515,573,409 USDT
☆ 5	 Cardano ADA	\$1.03	▼ 3.53%	▼ 8.43%	\$32,904,631,684	\$4,251,829,279 4,128,256,435 ADA	31,948,309,441 ADA
☆ 6	 Polkadot DOT	\$34.73	▼ 4.84%	▲ 1.35%	\$32,075,809,398	\$2,778,195,054 79,727,899 DOT	920,502,998 DOT
☆ 7	 XRP XRP	\$0.4381	▼ 2.03%	▼ 7.78%	\$19,874,459,452	\$3,098,765,819 7,079,259,304 XRP	45,404,028,640 XRP
☆ 8	 Uniswap UNI	\$30.00	▼ 4.39%	▼ 9.45%	\$15,708,272,591	\$644,323,916 21,401,617 UNI	521,759,972 UNI

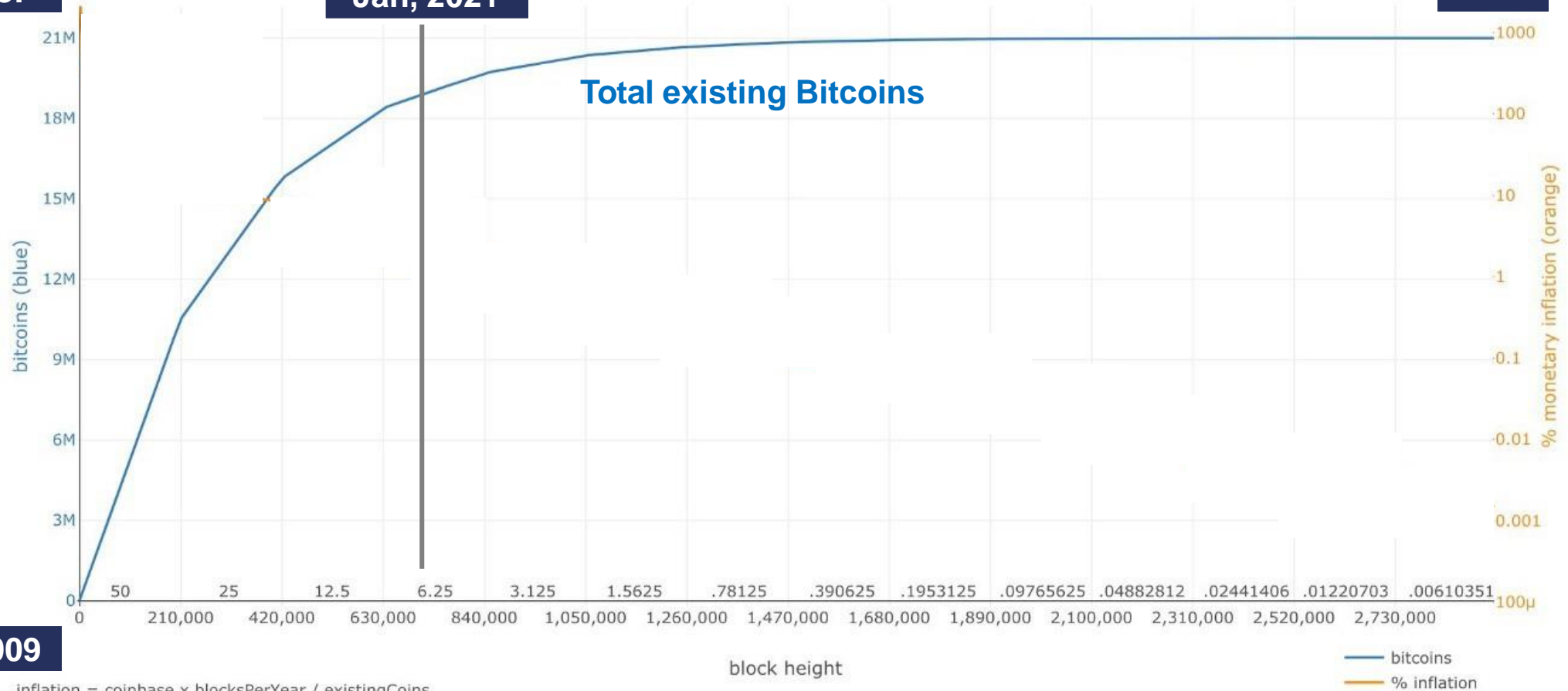
Source: CoinMarketCap (2021)

Bitcoin supply 2009 to 2055

21 mio.

Jan, 2021

2055

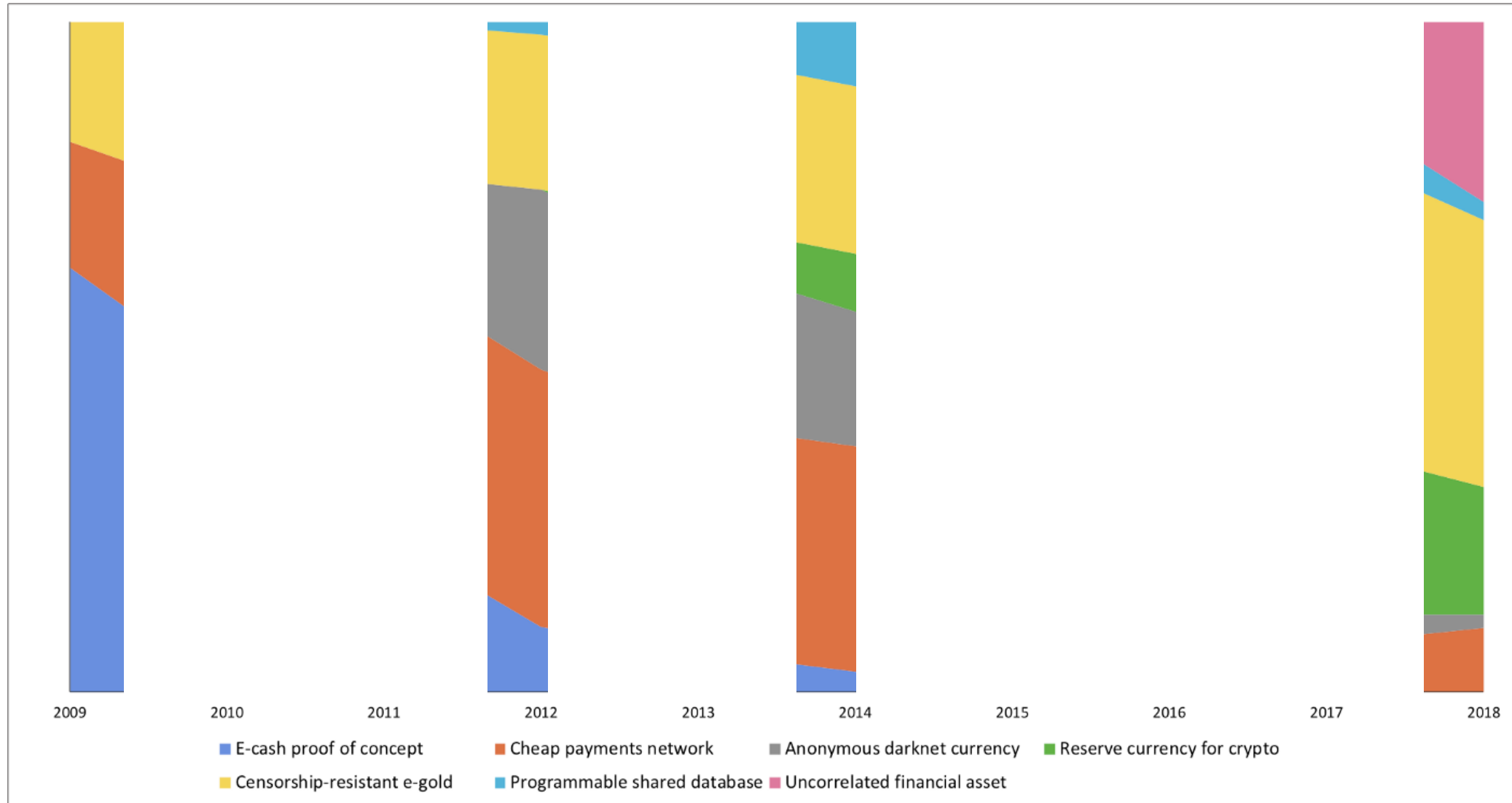


Jan, 2009

$$\text{inflation} = \text{coinbase} \times \text{blocksPerYear} / \text{existingCoins}$$

— bitcoins
— % inflation

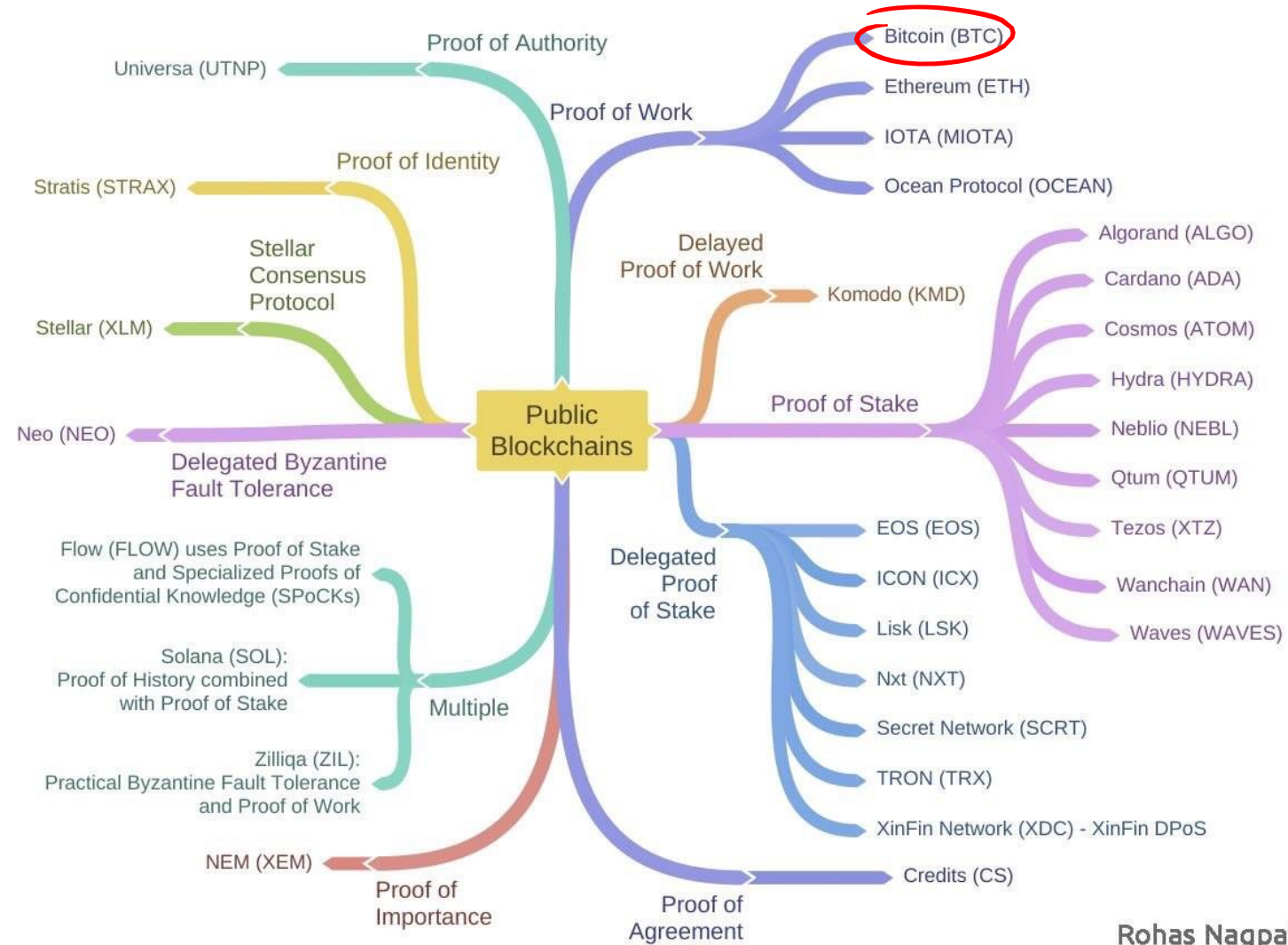
How major Bitcoin narratives changed over time



An aerial view of a city skyline, likely New York City, featuring prominent skyscrapers like the Empire State Building. The image is overlaid with a semi-transparent blue filter and a white network diagram consisting of interconnected nodes and lines. The text "Bitcoin is a technology of an entirely new type" is centered in white, bold font.

**Bitcoin is a technology of
an entirely new type**


Public blockchain systems are a growing domain



Rohas Nagpal

An aerial view of a city skyline, likely New York City, with a network overlay of white lines and dots. The text is centered over the image.

Bitcoin energy consumption: Is it worth it?

#Bitcoin  became a trillion dollar asset,
transferring \$366 billion a month on an
immutable ledger

An aerial view of a city skyline, likely New York City, with a network overlay of white lines and dots. The text is centered in white. The background is a blue-tinted aerial view of a city skyline, featuring several prominent skyscrapers. A network of white lines and dots is overlaid on the image, suggesting a digital or blockchain theme.

**Bitcoin: Where do we go?
(adoption is coming)**

A photograph of Jamie Dimon, CEO of JPMorgan Chase, speaking at a podium. He is wearing a dark suit, a white shirt, and a blue patterned tie. He has white hair and is gesturing with his right hand, pointing upwards. A small microphone is visible near his ear. The background is a blurred blue wall with some text.

**JPMorgan's Jamie Dimon:
Bitcoin 'is a fraud'**

Bitcoin's Real Value Could Be Zero, Morgan Stanley Analyst Says

Bitcoin

Bitcoin is a fraud that will blow up, says JP Morgan boss

Goldman Sachs lists 5 reasons why bitcoin is 'not an asset class', nor 'a suitable investment'

Bitcoin is 'useless as a payment mechanism and ridiculous as a store of value,' ex-PayPal CEO

Visa CEO: We won't process transactions in bitcoin, because it's not a payment system

FINANCE

Morgan Stanley becomes the first big U.S. bank to offer its wealthy clients access to bitcoin funds

PUBLISHED WED, MAR 17 2021-11:02 AM EDT
UPDATED WED, MAR 17 2021-8:52 PM EDT

Cryptocurrencies

JPMorgan Says Investors Could Make Bitcoin 1% of Portfolios

Exclusive: Goldman Sachs restarts cryptocurrency desk amid bitcoin boom

PayPal's Entry to Crypto Followed Long Buildup in Expertise

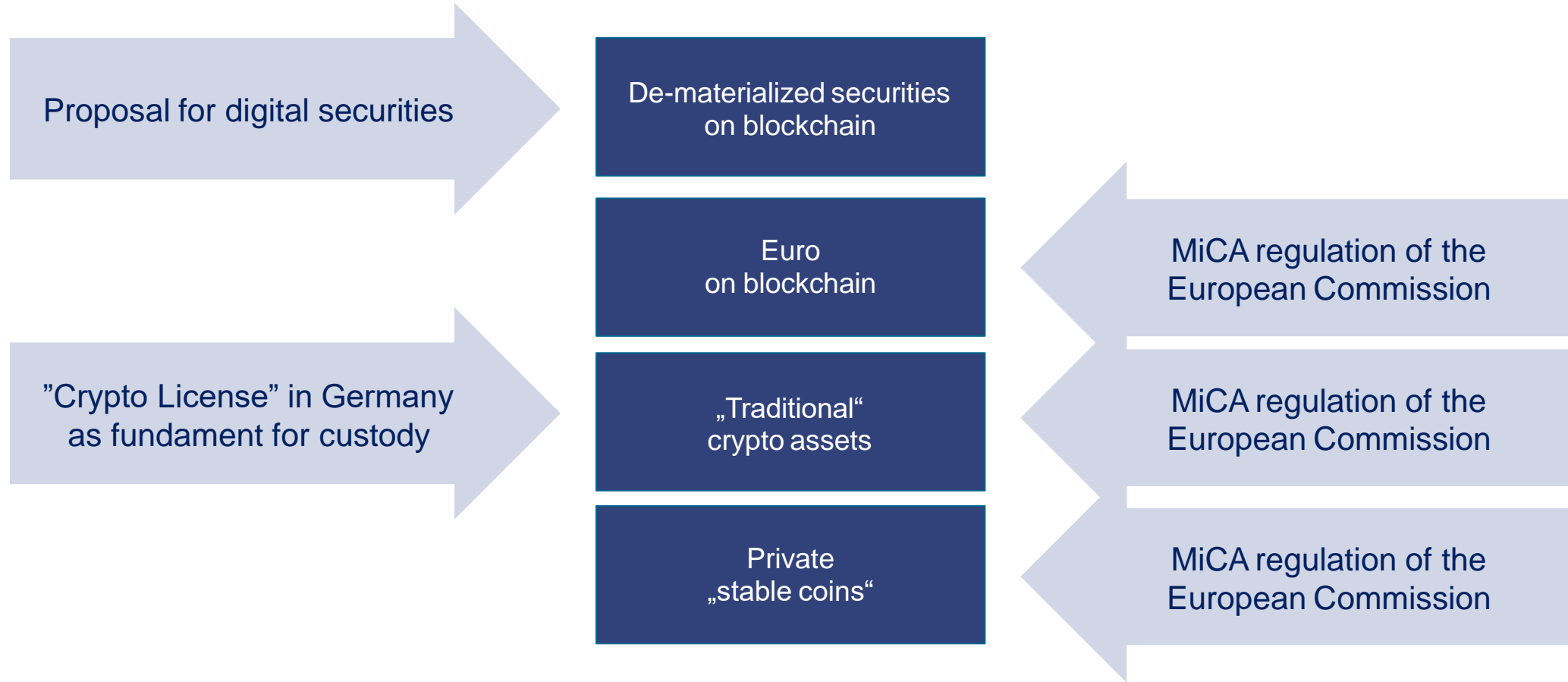
Visa Is Working to 'Enable Bitcoin Purchases': CEO

According to Visa CEO Al Kelly, the payments giant is looking to 'enable the purchase of Bitcoin on Visa

An aerial view of a city skyline, featuring several prominent skyscrapers. The image is overlaid with a semi-transparent blue filter and a white network diagram consisting of interconnected nodes and lines. The text "Regulators: Do they like it?" is centered in white, bold font.

