

Big picture on big tech

Stine Bosse, Chairman, TechDK Kommissionen (DJØF), Chairman,
BankNordik, Board Member, Allianz

What is the TechDK Commission?

- > 17 men and women whose purpose is to create recommendations for how we contain the downsides of technology:

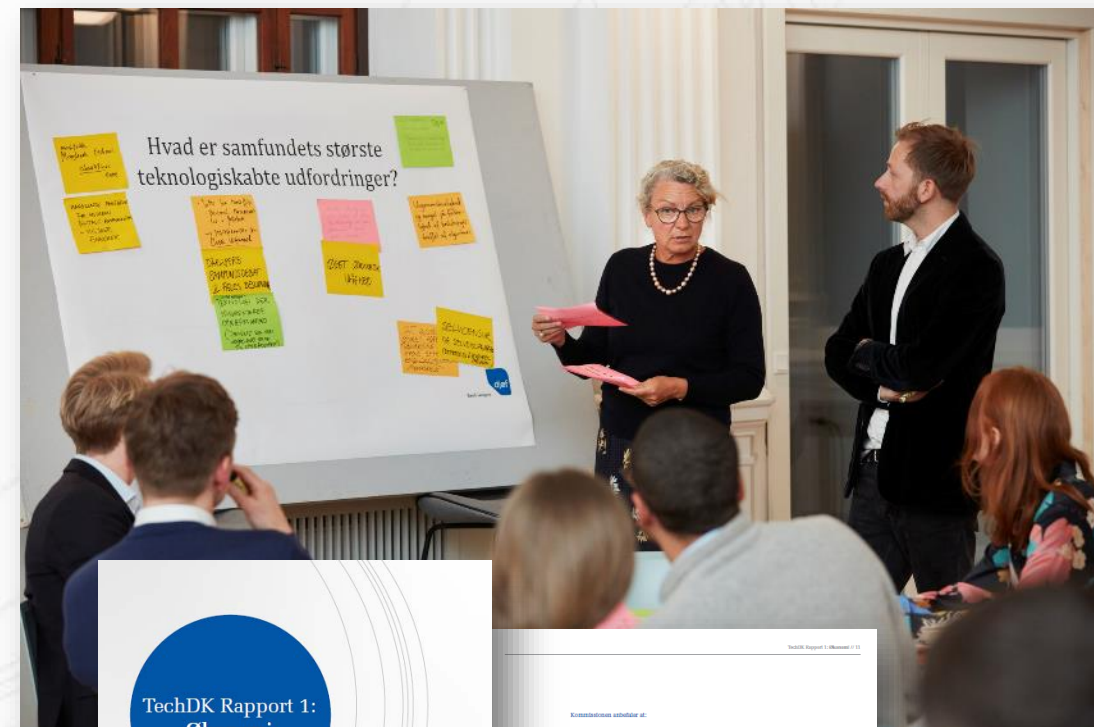
"The purpose of the TechDK Commission is to create recommendations for how new technology and social considerations can be thought together"



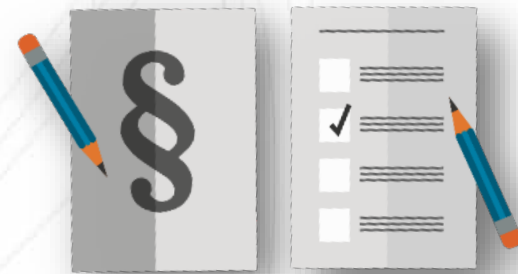
The Commission's work

➤ Together with the secretariat of Djøf, the Commission develops three reports under the headlines of:

- Economy
- Democracy
- Culture



The Commission's working method



1st meeting – Identification of challenges:

- What is the issue?
- Which societal values are under threat?

2nd meeting– Creation of proposed solutions:

- How can you solve the issue at hand?
- Which negative consequences can a proposed solution entail?

Drafting of the report

- The Commission's problem area and solutions are written
- Proposed solutions are reviewed by legal advisers and external experts
- The report is launched in the media and to politicians



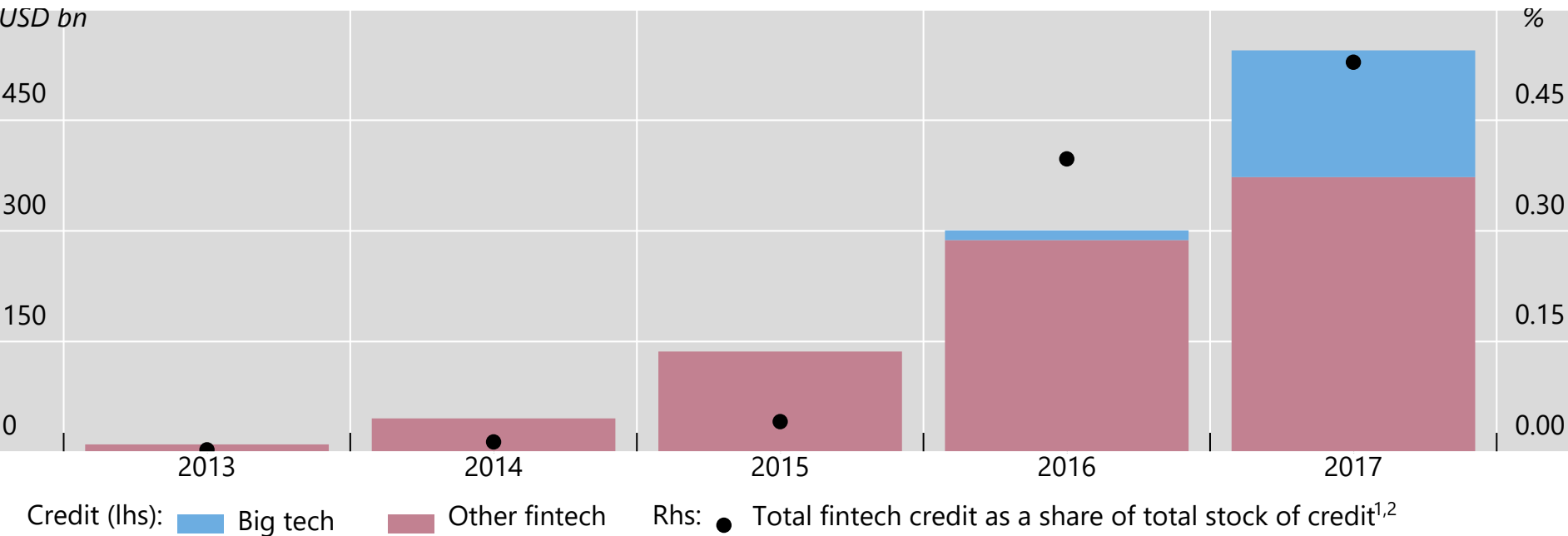
Big tech in financial services

Morten Bech,
Danish FSA fintech conference, 4 December 2019

***Any views expressed in this presentation are those of the presenter and not necessarily those of the BIS**

Fintech credit has grown fast, from a small base

Global Volume of New Fintech and Big Tech Credit Has Grown Through 2017



Figures includes estimates.

¹ Total fintech, defined as the sum of fintech and big tech credit divided by the sum of total fintech credit and total credit to the private non-financial sector.

² Average calculated for a selected set of countries.

Sources: Cambridge Centre for Alternative Finance and research partners; big tech companies' financial statements; Frost et al. (2019).

Keeping things in perspective

Global FinTech activity relative to the global financial system

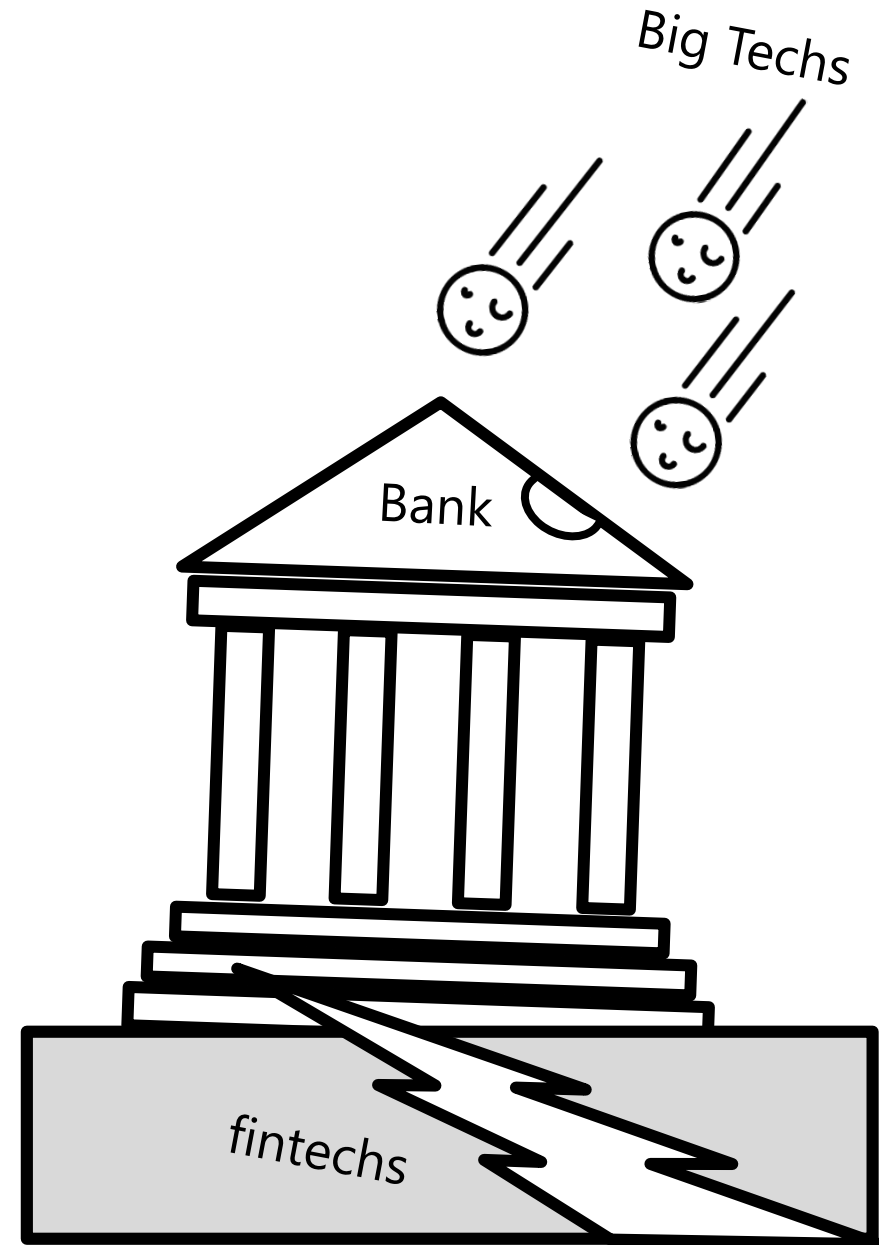


The value of financial assets is represented by the area of the coloured field.

Sources: FSB (2019b); Cambridge Centre for Alternative Finance and Frost et al. (2019); coinmarketcap.com; authors' calculations.

Disruption of banking

- Banks (and other incumbents) are being disrupted
- from below from fintechs
- from above by Big techs
- Which financial services under threat?



Which financial products & services are:

- Most affected by tech developments now?
- Most affected by tech developments over the next 5 years?
- Seeing the greatest competition?