Regulators: Do they like it?

There will be no finance, no capital market without blockchain



In El Salvador, Bitcoin and the US dollar are now official currencies



Nayib Bukele   @nayibbukele · 2h

The [#BitcoinLaw](#) has been approved by a supermajority in the Salvadoran Congress.

62 out of 84 votes!

History! [#Btc](#)  

 1.9K

 12.9K

 36.2K



Regulators are doing a good job but always come 2-3 years to late



Ben Kaufman @_benkaufman · 18h
Governments banning #Bitcoin ₿



57

490

2.356



First government officials also understand Bitcoin



Documenting Bitcoin 📄 @Documenti... · 17h ...
Dallas Federal Reserve President, Robert Kaplan,
"Right now it's clear #bitcoin ₿ is a store of value"



According to Hester Peirce (SEC), it is basically impossible to shut down Bitcoin



Moritz Wietersheim · 1.

📖 Follow Me & Learn About Bitcoin!

1 Woche · 🌐

🟡 Must see: SEC Commissioner Hester M. Peirce on banning **#Bitcoin** 😊 Surprise, surprise...confirming what the Bitcoiners said all the time! We told you so!

- "I think we were past that point very early on because you'd have to shut down the Internet."
- "I don't see how you could ban it. You could certainly make the effort. But it would be very hard to stop people from doing it."
- "So I think it would be a foolish thing for the government to try to do that."
- "A bigger problem. I think we would be missing out on the innovation in Bitcoin and other digital assets, if we decided to try to stop them."



MarketWatch

AVI SALZMAN
BARRON'S SENIOR WRITER

HESTER M. PEIRCE
U.S. SECURITIES AND EXCHANGE COMMISSION, COMMISSIONER

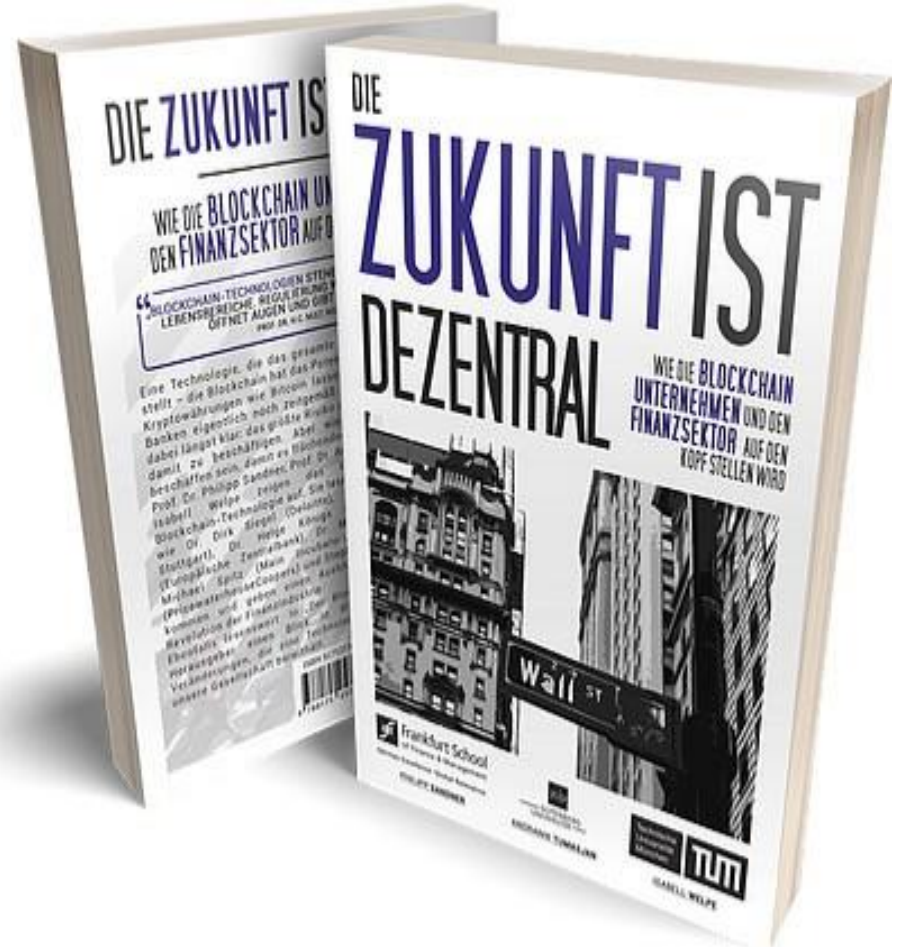
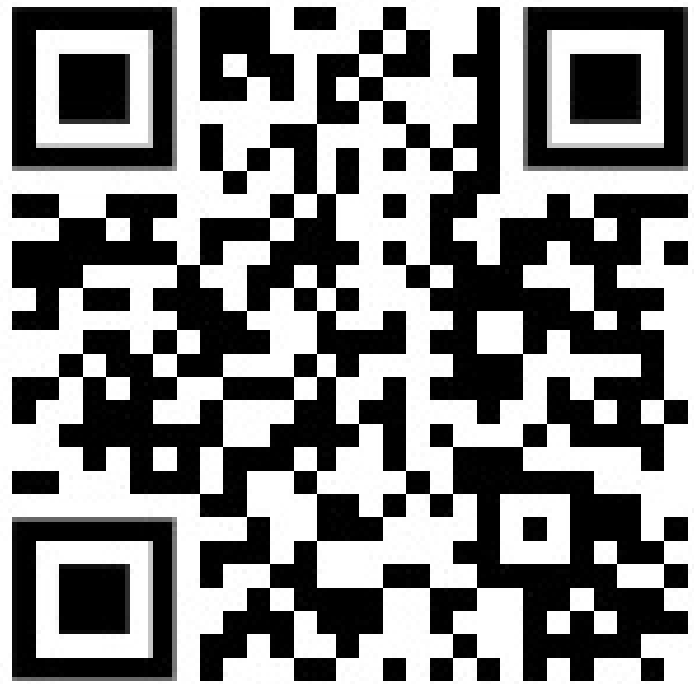
00:50



Prof. Dr. Philipp Sandner
Frankfurt School Blockchain Center
Mail: p.sandner@fs.de

Please feel free to contact me via mail,
Xing, LinkedIn or Twitter (@philippsandner)





Current position

- Professor at the faculty of the Frankfurt School of Finance & Management
- Head of the Frankfurt School Blockchain Center (FSBC)

Memberships and affiliations

- Member of the Fintech Council (FinTechRat) of Germany's Federal Ministry of Finance
- Member of the EU Blockchain Observatory established by the European Union
- Co-founder of the German Blockchain Association, the International Token Standardization Association (ITSA), the Multichain Asset Managers Association

Expertise

- Blockchain technology in general, crypto assets such as Bitcoin and Ethereum, the digital programmable Euro, tokenization of assets and rights, digital identity.

Experience and education

- Board of Directors of Avaloq Ventures, Board of Directors of Tokentus Investment AG
- Advising financial organizations, industrial corporations and startups concerning their blockchain activities
- Research fellow at the Technical University Munich, the Ludwig-Maximilians-University Munich and the Berkeley Center for Law & Technology
- Studies of business administration focusing on computer science at the University Mannheim, Copenhagen Business School
- Co-founder of a consulting company specialized in the area of innovation strategy, IP and technology transfer

Awards and prizes

- Ranked as one of the "top 30" economists by the Frankfurter Allgemeine Zeitung (FAZ), a major newspaper in Germany, in 2018 and 2019
- "Top 40 under 40" ranked by the German business magazine Capital
- Awarded with several scholarships and research prizes

Publications

- Publications in international peer-reviewed journals such as Administrative Science Quarterly, Research Policy, the Journal of Marketing Research and the Journal of Business Venturing
- Editor of two books; one book focuses on the implications of blockchain technology on companies, the other one focuses on the implications for the society. More: www.die-blockchain.ist/die-zukunft/

Frankfurt School Blockchain Center

- Analyzing the implications of blockchain technology on companies and business models
- Providing a platform for decision makers, startups, technology experts and industry professionals to exchange their knowledge and share their visions

Panel Discussion

Lunch Break

12:50 – 13:50 CET

During lunch break, do not “leave the meeting” i.e. stay connected while muting your sound and turning off your camera!

Kindly reconnect on time for the afternoon sessions!

Aite Group, Ron van Wezel
Senior Analyst

Retail bank payment strategies in times of disruption



Ron van Wezel
Senior Analyst
Retail banking

EBA Open Forum on Digital Transformation
June 9, 2021



Agenda

- ❑ What are the global market trends that drive disruption in payments?
- ❑ How is the payments ecosystem being transformed as a result of these changes?
- ❑ How do banks respond to these market challenges?

1

Global market trends

Trend #1: The shift to digital accelerates

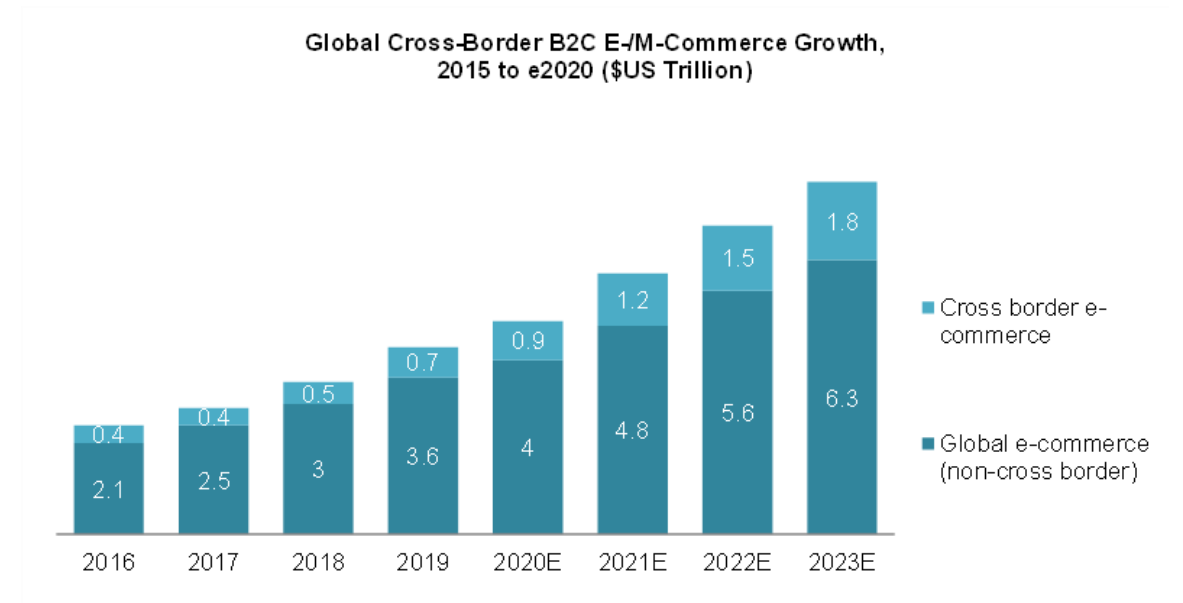
- The principal drivers of digital payments volume growth are:
 - Conversion of cash into digital payments
 - Digitalization of commerce
 - Opening of new acceptance points
- The Covid-19 pandemic in 2020 has accelerated the shift to digital



Source: eMarketer

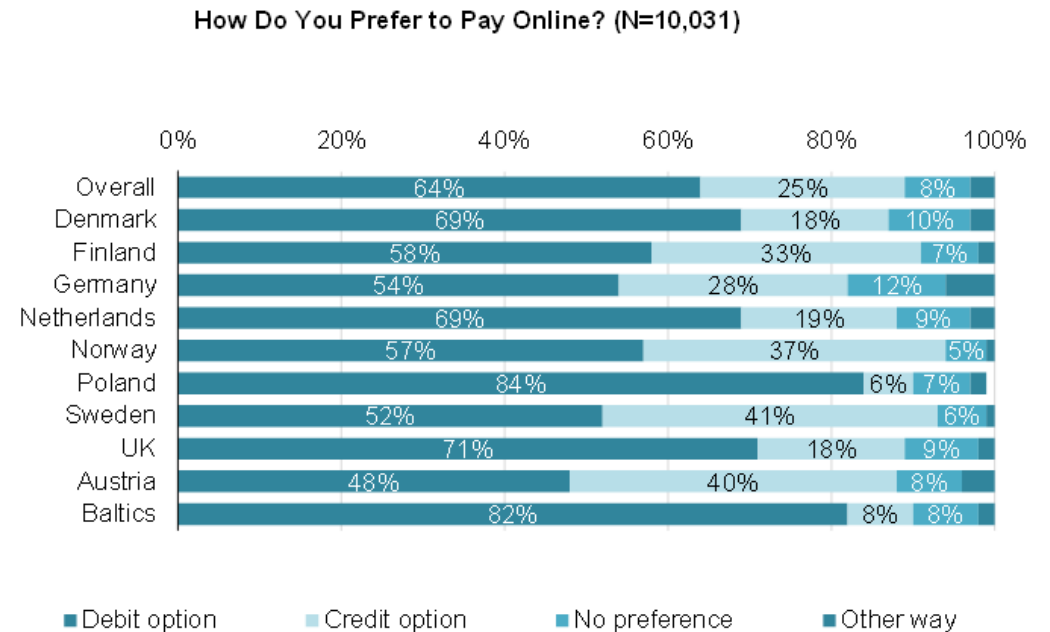
Trend #2: Commerce is becoming borderless

- Cross-border B2C e-commerce grew by nearly 27% to nearly US\$1 trillion annually by 2020
- According to a study by Visa, 87% of global merchants see cross-border sales as critical to their long-term success
- Merchants must also reckon with an expansion of their international B2B supply chain involving suppliers and downstream partners



Trend #3: “Alternative” (non-card) payment methods (APMs) claim an increasing share of e-commerce payment volume

- By 2023, APMs are expected to account for more than half of online payments volume.
- This trend away from cards to APMs is driven by consumer demand for convenience, trust, and speed, and the needs of online merchants to drive conversion and reduce risk.
- European consumers prefer to “pay now” rather than “pay later”



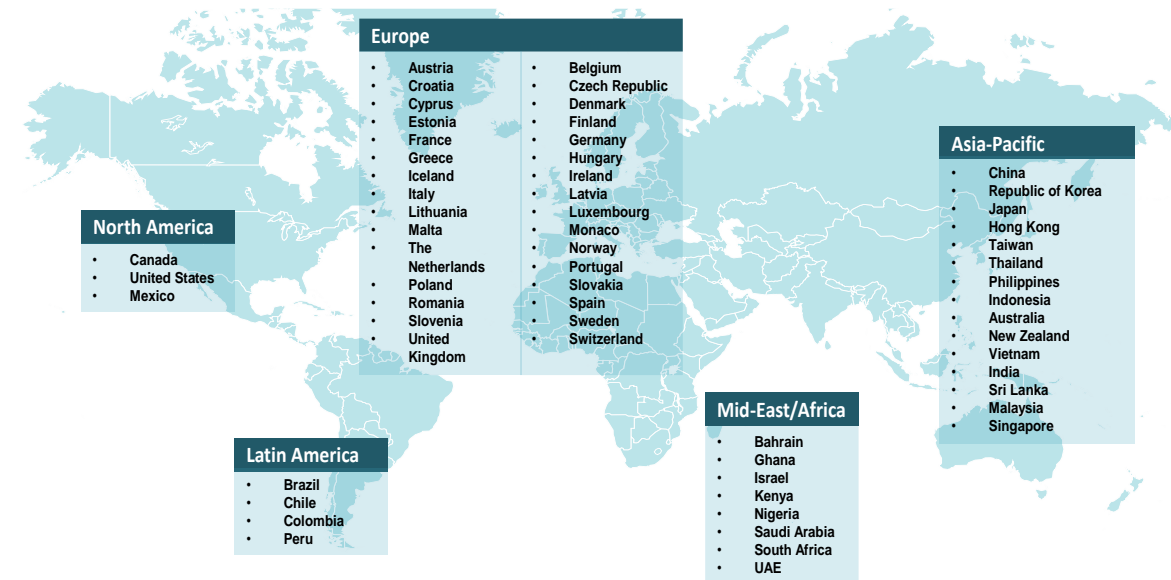
Source: Trustly research, 2021

Trend #4: Instant payments are driving innovation

Instant payments have several advantages over card and ACH rails

Feature	Instant payment	Credit/debit cards	ACH
Push (by payer) or pull (payee)	Push	Pull—recent initiatives (Visa Direct, Mastercard Send) also allow push payments	Push (credit transfer, check) or pull (direct debit)
Finality of payment	Irrevocable payments	Chargeback rights	Chargeback rights for direct debit
Payment confirmation	Immediate	Immediate	Dependent on settlement cycle
Availability of funds (payee)	Immediate	Two to three days	Dependent on settlement cycle
Service availability	24/7/365	24/7/365	During bank working days
Rich data exchange	Yes (ISO 20022 standard)	Limited	Limited
Flexibility in use cases	Modern instant payments infrastructures allow easy integration with payments apps.	Card companies are investing to make the legacy infrastructure more “programmable.”	Low flexibility—ACH rails are mainly used for corporate disbursements and collections.