Petralia, K, T Philippon, **T Rice** and N Véron (2019): "**Banking disrupted? Financial intermediation in an era of transformational technology**", 22nd Geneva Report on the World Economy, September.

Which financial products & services are:

- **Most affected by technological developments now?**
- Most affected by tech developments over the next 5 yrs?
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Which financial products & services are:

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Which financial products & services are:

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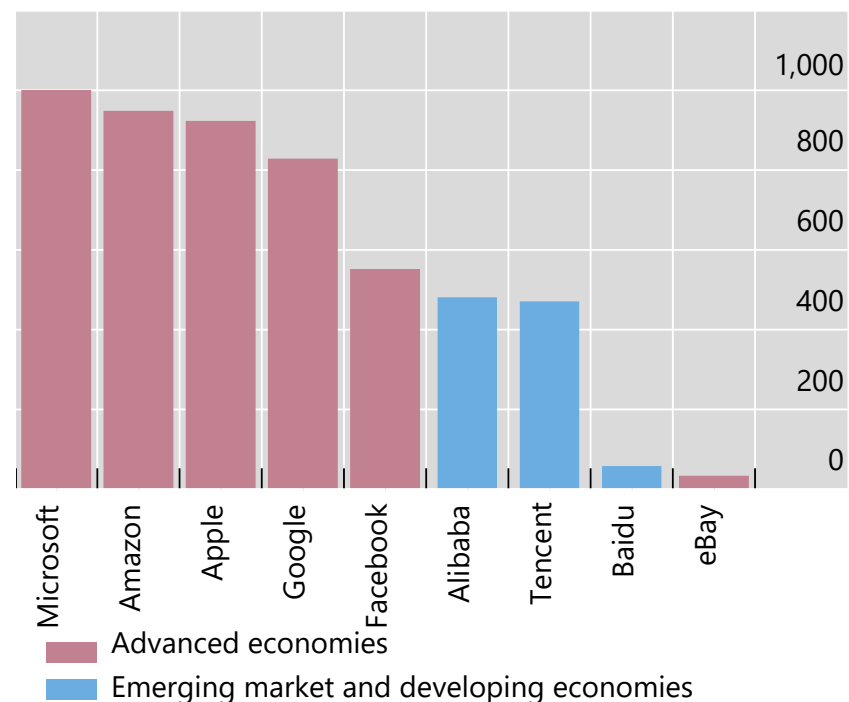


Big techs

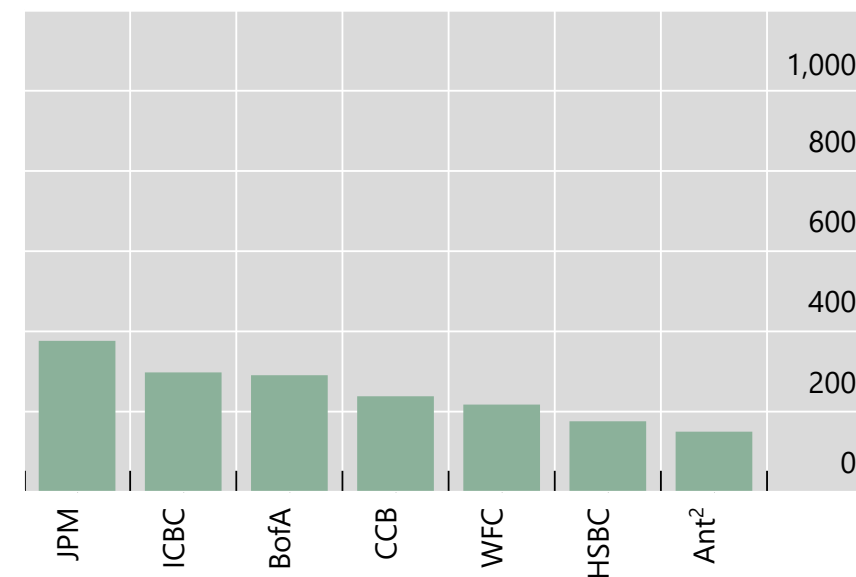
Market capitalisation of major financial groups and big tech firms¹

In billions of US dollars

Technology



Financial groups



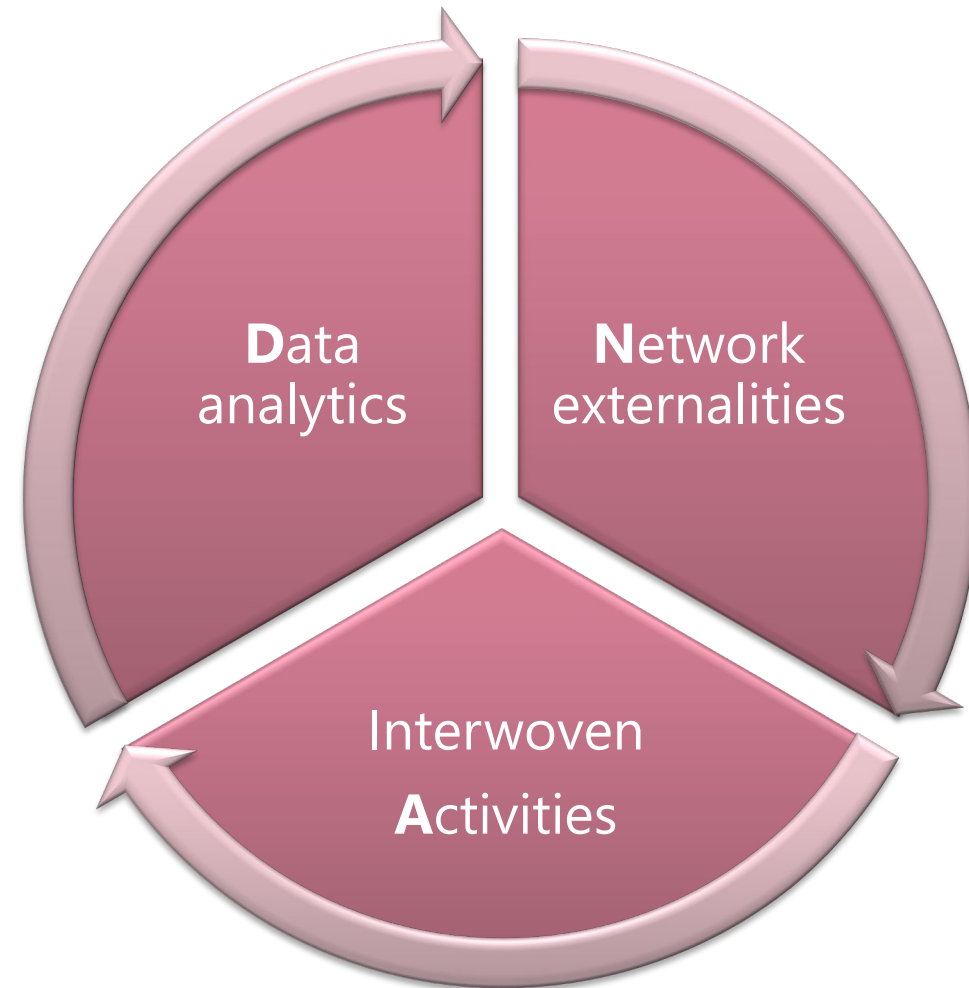
Ant = Ant Financial; BofA = Bank of America; CCB = China Construction Bank; ICBC = Industrial and Commercial Bank of China; JPM = JPMorgan Chase; WF = Wells Fargo.