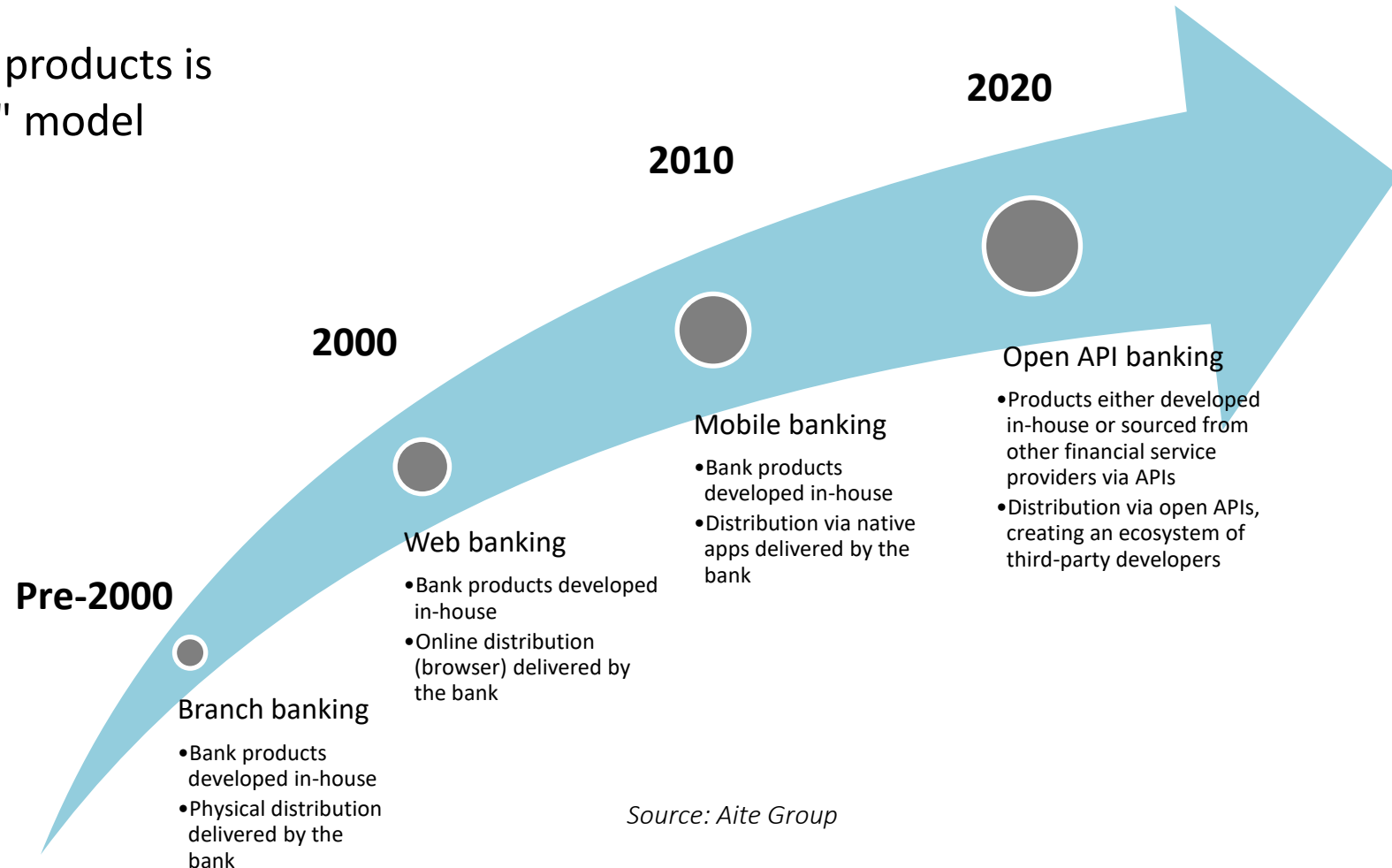
Global Real-Time Payments Installations



Source: Aite Group

Trend #5: Open (API) banking is the next step in the evolution of digital banking

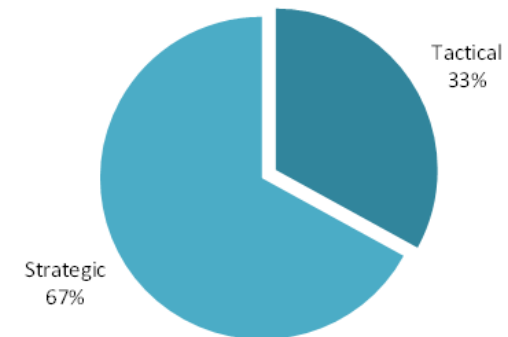
The distribution of bank products is changing to an "API first" model



Open (banking) payments could emerge as a major payment method

- In Europe, payment initiation services (PIS) will enable banks and other PSPs to offer open (banking) payment solutions to their corporate and SME clients
- Open payments are expected to take an increasing share of European payment volume as a result of trends in client demand, the availability of instant payment infrastructure, and regulatory support
- Open payment use cases can help companies to provide better payment experiences

Q: What is your primary motivation for adopting PIS? Is it a strategic move, i.e., to grow revenue share in noncard payments, or more of a tactical choice against cannibalization of existing revenue? (N-15)

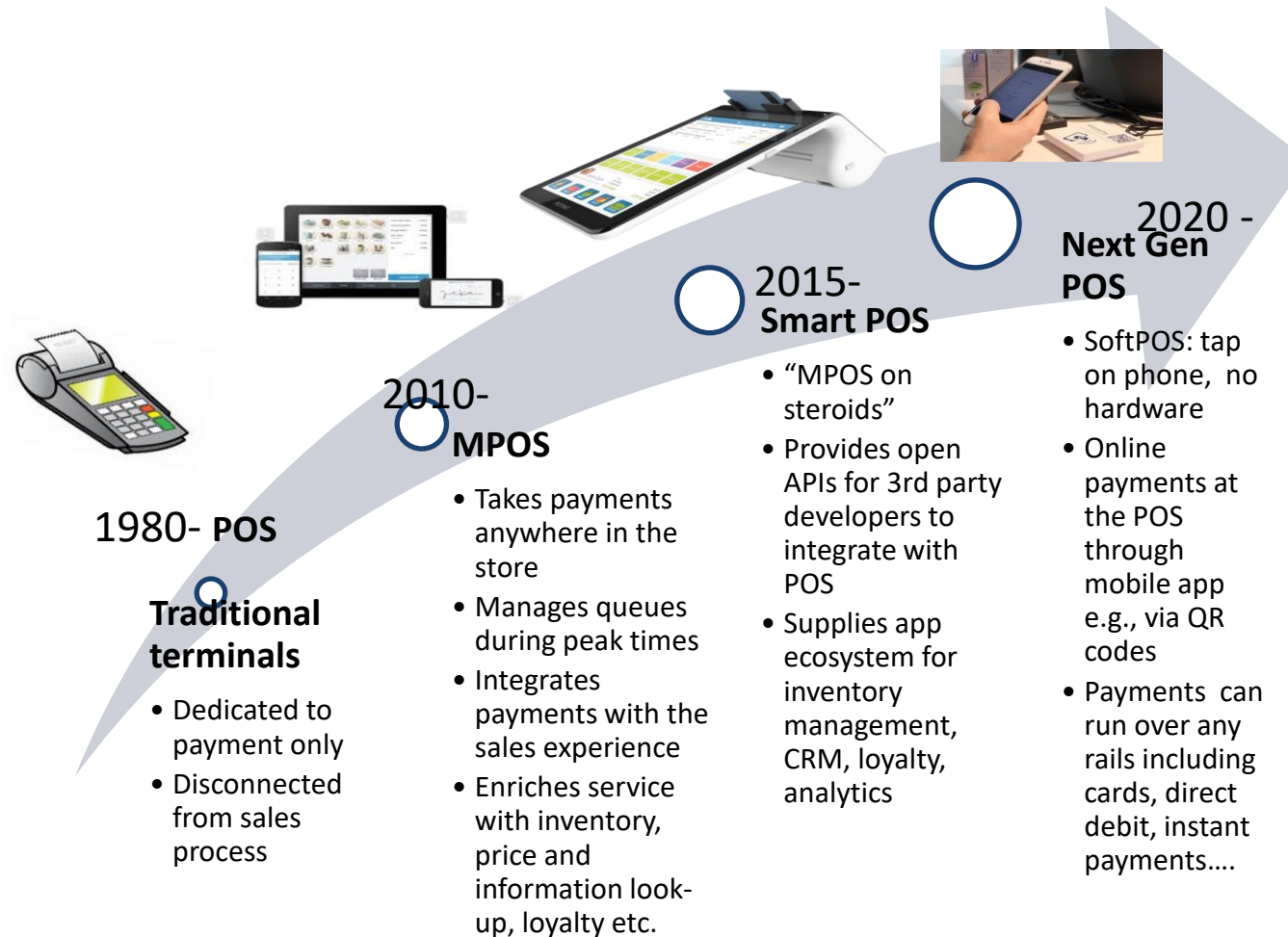


Source: Aite Group interviews of 15 banks, PSPs, and payment solution providers in Europe, January to March 2020

Trend #6: NextGen POS is changing the SME payment game

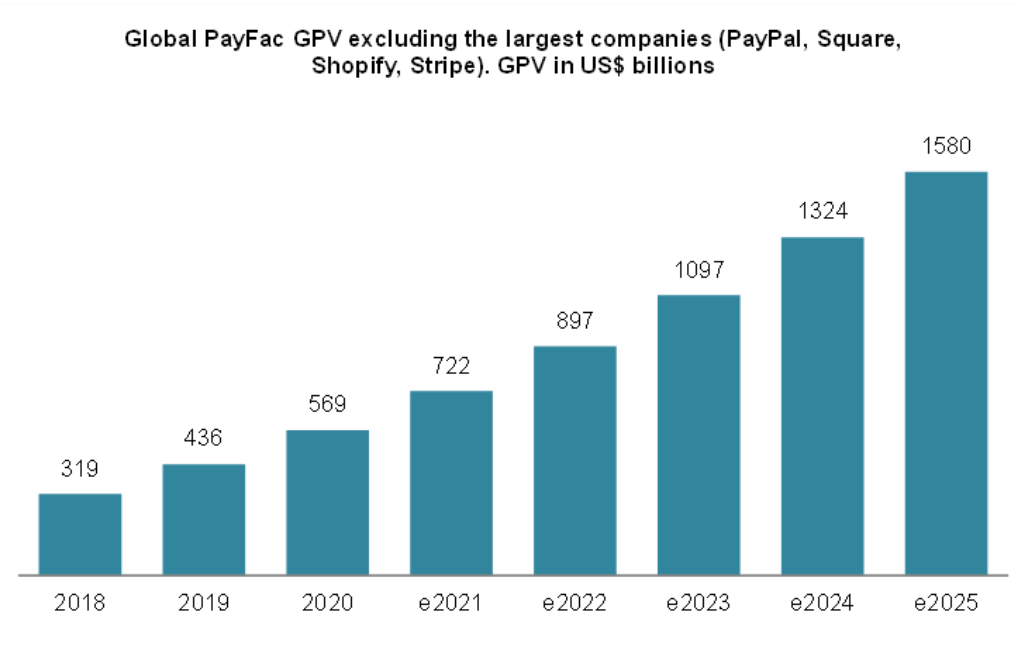
- Retailers are seeking to replace traditional fixed payment terminals and cash registers with tablets linked to mPOS devices –NextGen POS
- Cloud-based EPOS vendors (ISVs) make business intelligence and integrated payments available to SMEs, functionality that was formerly only available to large enterprises
- The selection of the EPOS software delivers the most value and its selection drives the merchant's choice of which NextGen POS bundle to purchase and when to buy it – not the payment application
- As the market shifts to cloud-based EPOS and tablets/mPOS devices, SMEs will direct their processing to providers offering the best deals via the PSPs
- Banks/acquirers will lose their direct relationships with merchants unless they can offer something beyond a merchant account and a card machine. They need to be in the NextGen POS bundle or to offer their own

The POS payment terminal space is being transformed



Trend #7: Businesses take payments in-house

- Marketplaces and other two-sided platforms (e.g., peer-to-peer, on-demand services, crowdfunding) are offering payment services directly to the large communities of merchants aggregated on their platforms, disintermediating traditional acquirers from direct merchant relationships.
- Software vendors (ISVs) operating SaaS platforms also increasingly take payments in-house, becoming payment facilitators (payfac-s) for their SMB clients.
- The payfac model has the potential to disrupt the payments value chain.



Source: AZ Payments Group

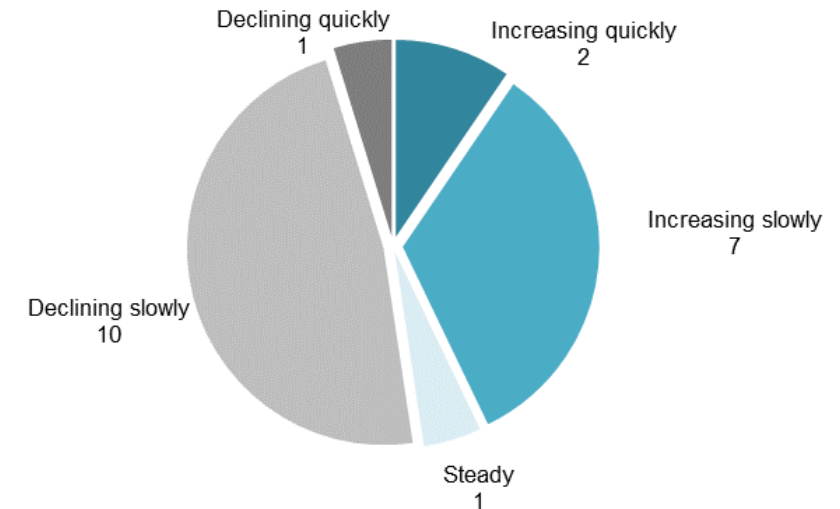
2

Payments Modernization: Bank response to market challenges

Profitability outlook of the payments business

- Overall, banks have differing views on the profitability of their payments business, depending on both market position and on revenue/cost allocations.
- But banks agree that continuing on a "business as usual" approach is not an option in today's dynamic and challenging environment.

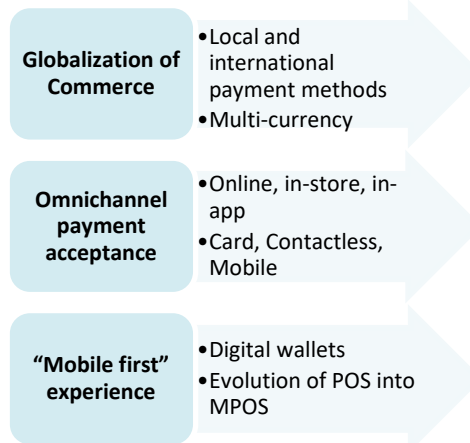
Q. What is the outlook for payments profitability in your organization?
(N=21)



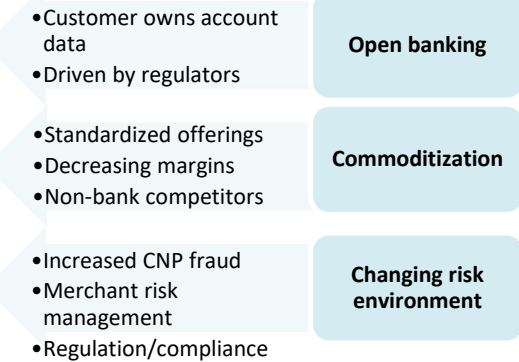
Source: Aite Group interviews with 21 top tier retail banks, August – October 2020

Client demand as well as industry trends dictate the bank's agenda for change

Merchant driven trends



Industry trends

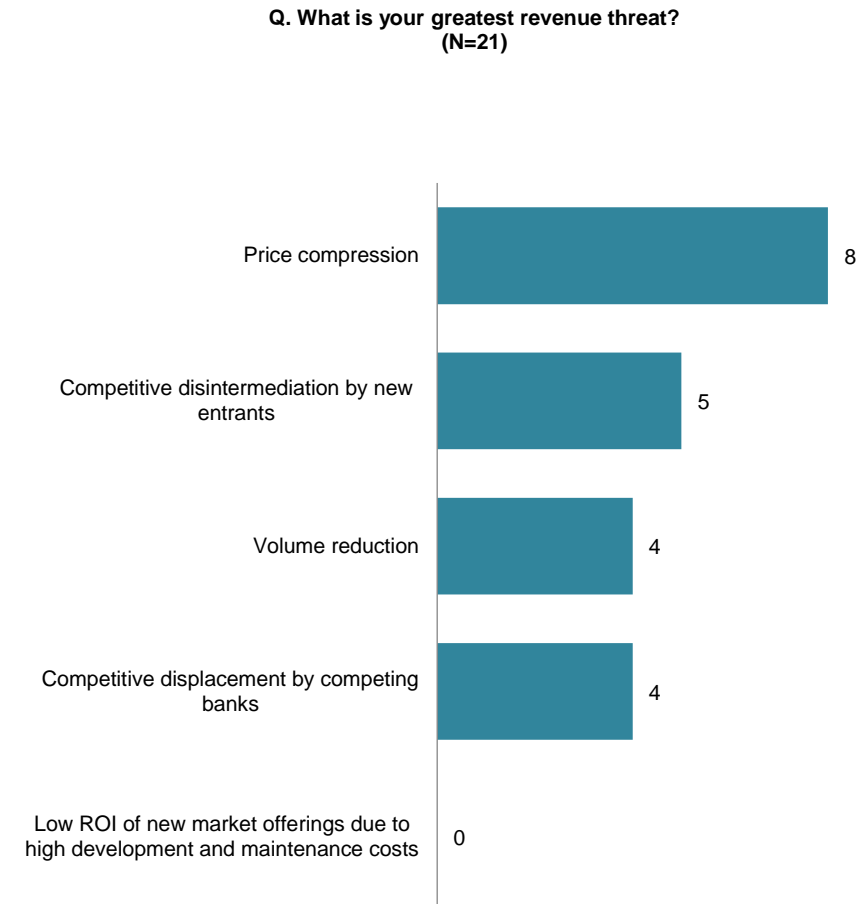


Bank's payment agenda

Source: Aite Group

Price compression is the greatest revenue threat

- Banks indicate that price compression is their greatest revenue threat.
- Many retail payment services are becoming commodities, with price as the main distinguishing factor.
- Competition from new entrants as well as peers leads to price compression, leading banks to seek new markets and customer segments to increase scale and sustain growth and profitability.
- To succeed, banks should focus on value-added services rather than sheer transaction volume.