¹ Stock market capitalisation. ² The estimated value of Ant Financial was derived from the amount raised in the company's recent funding rounds times the stakes sold.

Sources: J Frost, L Gambacorta, Y Huang, H S Shin and P Zbinden, "BigTech and the changing structure of financial intermediation", BIS Working Papers, no 779, April 2019.

The DNA of big techs

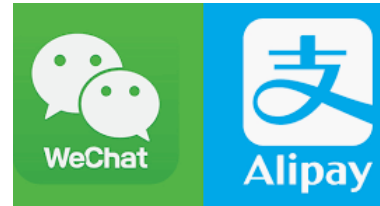
- Key features of business model
- Platforms
 - Aggregation
 - Uber, Airbnb ...
 - Market place
 - Amazon
 - Social network
 - Facebook
 - Information
 - Google



Next frontier in data



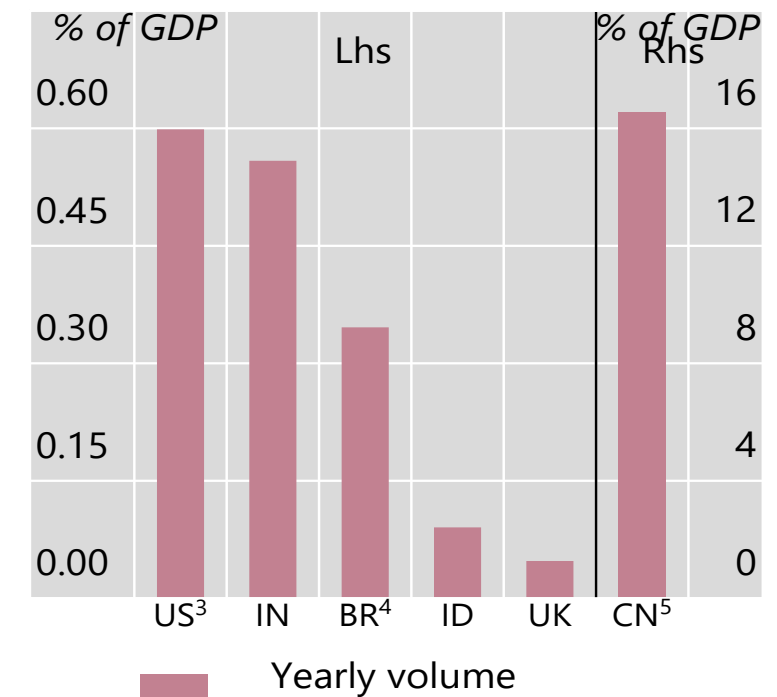
Big techs are increasingly moving into mobile payments ¹



venmo



Big tech mobile payment services²

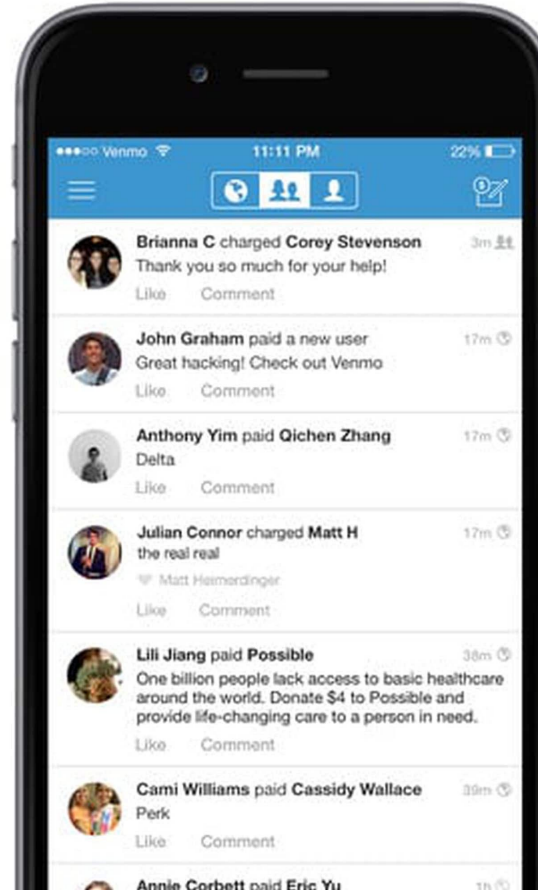


¹ Venmo is a mobile payments app owned by PayPal that integrates social media features. It is popular among college students in the US. Calibra is the mobile wallet that will run on top of the Libra network. M-Pesa (M for mobile, pesa is Swahili for money) is a mobile phone-based money transfer, financing and microfinancing service, launched in 2007. ² 2017 data. ³ 2016 data. ⁴ Estimate based on the public data for Mercado Libre. ⁵ Only mobile payments for consumption data (ie excluding mobile payments for money transfer, credit card payments and mobile finance).