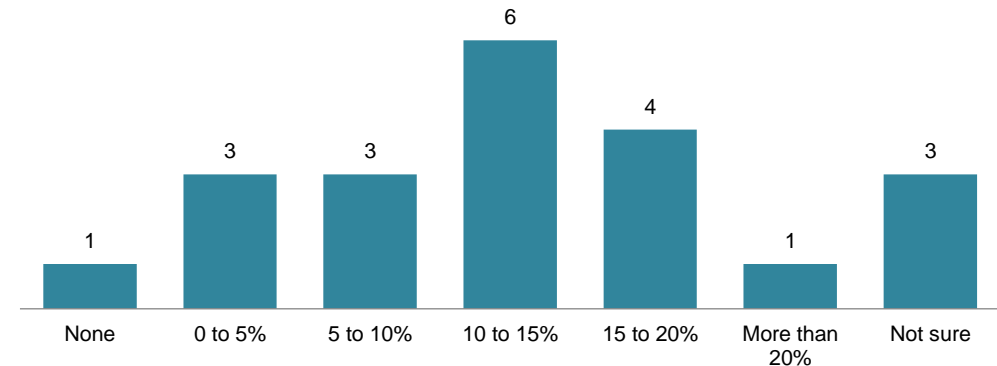


Source: Aite Group interviews with 21 top tier retail banks, August – October 2020

Impact of competitive challenges

- Many banks foresee a significant impact on revenue if their banks do not adapt and invest in payments.
- Competition from new entrants, in particular big tech, is considered the main threat.
- The median for the responses on this sample is a revenue at risk for retail banks of 10-15% of retail bank payments revenue, or US\$ 100-150 billion globally.

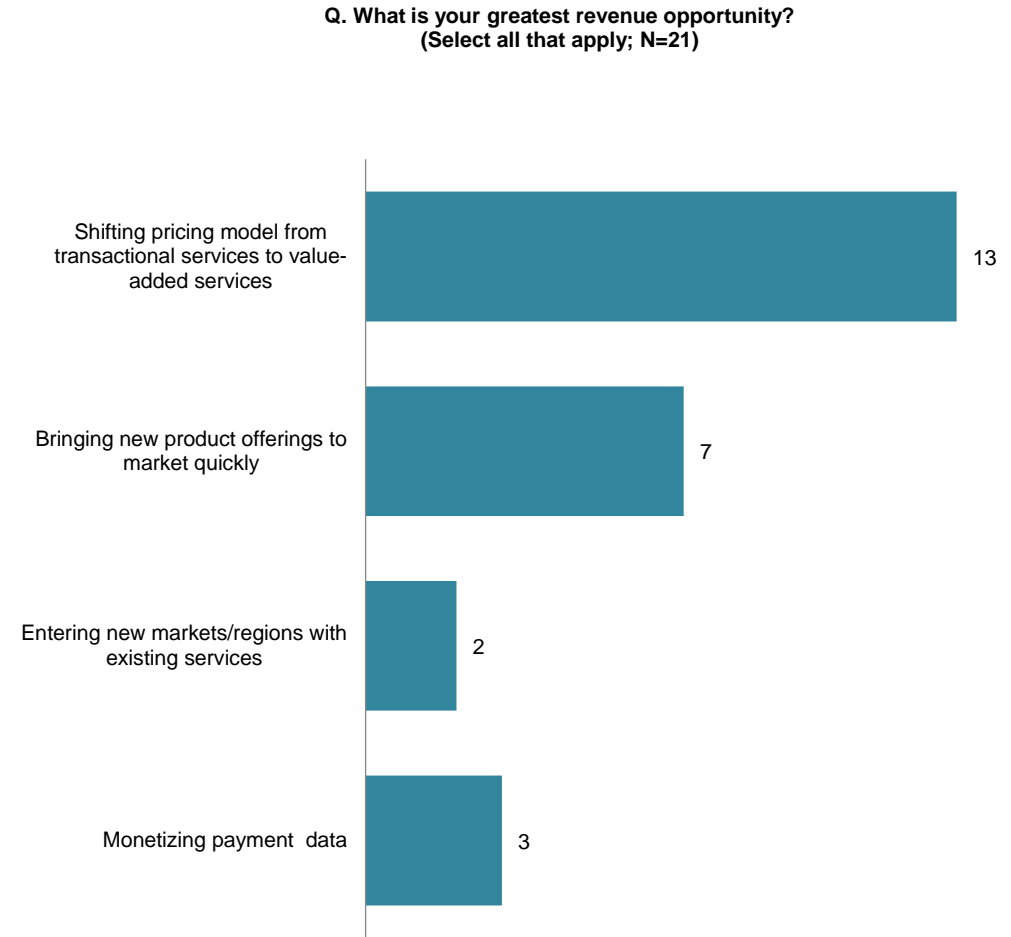
Q. Over the next 3 years, what percentage of retail payments revenues do you believe will be at risk from competitive challenges?
(N=21)



Source: Aite Group interviews with 21 top tier retail banks, August – October 2020

Banks are shifting their business models to value-added services rather than focusing on sheer transaction volume

- Nearly two out of three banks said that they are looking to shift their pricing model from a focus on transactional services to a focus on value-added services.
- Monetizing payment data is mentioned as a potential large opportunity for banks, but compliance with data protection legislation and fear of reputational damage makes it difficult for banks to monetize the opportunity, particularly in Europe.

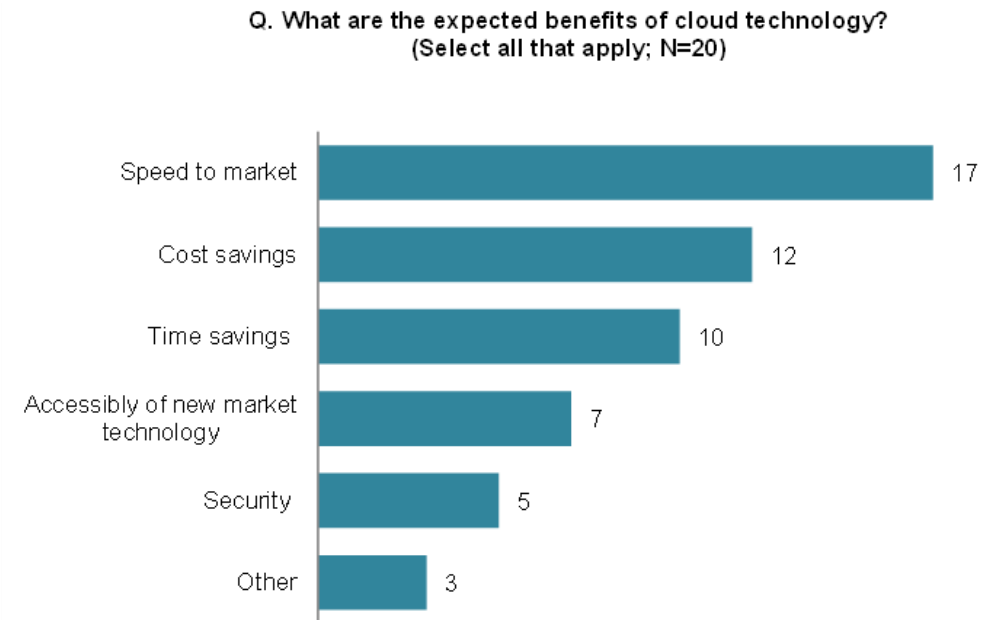
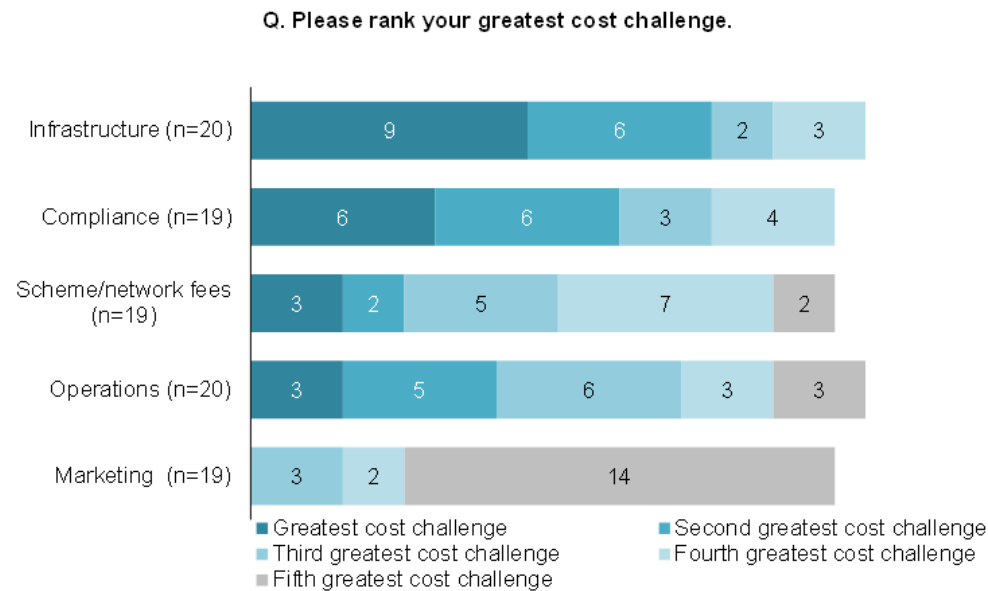


Source: Aite Group interviews with 21 top tier retail banks, August – October 2020

Banks are moving to the cloud to be more agile and reduce cost

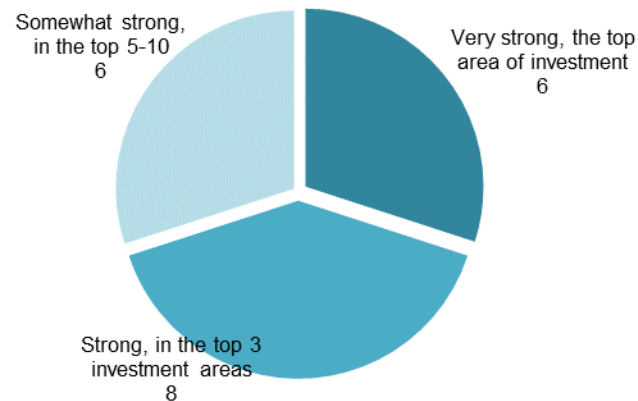
Banks see investments in infrastructure and the cost of compliance as the main challenges

Cloud technology enables banks to run a more cost-efficient operating model



Payment modernization is a strong priority

Q. How strong is the priority of payments modernization in your organisation against other investments? (N=20)



Payment modernization is a strong priority for banks to become more agile in their product delivery, reduce time-to-market, and streamline legacy processes.

Q. What are the positive outcomes for modernization of payments in your organization? (Select all that apply; N=21)



Source: Aite Group interviews with 21 top tier retail banks, August – October 2020

Conclusions

- Profitability of the traditional payments business stands at a crossroads. The combined forces of fierce competition, regulatory interventions, and necessary investments in infrastructure and compliance are putting operating margins under pressure.
- At the same time the pandemic has boosted the adoption of digital payments, creating new opportunities for banks and other payment companies.
- New entrants are disrupting the status quo in retail payments and force banks to redefine their strategies to meet new challenges and stay competitive.
- Banks should invest in payments modernization to protect their market share against new competitors and develop new business. Continuing on a business-as-usual scenario is not a viable option and will expose banks to a significant risk (10-15%) of loss of revenue.
- Banks should consider moving from a transactional pricing model to a model that is focused on value-added services.
- Technology vendors in the payments space should provide flexible, cloud-based solutions to banks to support them on their modernization journey.



PARTNER. ADVISOR. CATALYST.

Aite (pronounced “eye-tay”) Group is an independent research and advisory firm focused on business, technology, and regulatory issues and their impact on the financial services industry. Visit us on the [web](#) and connect with us on [Twitter](#) and [LinkedIn](#).

For general inquiries, please contact us at info@aitegroup.com.

Ron van Wezel

Senior Analyst

rvanwezel@aitegroup.com

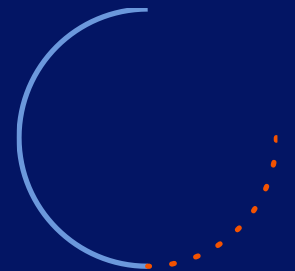
ClearBank, Simon Jones
Chief Customer Officer

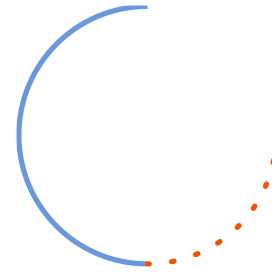
Clear.Bank[®]

Real-time payments in an instant world

Simon Jones

Chief Customer Officer

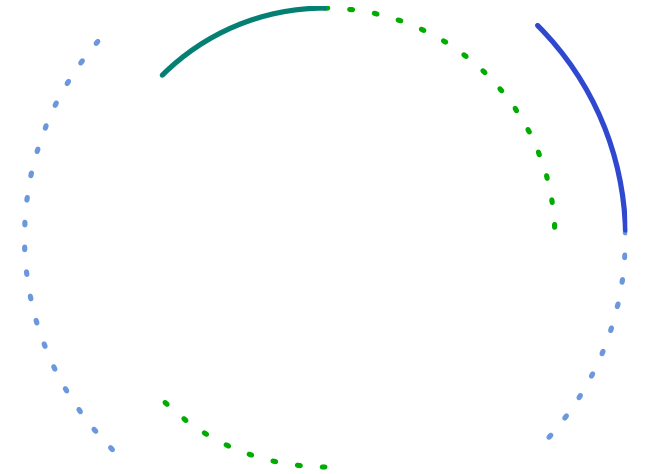




**The new normal may even
be a better normal, certainly
a very different normal**



Simon Jones



The move to digital is clear in payments

Covid-19 has turbocharged the move to digital global payments +

Since the outbreak of Covid-19, five years progress in digital adoption was accomplished in 8 weeks

US consumers are accelerating adoption of digital channels, a trend seen across global regions.

Digital adoption, by industry, % of digital access

● Regular users ● First-time users



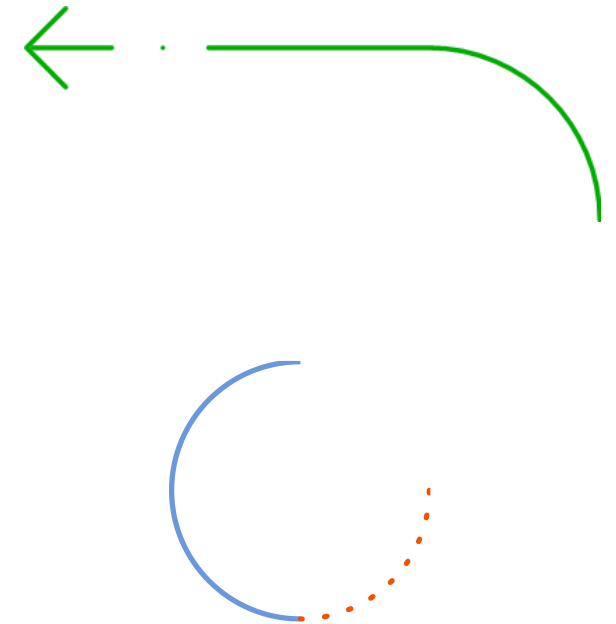
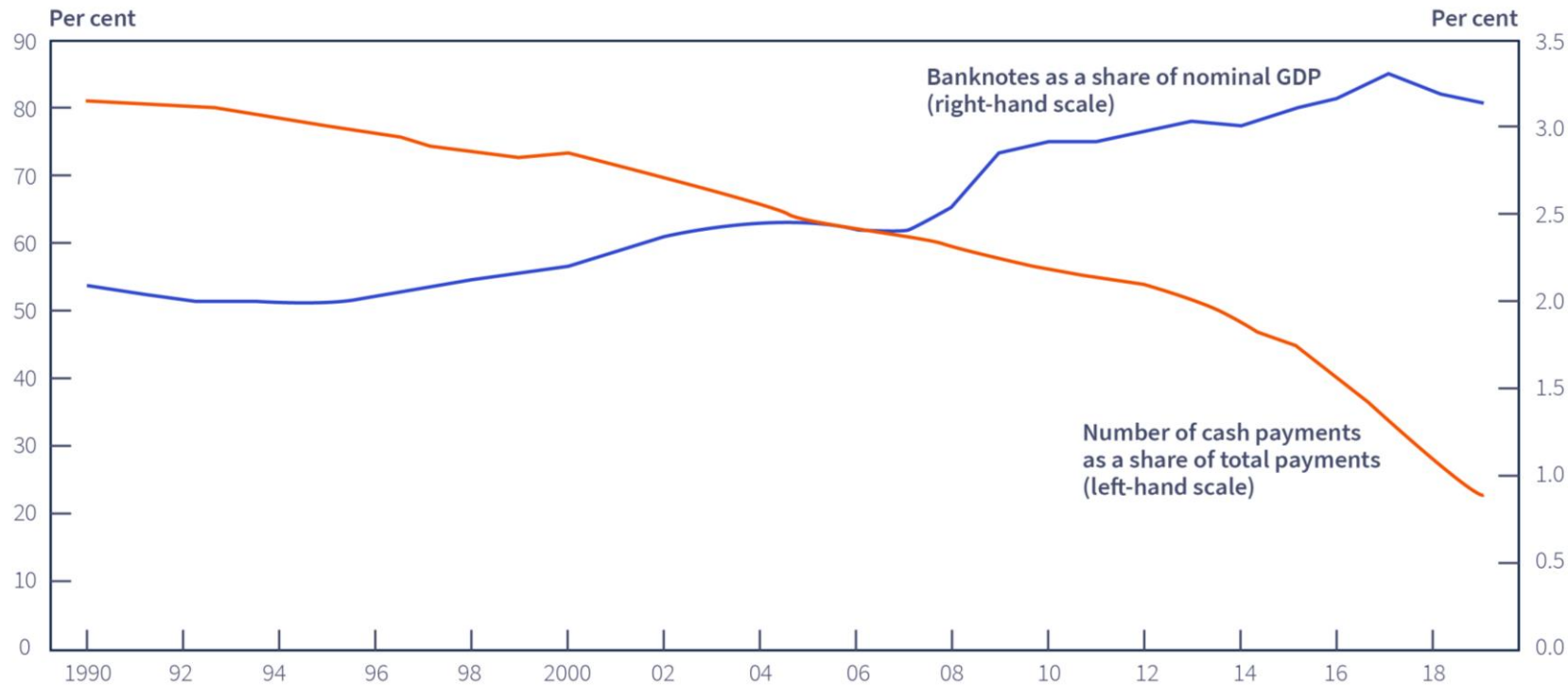
Note: Figures may not sum to listed totals, because of rounding
Source: McKinsey COPVID-19 US Digital Sentiment Survey, Apr 25-28, 2020

Payment methods - trends



Consumer behaviours changing - rapid decline in the use of cash

Cash payments have declined, but the value of bank notes in circulation has risen



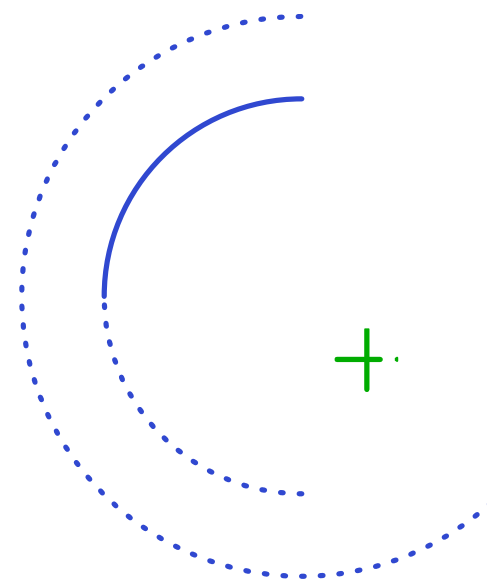
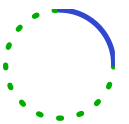
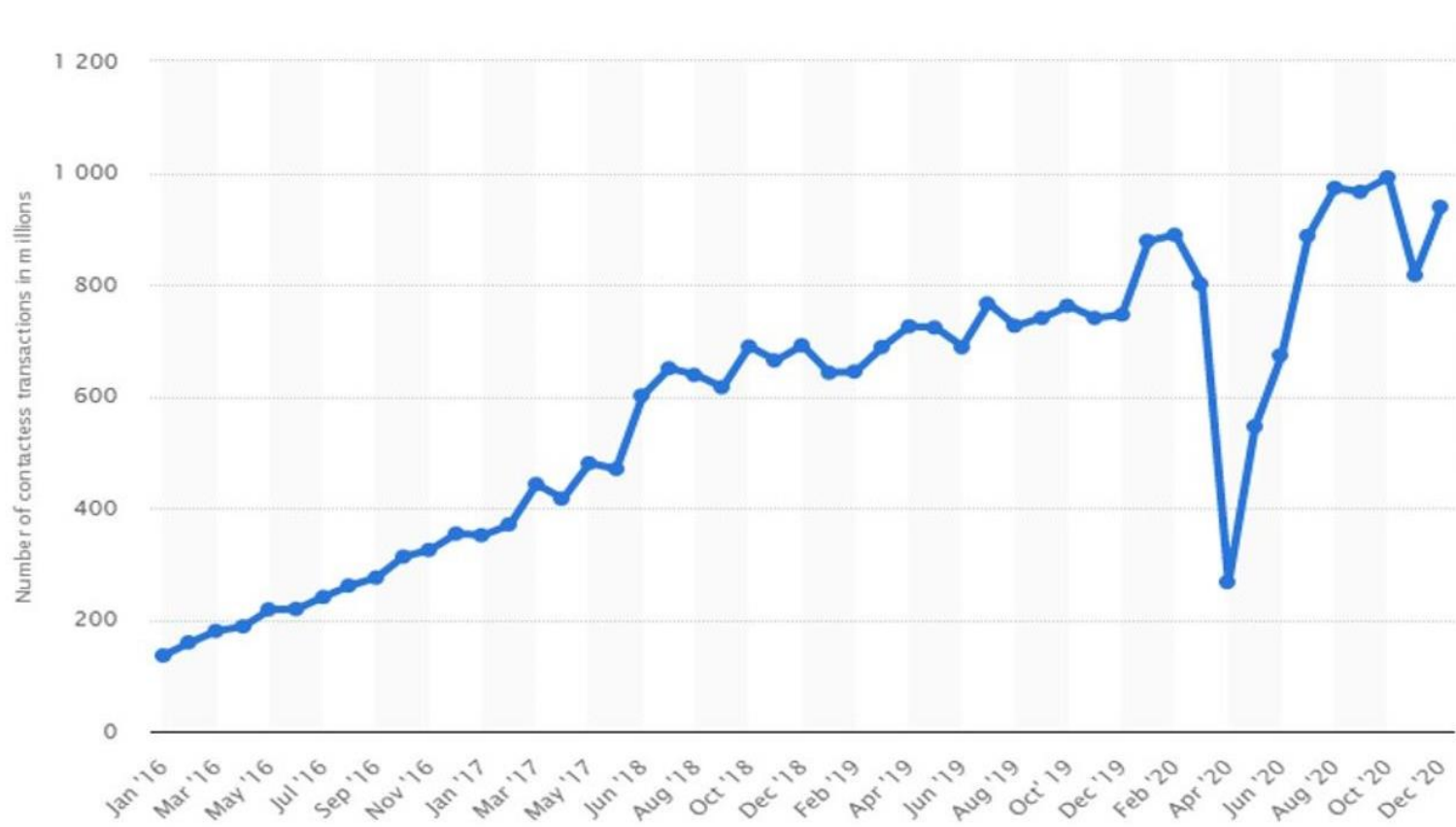
Source: Bank of England statistics and UK Finance - UK Payment Statistics.



Payment methods - trends

Consumer behaviours changing – contactless at point of sale

Contactless Card Payments continue to grow

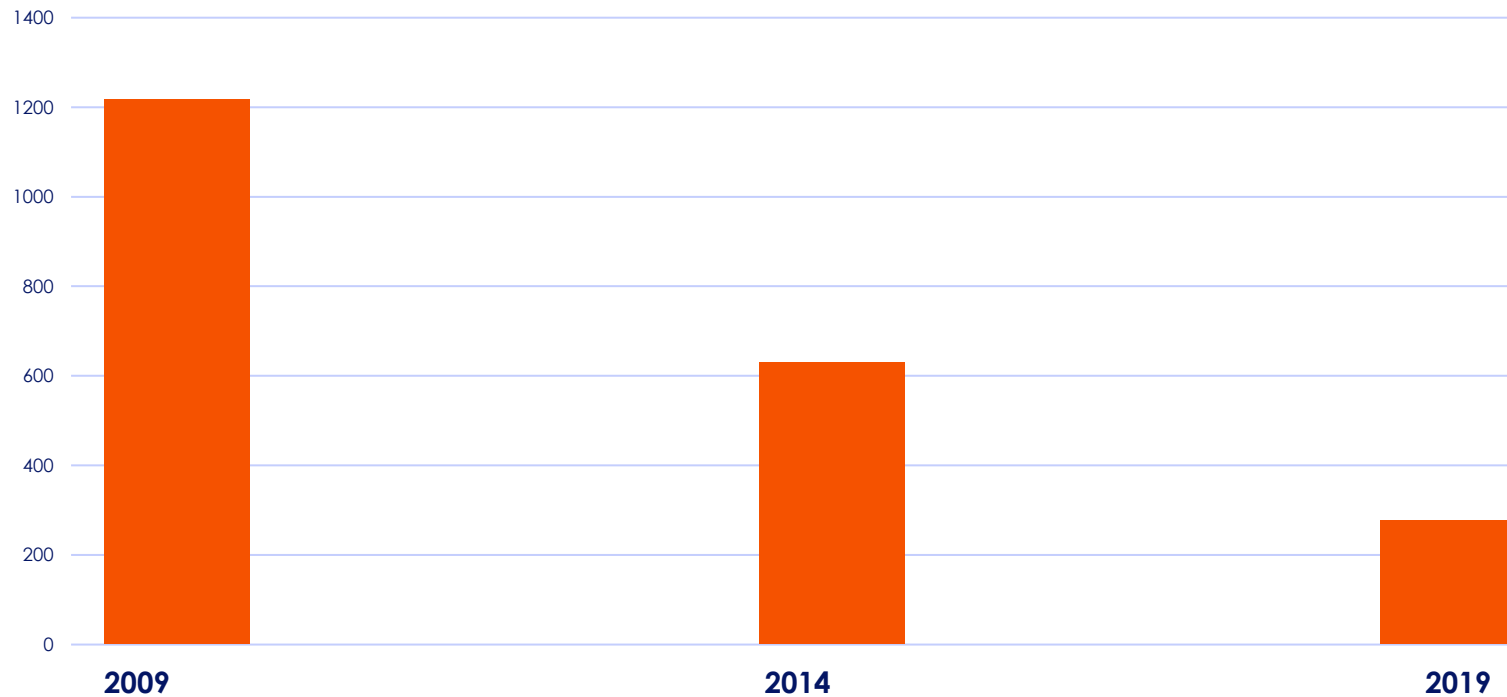


Source: Statista, 2021

Payment methods - trends

Consumer behaviours are rapidly changing, cheques are declining faster than the scheme predicted

Cheques used to make payments (millions)

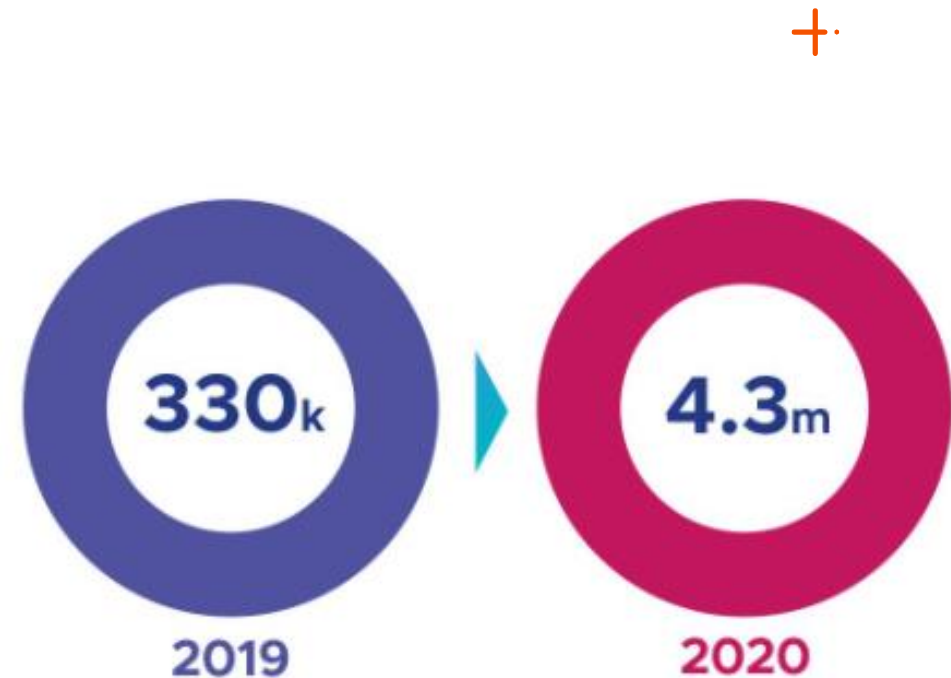


Payment methods - trends

Consumer behaviours are rapidly changing – open banking payments have just started



Just Giving – Captain Tom



Almost 4 million more open banking payments were made in 2020 compared to 2019



Payment methods – UK vs Europe



Simple, effective and scaling fast

2016

100% banks instant payments addressable

2022 - 2023

New Payments Architecture ("NPA") upgrade imminent



Work to be done to improve interconnectedness of infrastructure

2018

EU Instant payments launched

55% of banks are instant payments reachable

01 EU cross border instant schemes

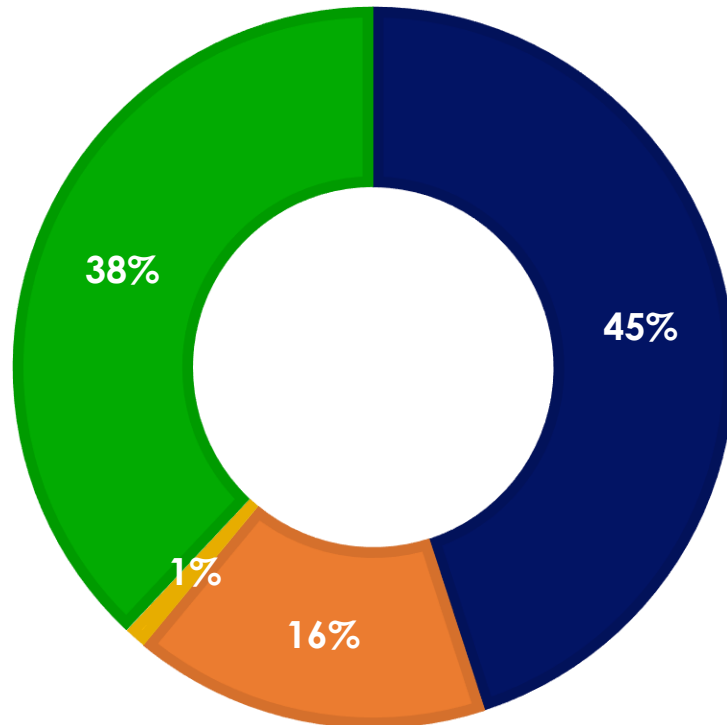
12 country instant payment systems in operation



Safety & fraud are a real concern in a real-time digital world

TOTAL 2020 FRAUD LOSS = £1.26BN

■ Payment card ■ Remote Banking ■ Cheque ■ Authorised Push Payments



There's a myth around instant payments being less safe than cards

Introduction of Confirmation of Payee (CoP) in the UK has enabled fraud prevention in a way not seen before.

Over 90% eligible payments are covered by a CoP check and banks have seen up to a 30% reduction in fraud claims since the introduction of CoP

Costs to banks – implementing change

Banks have three options to modernise systems to a real-time world:

1: Big-bang replacement of core

2: Journey-led progressive modernization

3: Greenfield tech stack



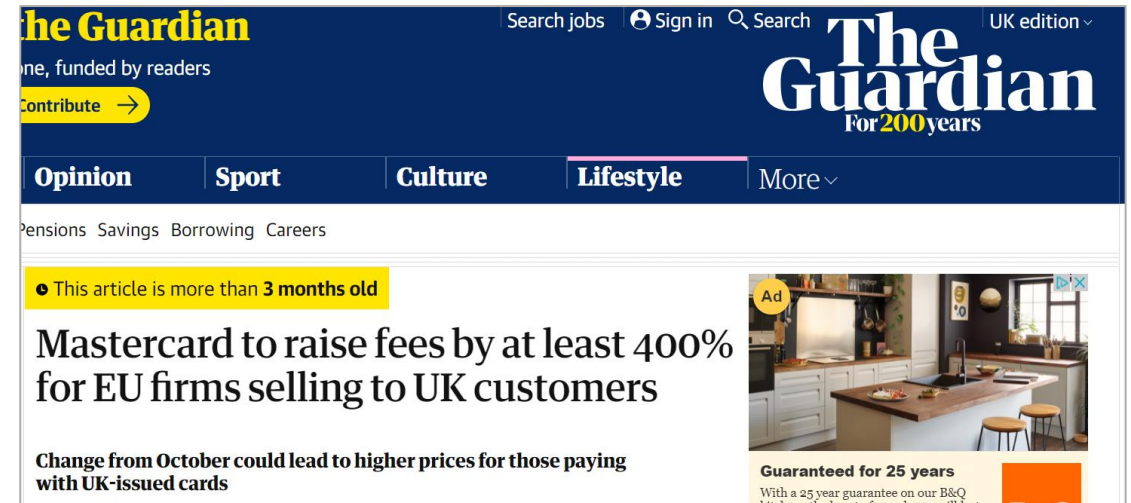
Note: Based on flash survey conducted in 2019 during a banking conference with over 100 banks.
Source: McKinsey analysis; annual reports



Costs to business is changing - merchants

With online volumes booming, many merchants are now finding that payments acceptance is far more complex online than in-store.

- ✗ Higher rates of card fraud
- ✗ Dilemmas over authentication
- ✗ A diverse array of payment methods to accept
- ✗ Card fees are higher in online channels – sometimes substantially so



2021: we have already seen an estimated **€100 million** of annual scheme fee increases levied by Mastercard alone

(source: acquirer communications, CMSPI estimates based on 2019 retail data).

In summary



Instant payments are **here to stay**



In a real-time world, **all banks** need to update their infrastructure to support instant payments to be highly scalable and resilient



Partnering is becoming **increasingly important** in order to compete with Fintechs



Simon Jones

Chief Customer Officer
Simon.Jones@clear.bank

Clear.Bank[®]

Clear.Bank[®]



Number

+44 (0) 203 111 2370



General enquiries

enquiries@clear.bank

Copyright ClearBank Ltd. Authorised by the Prudential Regulation Authority (Financial Services Register number: 754568). Registered Address: 133 Houndsditch, London, E14 4HP. ClearBank provides indirect access services.

Prudential Regulation Authority (Financial Services Register number: 754568). Registered Address: 133 Houndsditch, London, E14 4HP. ClearBank provides indirect access services.