Payments and social media

venmo

See payments your
friends share



Make and share payments.

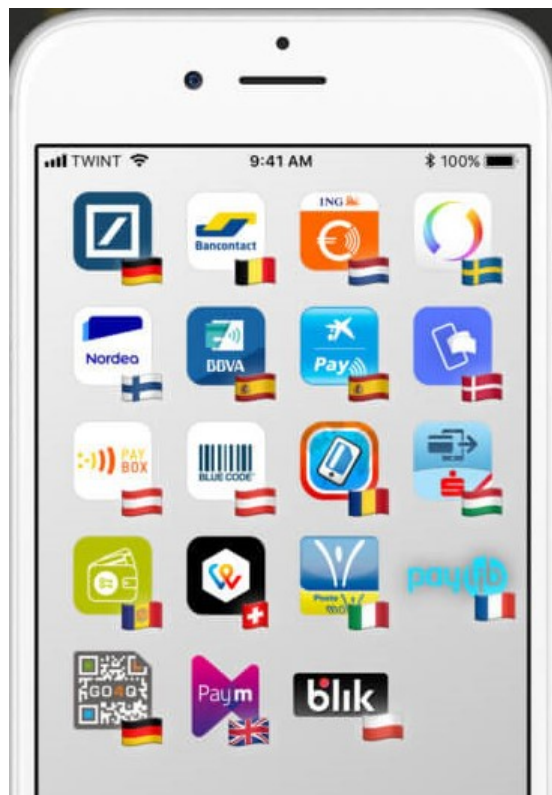
Send money instantly, for free.

[Sign up with Facebook](#)

We'll never post without your permission.

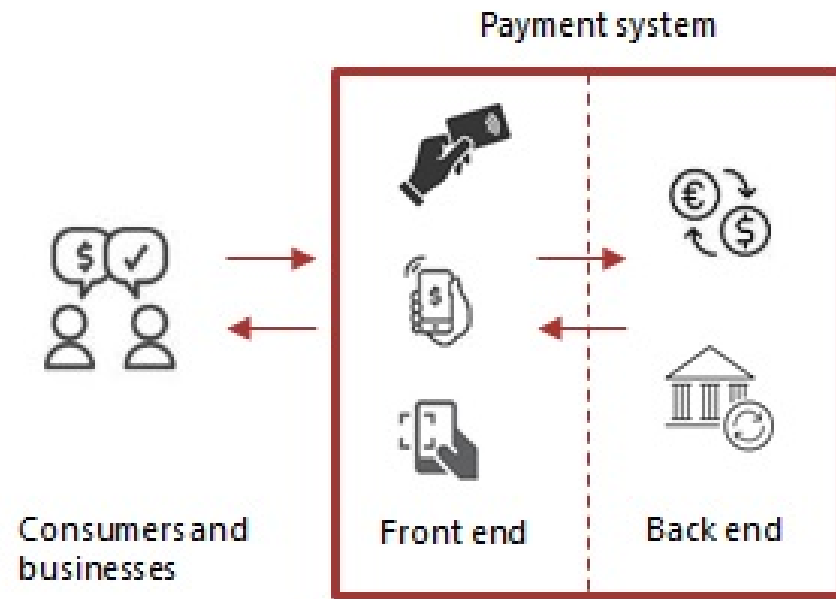
or with your [email address](#)

The incumbents are responding

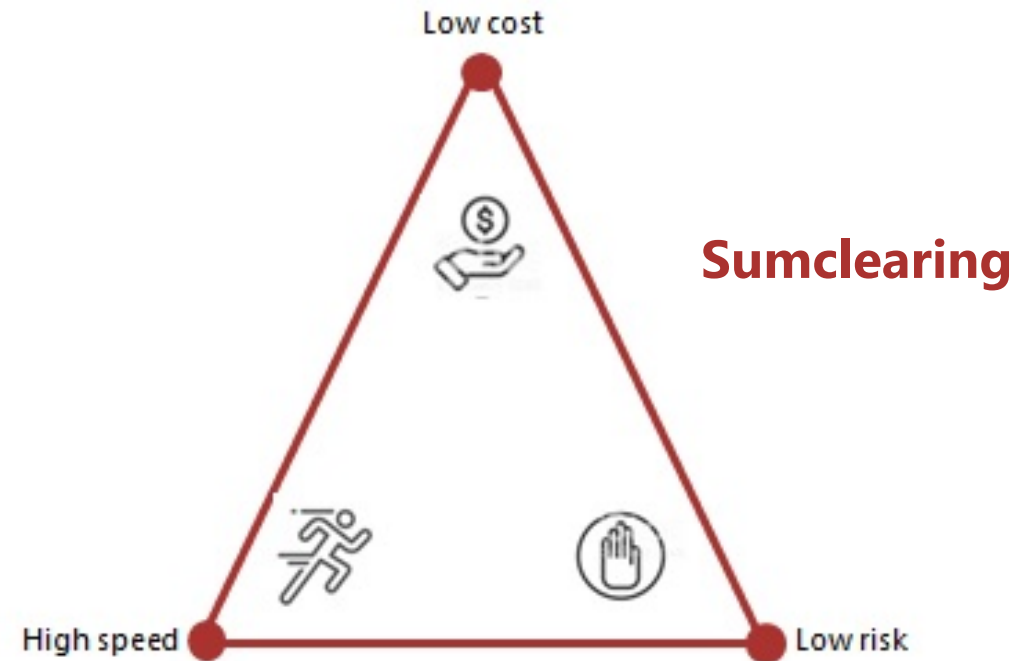


A primer on payment systems

Retail payments system elements



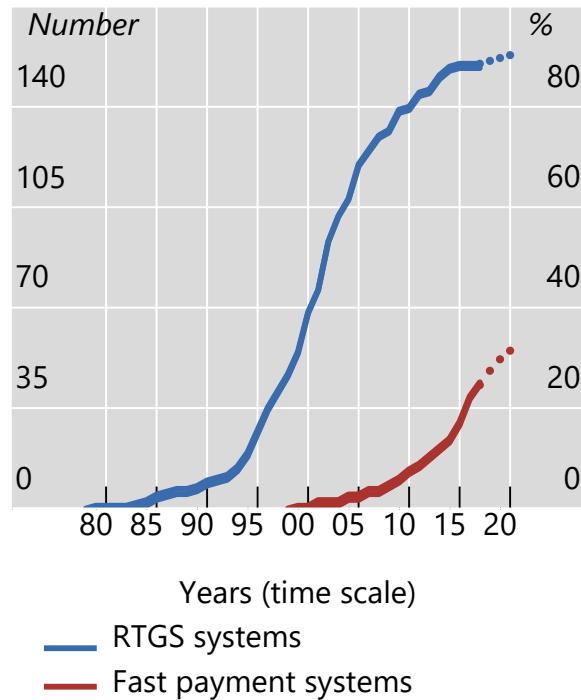
The trilemma of payment arrangements



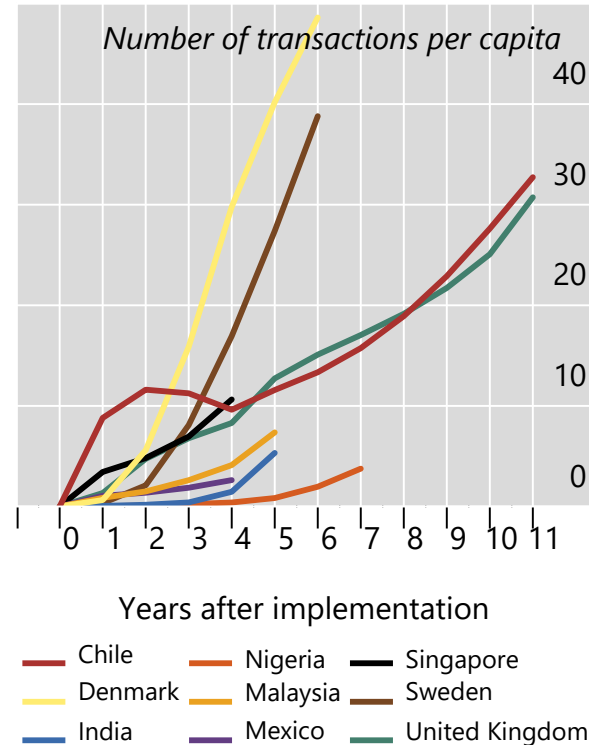
KRONOS
2

The need for speed - the back-ends are improving

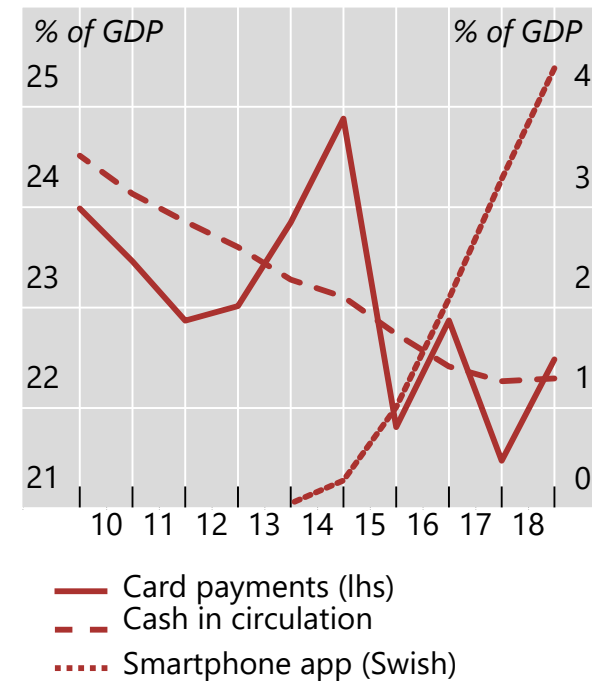
Diffusion of fast payments ¹



Use of fast payments



Sweden mobile payments take-off



¹ The dashed part of the lines corresponds to projected implementation.

Sources: Bech and Hobijn (2007); Bech, Shimizu and Wong (2017); CPMI Red Book Statistics; FIS (2018); national central banks; World Bank Group; IMF.

A simple framework ...

		Reach	
		Domestic	Global
Payments infrastructure	Overlay (Uses other infrastructure to transact)	  	  
	Stand alone (Traditional infrastructure and DLT)	  	

¹ Venmo is a mobile payments app owned by PayPal that integrates social media features. It is popular among college students in the US. ² Calibra is the mobile wallet that will run on top of the Libra network. ³ M-Pesa (M for mobile, pesa is Swahili for money) is a mobile phone-based money transfer, financing and microfinancing service, launched in 2007.

Alipay signs long-term deal to become UEFA national team football sponsor...