Clear.Bank[®]

Bottomline, John Ballantyne

Sales Director, Financial Messaging

Bottomline, Vitus Rotzer

Sales Director, Europe

Real-time payments as a driver for innovation

John Ballantyne, Sales Director, Financial Messaging

Vitus Rotzer, Sales Director, Europe

Customers Across the Globe



WE MAKE COMPLEX BUSINESS PAYMENTS

SIMPLE, SMART AND SECURE

MORE THAN

660K

CORPORATE
CUSTOMERS

OPERATING IN

92

COUNTRIES
ACROSS
6 CONTINENTS

60

OF THE
FORTUNE 100

15

OF THE TOP
25 GLOBAL
BANKS

250

TOP INSURANCE
COMPANIES

1,500

HEALTHCARE
ORGANIZATIONS

1,200

BANKS &
FINANCIAL
INSTITUTIONS

89

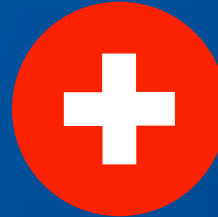
OF THE
FTSE 100

Bottomline Financial Messaging

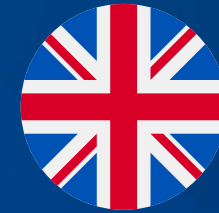


15%

International cross border traffic



Leader
in domestic payments



Leader
in domestic payments



Leading Service Bureau in Singapore

Top 3

SWIFT Service Bureau globally.
450+ customers.

10M

payments and transactions processed daily by our SaaS services

The Five Themes of Bottomline Financial Messaging



PAYMENT & CASH AGGREGATOR

Offers a set of aggregated payment services (connectivity, processing, monitoring, screening) to Financial Institutions and large corporates through a comprehensive **Digital Payments Ecosystem**

SECURITIES AGGREGATOR

Offers real-time consolidated view of the settlement lifecycle, helping asset & wealth management businesses, banks and private banks through a comprehensive **Digital Securities Ecosystem**



MESSAGES & CONNECTIVITY AGGREGATOR

Payment & Messaging connectivity, message processing, monitoring and interconnection of global networks & schemes

FINANCIAL CRIME

Provide an integrated solution for end-to-end **Financial Crime Management products**, leveraging advanced technologies to meet regulatory obligations and reduce risks

DATA & ANALYTICS

Deliver the ability to track & control Payments & Securities, gaining insights to analysis and present real time data on the status of the customers business



New Geographies



Current Geographies

The evolution of payment system access models

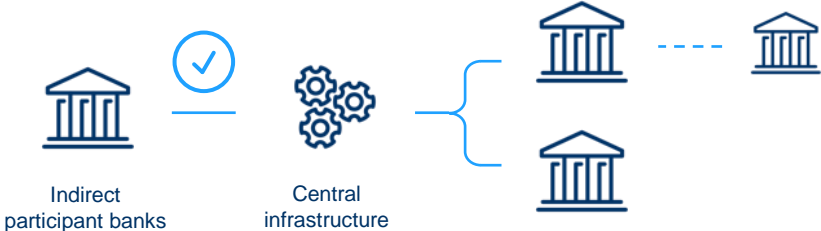


First Generation

Direct Only
Indirect participant fully relies on direct participant

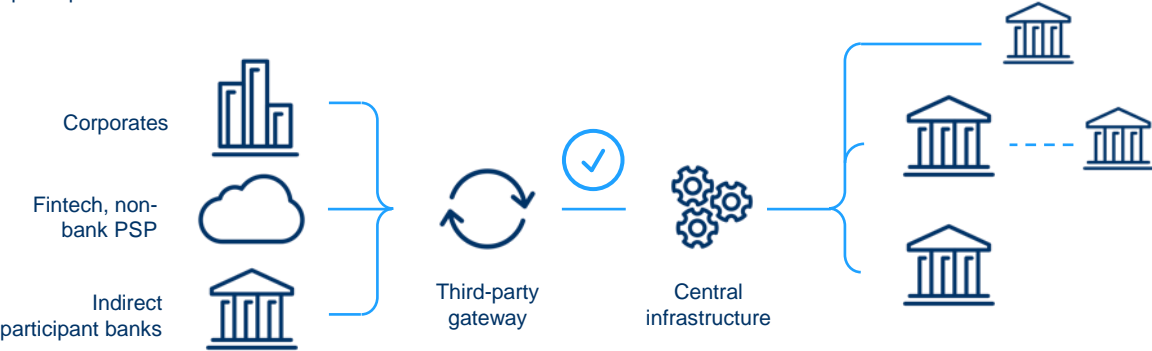


Indirect and Direct
Indirect participant has direct access



Second Generation

Direct, Indirect and Third-Party Gateway
Indirect participant can utilize third-party gateway to access



UK Faster Payments: Fast Facts – *Speed, Convenience and Security*



Bottomline is a market leader in the provision of Real Time Payment solutions and have taken more new entrants to FPS capability than any other provider.



Launched 27th May 2008



13 banks connected to Central Infrastructure



1st truly 24/7/365 payment system in the world and first new payment system in UK in over 20 years



2015 - transaction limit increased to £250k



August 2016 - first joiners under the New Access Model & numbers have continued to rise



In April 2021, **278.2 million payments** were processed. A 38% increase on April 2020



These payments had a **value of £212 billion**. A 49% increase on April 2020's total



Insights of early adopters – 2nd generation

Most banks must upgrade their IT capabilities to offer instant payments

- Enhance internal IT system to operate 24/7/365
- Prepare back-end systems designed for batch-based files to ensure they can support message-based payment processing. This cuts across core banking, fraud prevention and sanction screening systems.
- Develop front end applications that utilise instant payments capabilities – online banking, mobile channels, P2P apps etc.

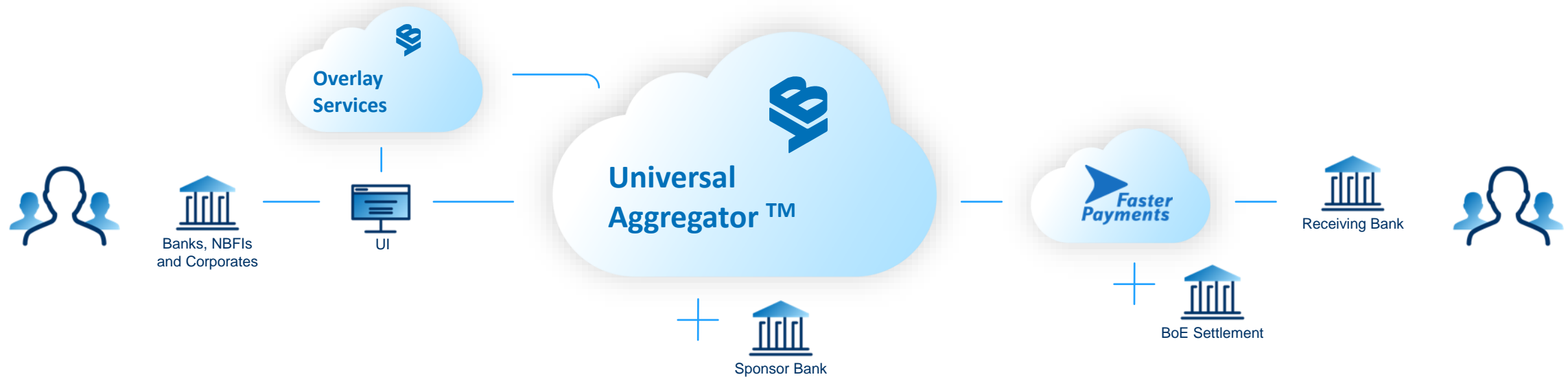
NB. Scheme changes can be an important consideration and a source of unforeseen additional cost.

Voice of Customer: Unique challenges to small, medium sized banks and larger banks in secondary markets

- Sensitivity to up-front and maintenance costs
- Integrating vendor solutions with existing back-office systems
- Requirement for quick time to market — with speedy ROI
- Difficult to justify business case with lower volumes to start with
- Compliance with future scheme changes
- Scarcity of qualified experts / Payment specialists in the market

NB. Challenge for these customers is that the volume of transactions drives the revenue. But, the complexity of the implementation effort drives the cost.

Bottomline Real-Time Payments Express (RTPE)



- Near Real Time, 24x7, always on, bank grade service
- UI Monitoring with tracking and exceptions management
- “Plug and play” connectivity via API - no upfront investment
- ISO 2022 messaging format and future-proofed for PSD2/Open Banking
- Roadmap to added value overlay services, additional schemes and additional currencies

Business Payments Barometer

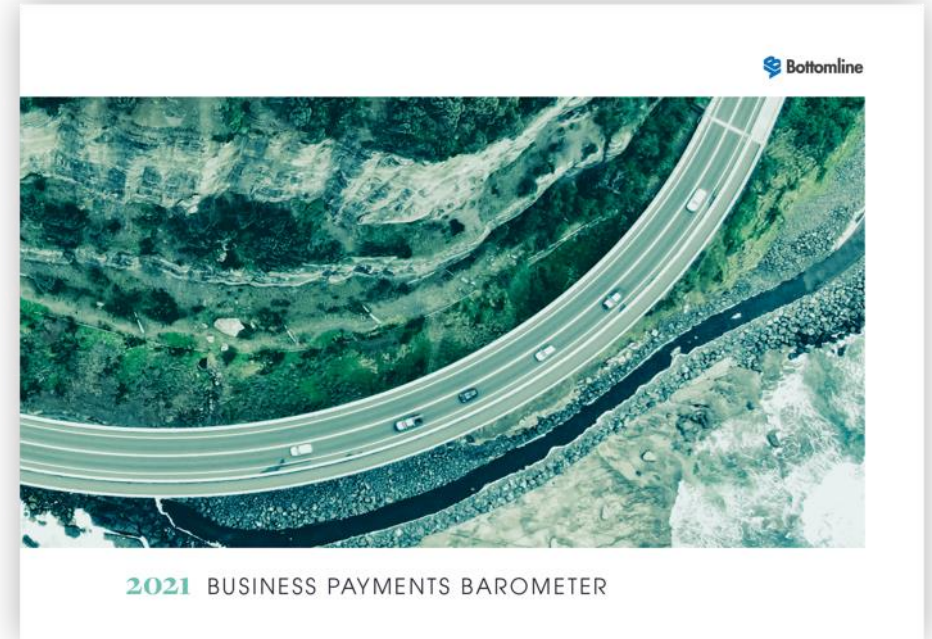


Now in its sixth year, the Business Payments Barometer highlights the trends in the payment industry as described by 800 financial decision-makers in Great Britain.

This research consisted of an online survey, which took place in January and February 2021 in partnership with Ipsos Mori.

The report reveals how finance departments are responding to the changing landscape, where priorities lie for the year ahead, and how they deal with fraud and risk.

The sample of 800 interviews was split into 200 financial decision-makers each from small, medium, large and enterprise organisations (10,000+ employees or annual turnover £500,000,000).



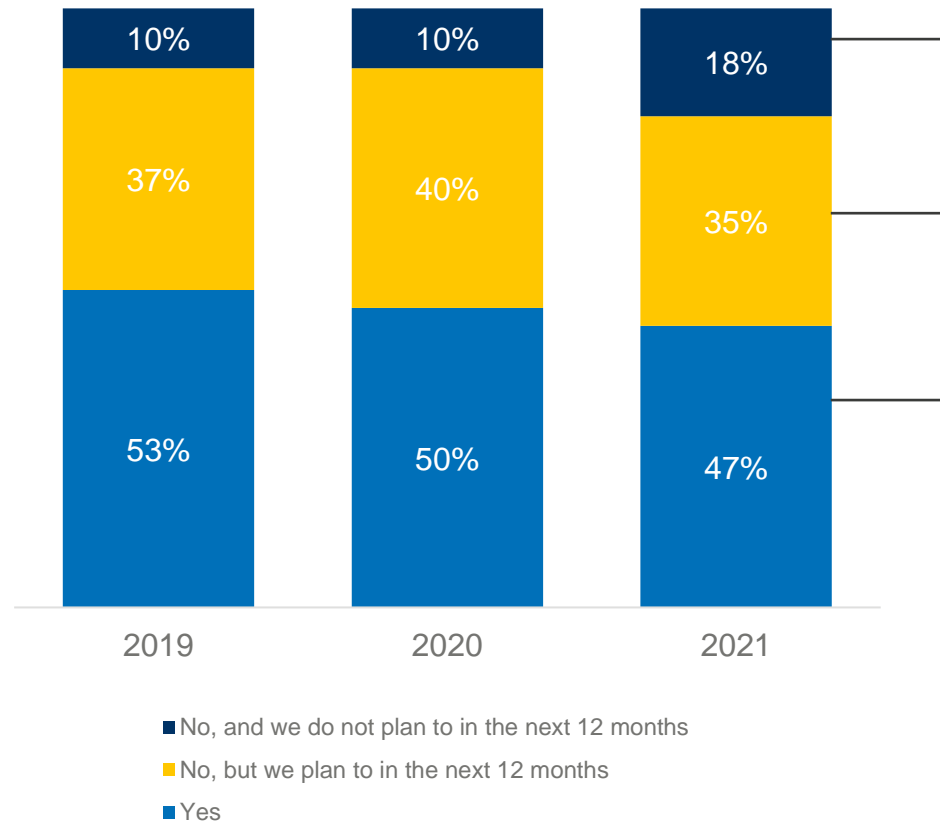
Visit [bottomline.com](https://www.bottomline.com) to view the report in full

We used ONS-Business populate estimates 2019 to calculate the weighting.

Adoption of real-time or Faster Payments



The number of businesses who have suggested that they will not adopt real-time payments in the P12 months has almost doubled, whilst adoption has dropped again year on year.



30% of small organisations have not and do not plan to adopt real time payments, up from **16%** in 2020

41% of medium sized organisations plan to adopt real time payments in the next 12 months

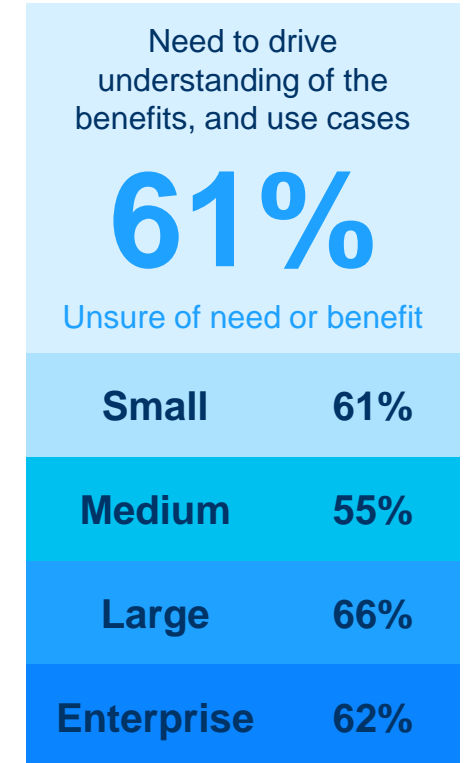
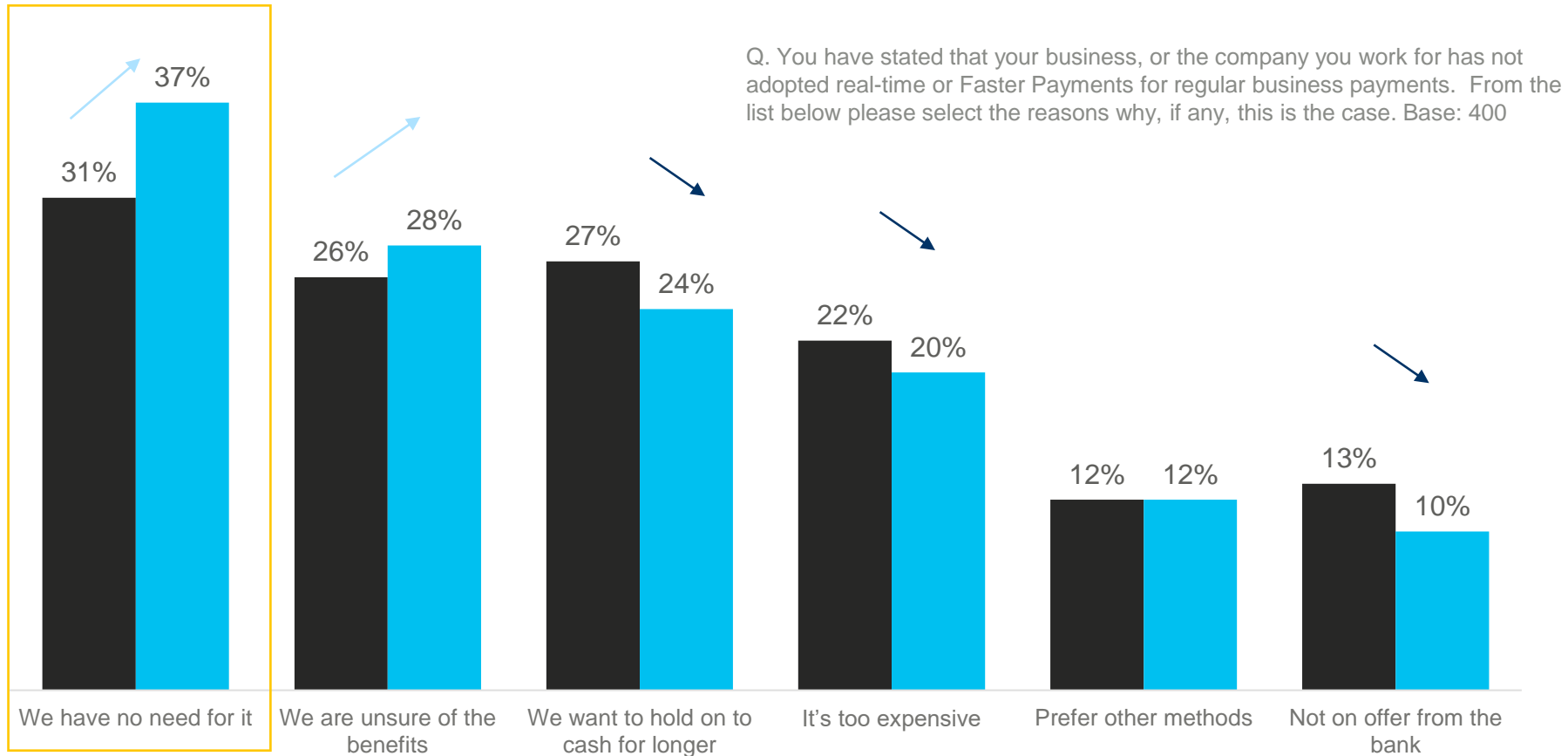
61% of enterprise organisations have adopted real time payments, compared to only **32%** of small businesses

Q: Has your business, or the company you work for adopted real-time or Faster Payments for regular business payments ? Base: 800.