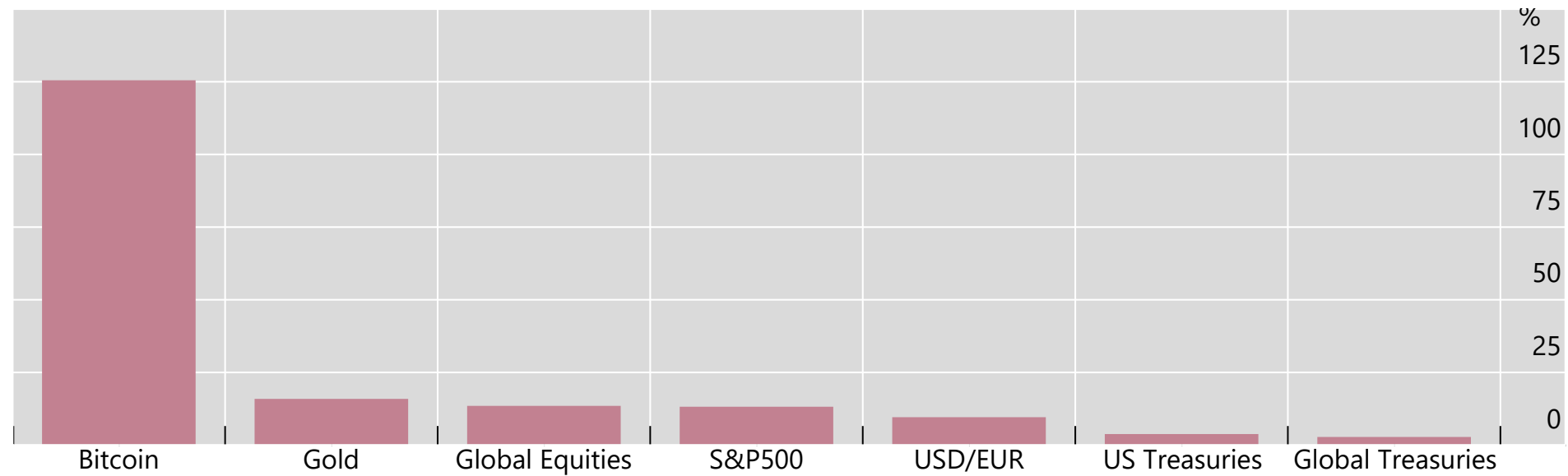


UEFA
EURO2020

Bitcoin

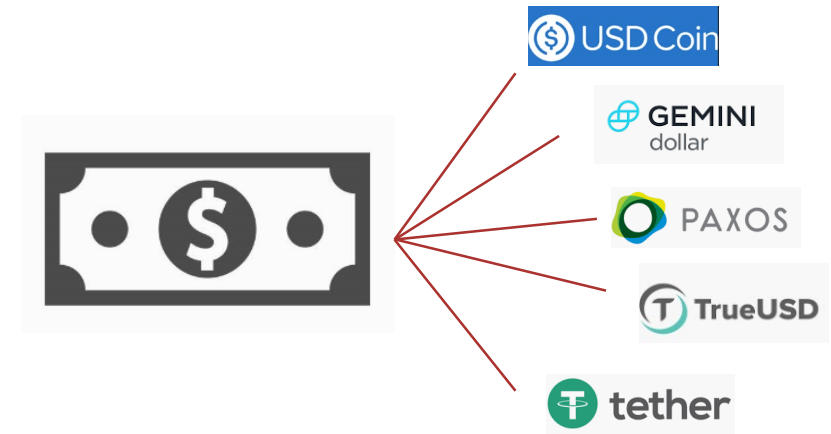
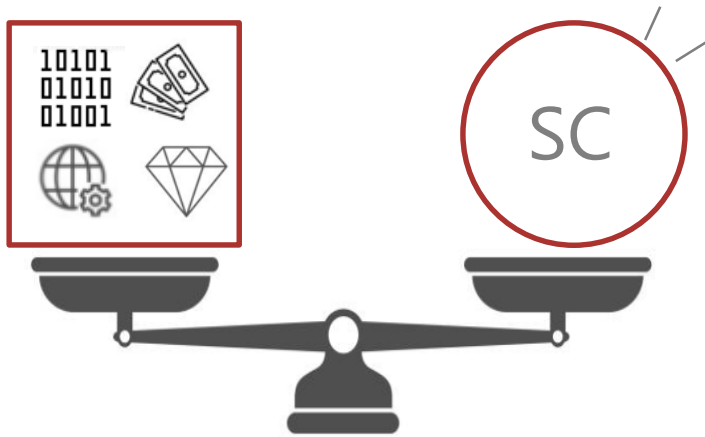


Average annualized volatility



Source: Bloomberg.