Barriers to real time payments



The biggest obstacle in the way of real time payment adoption, is the need to show the value, and emphasise the business needs that it will help to meet.

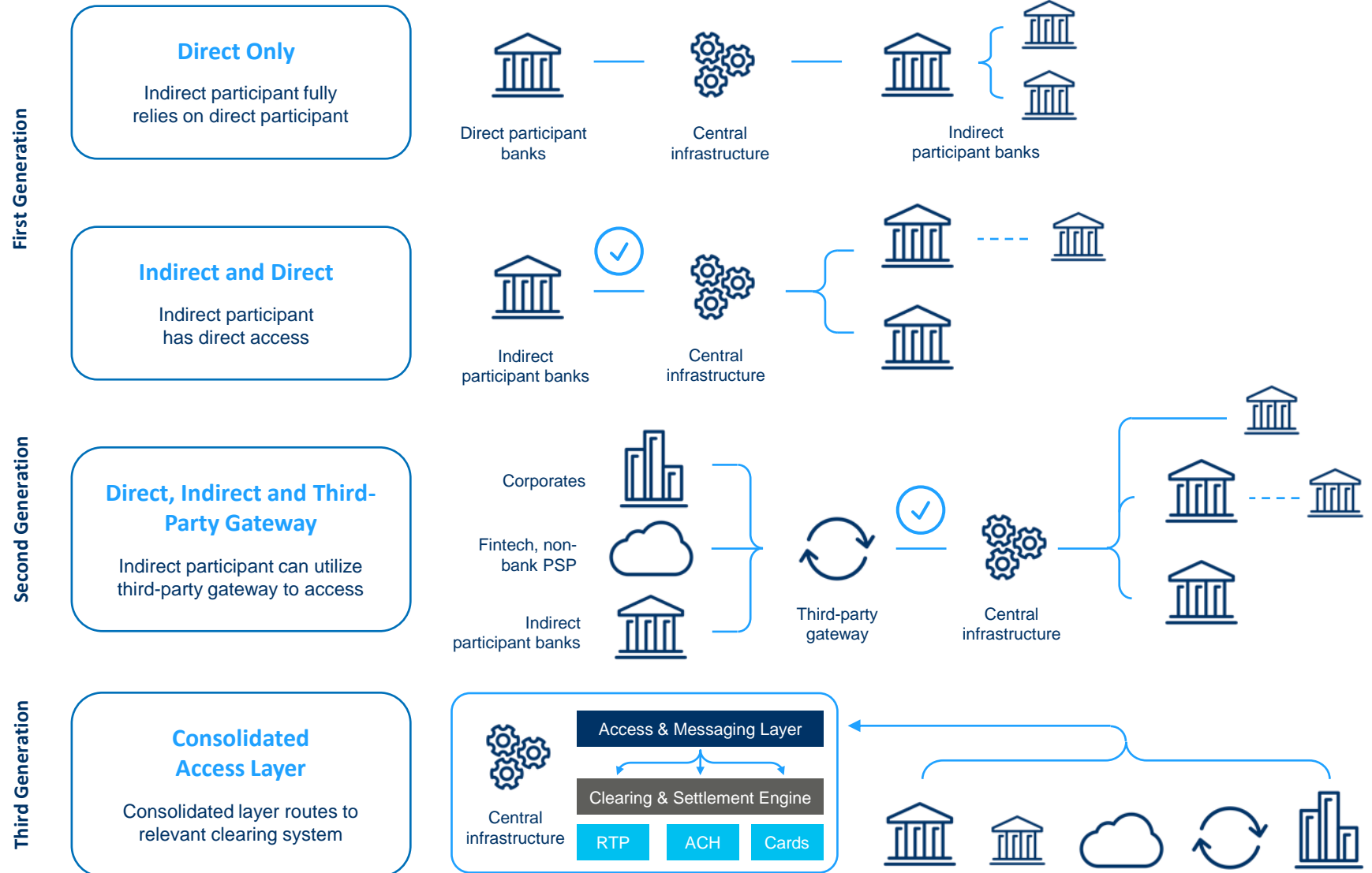


42% of small businesses stated no need as the barrier, with 39% of enterprises stating the same reason ■ 2020 ■ 2021

The evolution of payment system access models – 3rd generation

One or more payment rails accessed under a common architecture:

- **ISO20022 – richer data**
- **Request to Pay**
- **Cross border**
 - SWIFT gpi
 - SWIFT gpi via API
 - Universal Confirmations
 - Visa B2B Direct
- **Open Banking & Collaboration**

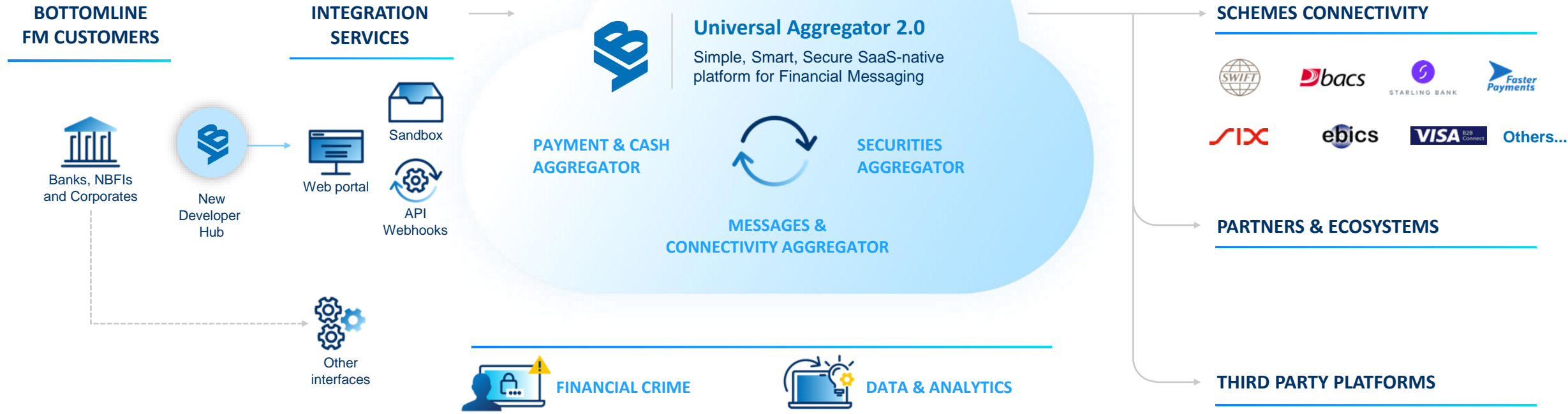


Evolved access supported by Universal Aggregators



A global SaaS platform built around 5 themes leveraging ISO 20022

- More velocity
- More reach
- More agility
- More services
- More insights



Bottomline | IQ treasuryXpress

Bureaus in London, Geneva, Singapore & Zürich

A view on Europe and Switzerland

Real-time payments current situation and footprint

Digital transformation is driving innovation



Drivers for Innovation

- Market demand and expectations from private clients and corporates
- New standards : ISO 20022 format, Open Banking, PSD2
- New technologies: APIs, Cloud, speed, security, DLT/Blockchain
- Pan-European initiatives and regulations



are all paving the way for Real-time Payments adoption and growth



24/7/365



Within seconds



Immediate feedback



Irrevocable

Real-time Payments Footprint in Europe



 Adoption of **SEPA Inst** scheme is growing

- **59% of European payment service providers (PSPs) have already joined the SEPA Inst scheme**
- **Volume of transactions in the SEPA Inst scheme is constantly rising: 8.6% in Q1 2021**
- **23 countries have at least one PSP participating in SEPA Inst scheme**

Customers have the ability to make/receive a payment within seconds, for credit transfers in EUR up to 100,000, with 24/7 availability and a Pan-European reach to a potential of 36 countries:

27 Member States of the European Union (EU)

3 countries of the European Economic Area (EEA)

6 non-EEA countries, to which the geographical scope has been extended

Real-time Payments in Switzerland



SIC IP service



Ongoing initiative to introduce Real-time payments in Switzerland

- Current RTGS system (based on SIC4) is already near real-time during business hours
- New SIC5 platform to support seamlessly SIC IP service and SIC RTGS service
- Target availability for SIC IP service on the new SIC5 platform is mid-2023
- Mandatory for SIC participants to support at least incoming IPs (phased approach between 2024 and 2026)



Success factors and challenges

Real-time payments will drive innovation and become the norm

- Consumers (buyers and sellers) are expecting a new payment experience. A payment is expected to be in real-time and at no additional costs...
- COVID-19 has accelerated the digital appetite of the consumers.
- New technologies, new standards, new initiatives and revised regulation frameworks are paving the way for a global implementation of real-time payments.
- This will drive new and innovative digital experiences for the consumers, like invisible payments, R2P, Crypto, Paying by Voice, contactless payments, IoT, etc...)

The question is not “will Real-Time Payments become the new norm”?, but “when?” and “who will make the most of the opportunity?”

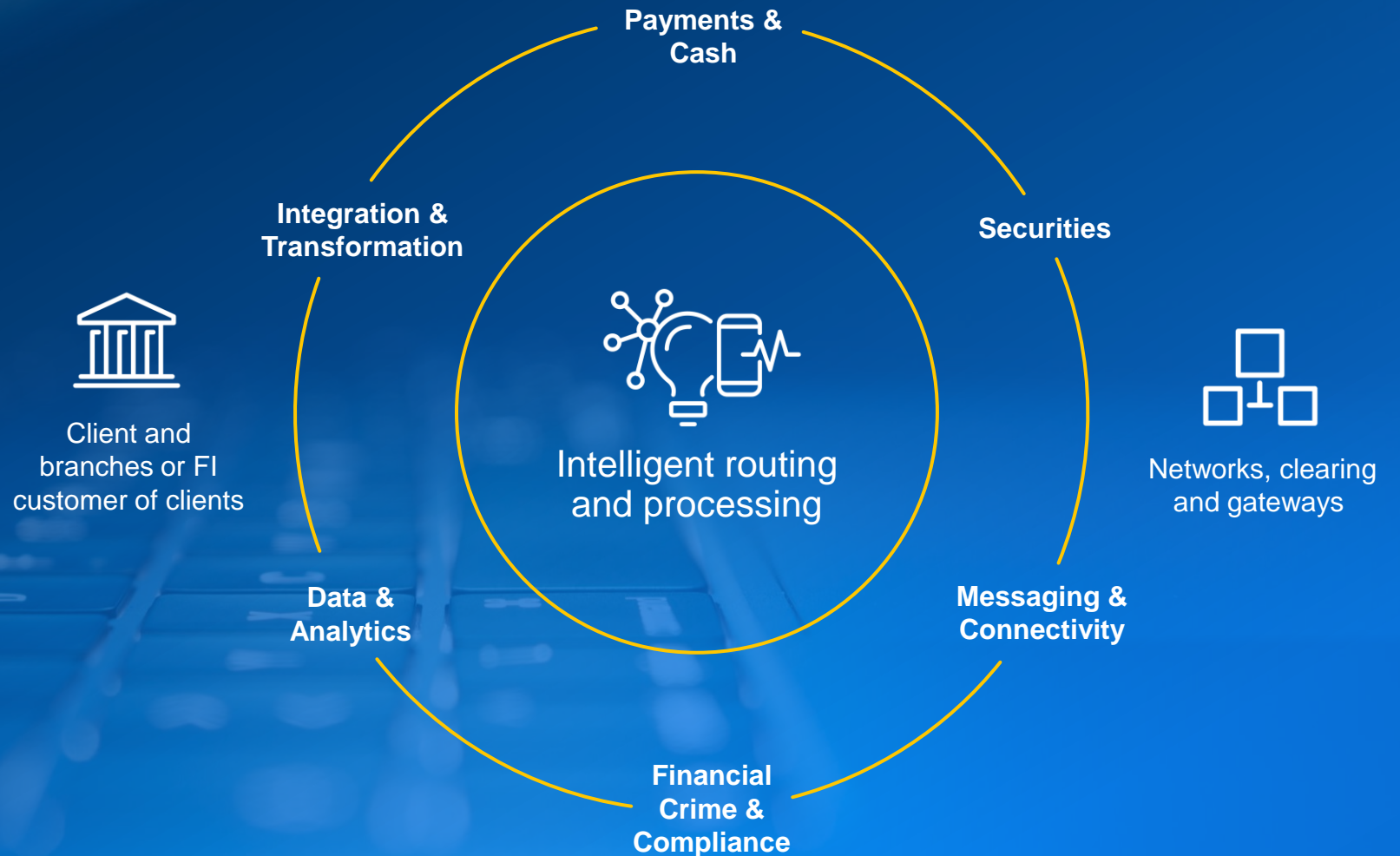
Challenges slowing down the process

- Business case & ROI
- Necessary investments in new payment infrastructures and integration with legacy when current revenue stream from more traditional payment schemes (e.g credit card) are so lucrative
- Fragmented networks
- Access
- Privacy
- Compliance

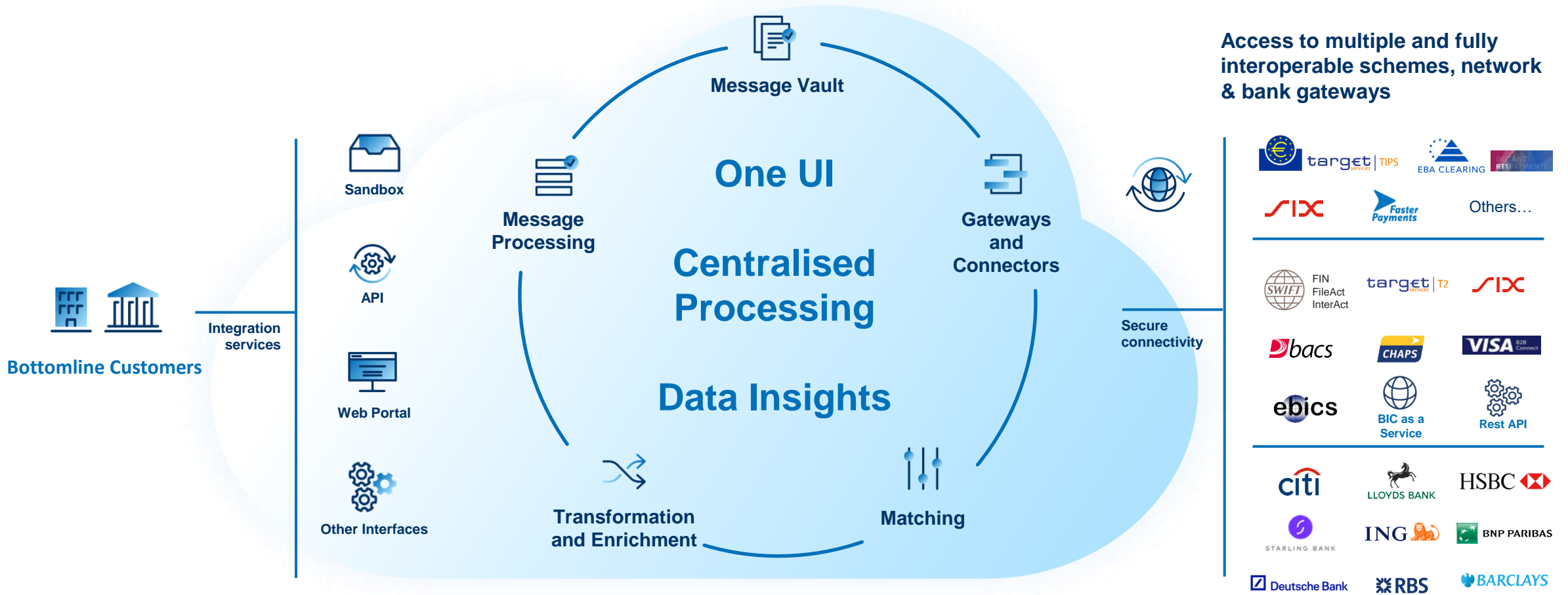
Market demand, new technologies and regulations will help overcome these challenges

Bottomline Universal Aggregator – A modern SaaS platform with intelligent routing and processing

A modular offering of multiple micro-services and multiple connectivity schemes than can be combined or stand alone



Bottomline Connectivity and Message Services



SaaS Platform & Services

Enhanced SLA & Infrastructure for Real-time payments requirements



DATA COMPLIANCE

Compliance with Data Sovereignty & Protection/Privacy best practice and regulation requirements



REACHABILITY

Easy and friction less access from everywhere. Interoperability Cloud vs Hosted



OPERATION

Global, **24x7 non stop Operation and Support.** Need appropriate process, means and controls



FUNCTION

To be On-Prem customer advocate. **Look on non functional requirements** (internationalisation, resilience, scalability)



INFRASTRUCTURE

Cost effective, Flexible, **Scalable and 24x7 non-stop available**

Compliance and Security

Compliance with National, International and Supra-National regulations + BT CISO requirements



Experts since 30+ years in building and operating secure, resilient and highly scalable Financial Messaging solutions

Questions?

Bottomline.com

John.Ballantyne@bottomline.com

Vitus.Rotzer@bottomline.com

Coffee Break
15:20 – 15:40 CET

TAS Group, Kai Laddiman
Technical Team Leader

Event Streaming

How simplifying integration and improving performance can prepare for cards and instant payments convergence

EBA Open Forum on Digital Transformation

09/06/2021



1982 Listed on the Italian Stock Exchange since
Founding year **2000**

Over 500 Functional & Technical Experts



Customers in over **20** countries



GLOBAL PRESENCE

More than **35 years** experience



50+ 
financial institutions
use our e-Money & Payments solutions

30+ banks 
worldwide use
TAS EMV solutions

70% 
of market coverage in
the Italian banking sector

Among the **first providers** 
SEPA-wide
in the T2S roll-out

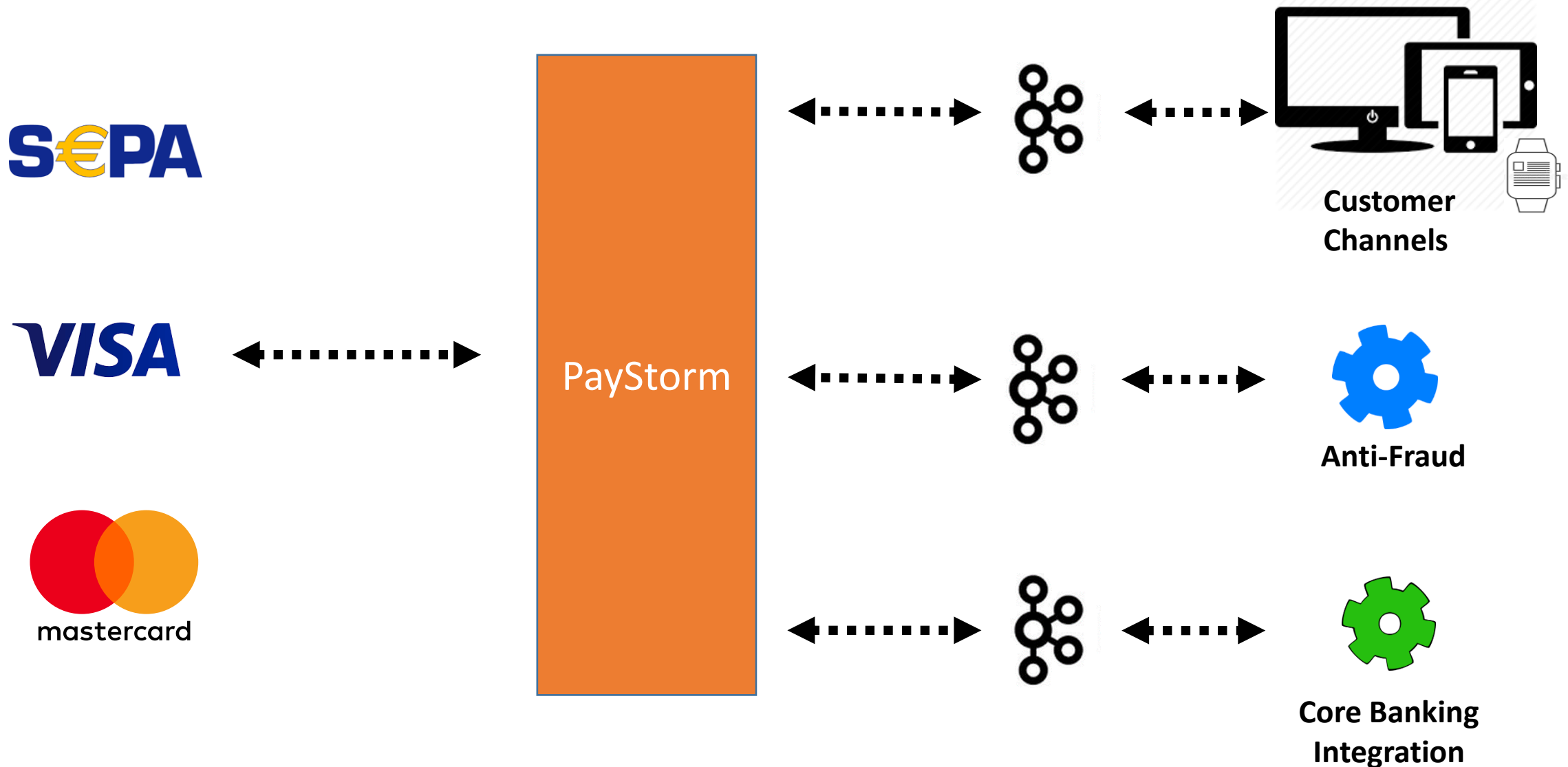
Driven by Innovation:

- AI / Mantica
- Early Innovator in SEPA SCT
- 3DS v2.2 products
- Micro-services & Streaming architectures

- Microservices, cloud topologies and data management.
- Extracting the value of data.
- Event streaming.

Today we're going to share with you how event streaming has simplified integration across multiple platforms when supporting a diverse set of actual use cases.

PayStorm Use Cases integrated with Kafka



Kafka made it much easier to create customer journeys involving the integration of separate banking applications

Context

- Customers can benefit from context sensitive real-time communication from their digital channels
- Effective interaction through digital channels is important for banks to raise customer satisfaction and increase customer profitability

Challenges

- Minimize the complexity of integration projects by limiting change to existing applications
- Reliability of new services must be guaranteed across all participating applications

Lessons Learned

- Customer journeys that utilize Kafka are effective, offer a quick time to market, and reduce the integration cost
- Implementation worked equally well with Kafka & Amazon SQS

PayStorm authorisation system needed to share transaction data with an external fraud management system

Context

- The Fraud Management System provided both real-time fraud score decisioning and post-authorisation notification for alerts and reports
- The objective was to improve the processing speed and quality of the integration, so we selected streaming technology for the interface

Challenges

- Needed flexibility: important to easily add new data fields in the messages exchanged between the systems, since the contextual data for fraud analysis is frequently changing
- Natural asynchronous properties of events streaming had to be adapted to the synchronous nature of a financial transaction

Lessons Learned

- Script engines provide flexibility and speed up the development and delivery process of the interface
- Using flight keys to co-ordinate data exchange between systems allows us to devise synchronous protocols for authorisation processes

Converting batch oriented clearing data into a real-time feed based on Kafka

Context

- Card Processor wanted to increase the performance and reliability of the clearing process.
- A Bank adopted a modern containerized architecture not compatible with traditional batch processing

Challenges

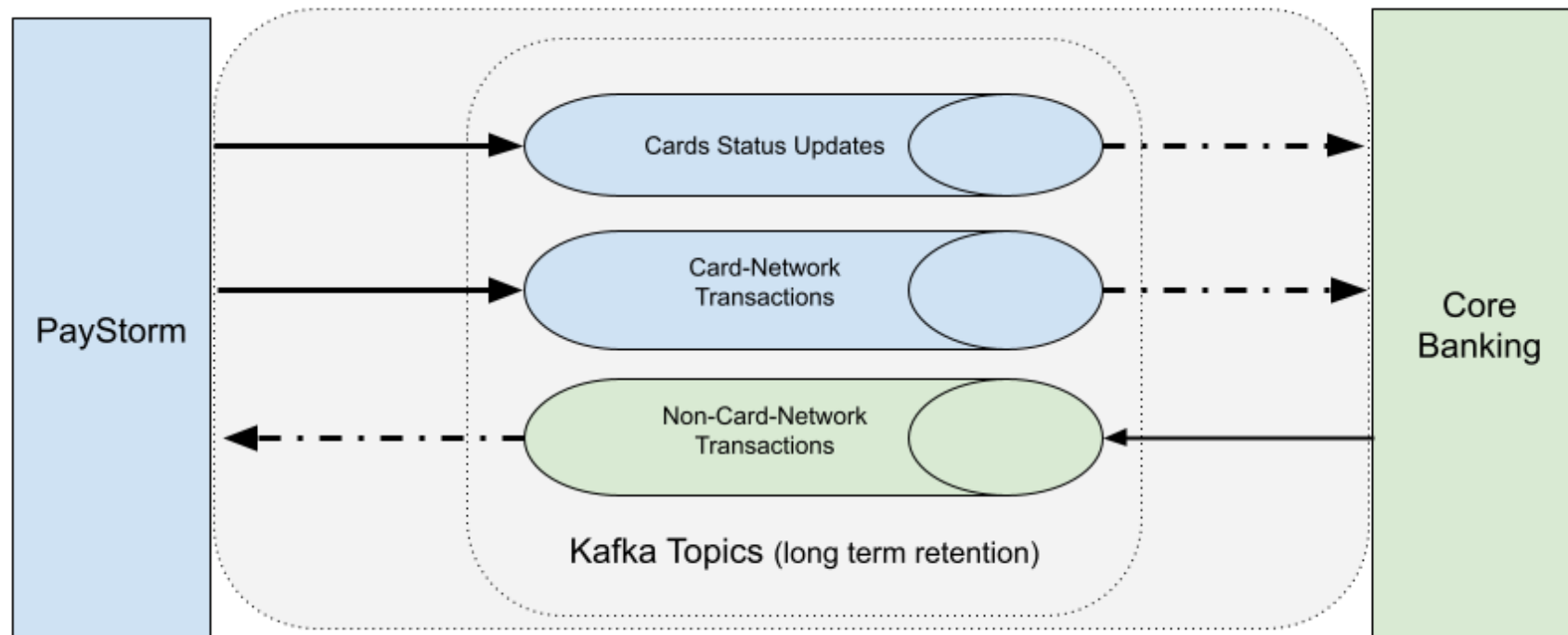
- Centralise the data while decentralising the processing
- Sensitive account data (SAD) must be handled securely throughout the system, both in memory and on disk

Lessons Learned

- The scalability and failsafe guarantees provided by Kafka ensured an effective, secure, distributed solution
- Treat temporary event stream data with the same care and precaution as historic data stored in databases

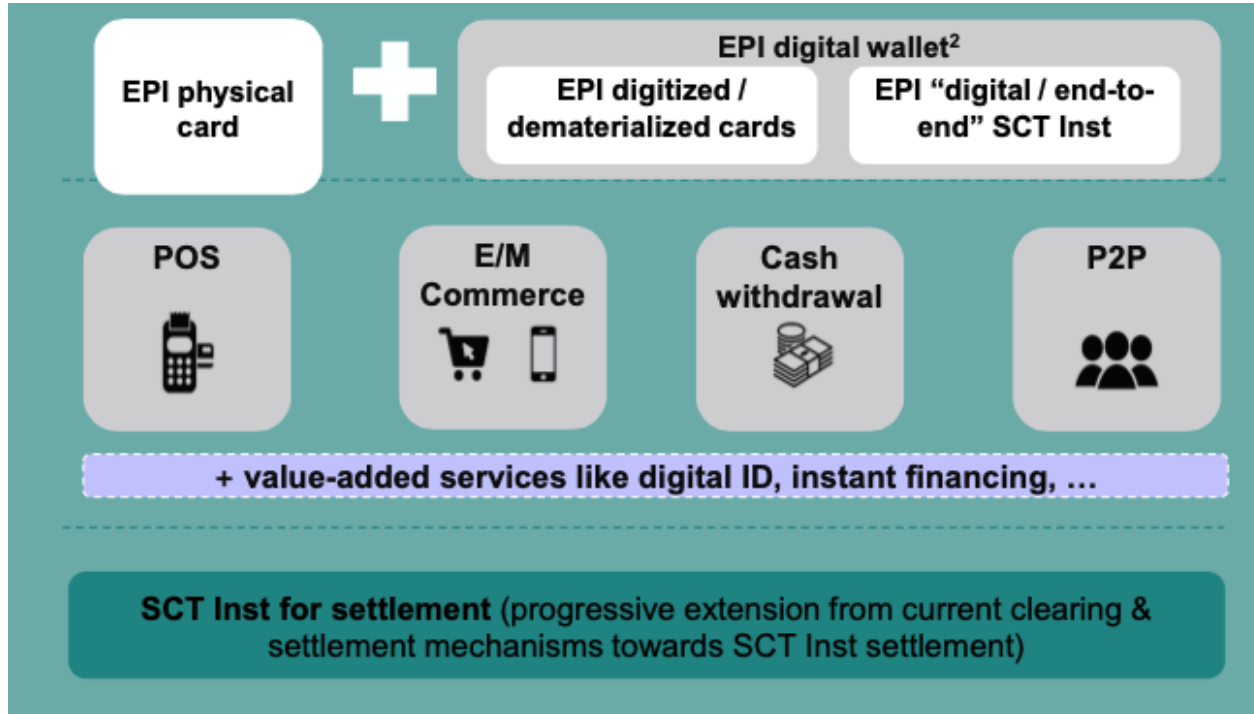
Use Kafka to facilitate and simplify the balance alignment after the CMS performs stand-in processing (STIP) services

TAS is working with a principal core banking platform provider on an innovative method for maintaining the alignment of balances between PayStorm and the Core Banking platform (i.e. necessary, for example, when processing debit card and offering “stand-in” processing)



This innovative approach, with Kafka in the middle, effectively permits transactions to use the same processing flow – whether in a normal processing mode, or “stand-in” mode.

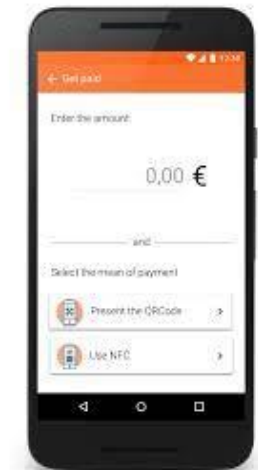
Acquirers already considering offering Faster Payments and SEPA Inst for clearing and settlement



PSP's enabling Faster Payments and SEPA Inst, initiated in App (e.g. w/ QR code)

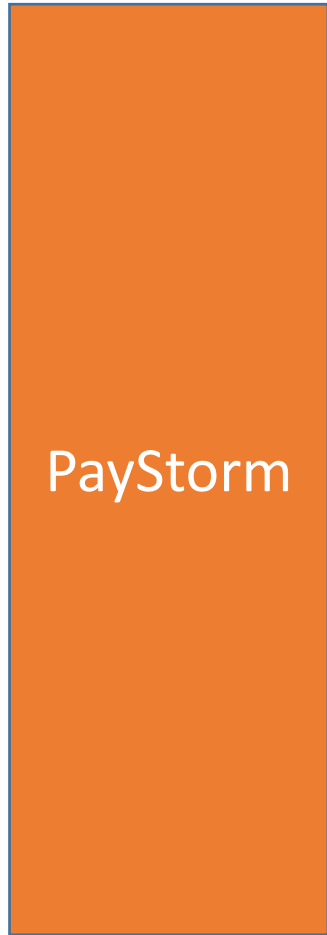
Not really a «future» evolution, this is already happening!

Source: <https://www.connectivepayments.com/a-view-on-european-payments-initiative-from-within/>

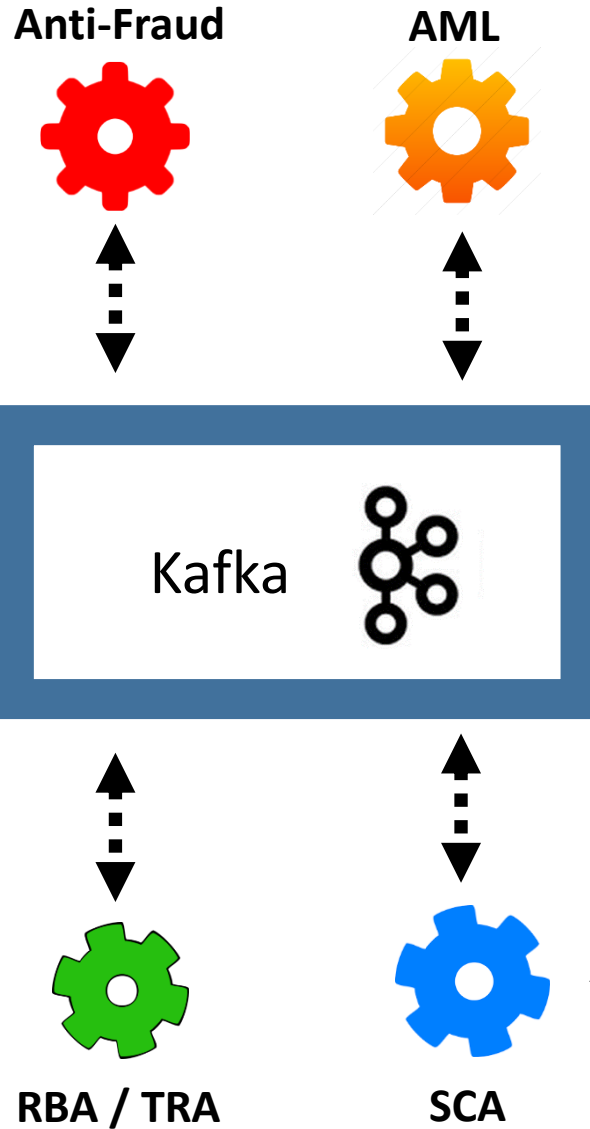




Authorise transaction
←-----→



←-----→



Wallet Management



←-----→

Customer





CONTACT

www.tasgroup.eu
solutions@tasgroup.eu

Thank you!

The information contained in this document cannot be distributed to third parties without the written authorization of TAS S.p.A



Panel Discussion

Open Forum on Digital Transformation

Moving beyond payments – What are the next steps in the digital transformation towards open finance?

2 November 2021

Thank you!

Participants in the forum are reminded of their responsibility to observe anti-trust laws.

The EBA Anti-Trust Policy is available at the EBA website.

https://www.abe-eba.eu/media/azure/production/1352/eba_antitrust_policy_20170602_final_clean.pdf

The forum is an open group, where interested stakeholders can discuss and exchange information on industry-wide topics.

The content of the slides presented and the views expressed in the context of the activities of the forum are those of the respective participants in the forum, and do not represent the views of the Euro Banking Association (EBA).