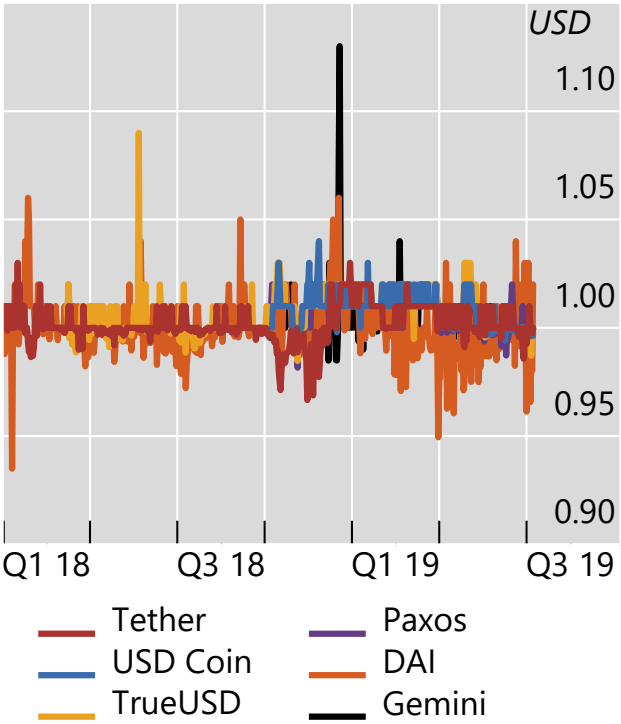
Enter stablecoins



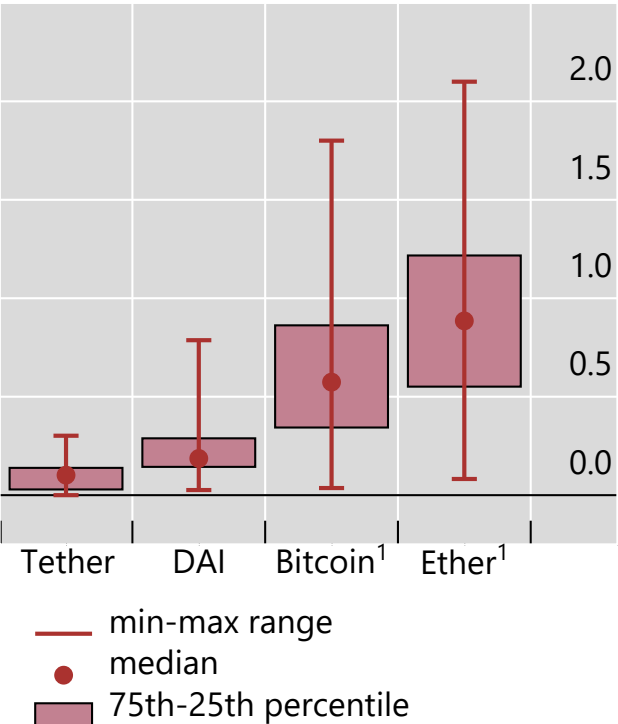
- FSB Oct 2018: crypto-assets do not pose a material risk to global financial stability at this time.

Selected stablecoins

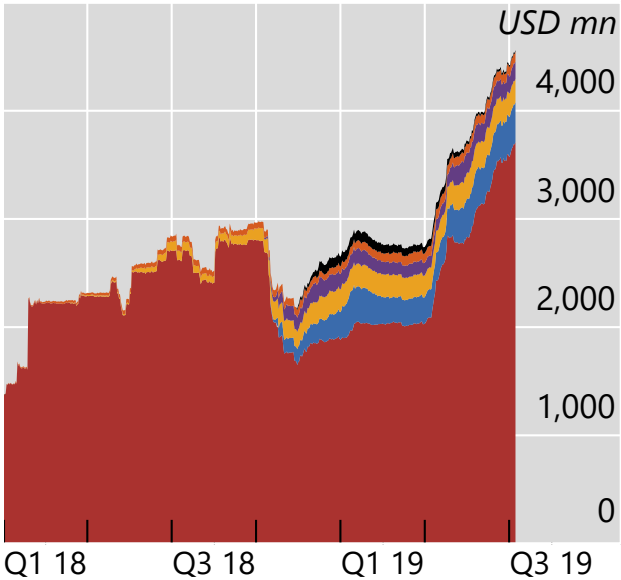
Price



Volatility¹



Market capitalisation



¹ Data are standardised 7-day rolling averages of historical volatility. Neither Bitcoin nor Ether are 'stablecoins'; they are included for reference.
Sources: coinmarketcap.com; Bullman, D. et al, ECB, August 2019.

Global stablecoins

Elephant in the sandbox



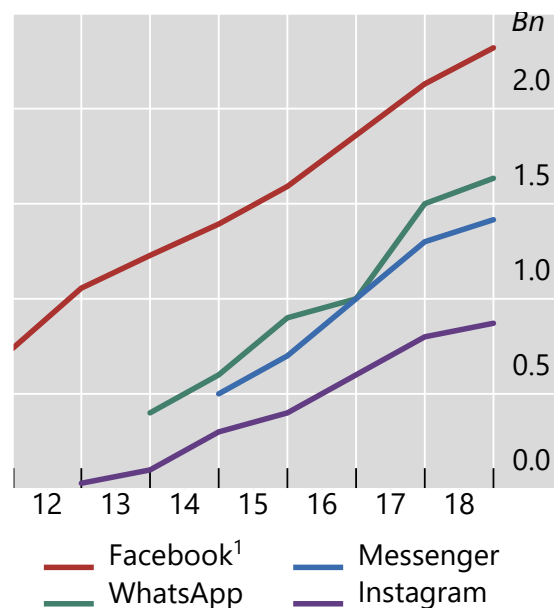
Front-end



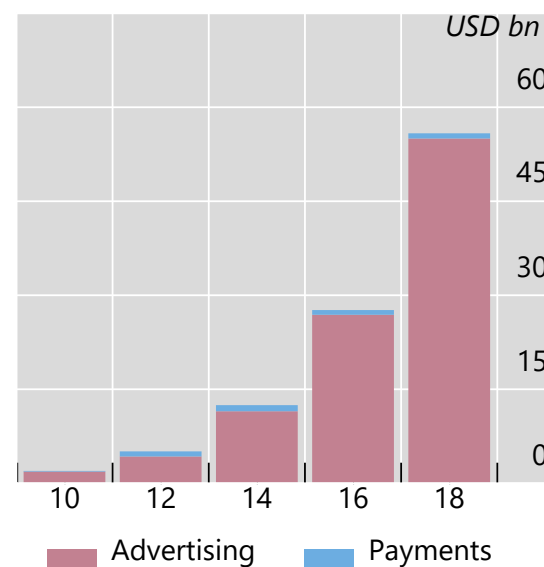
Back-end

Libra could achieve global adoption...

Monthly active users



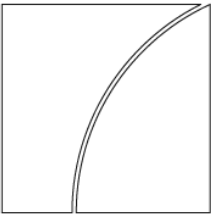
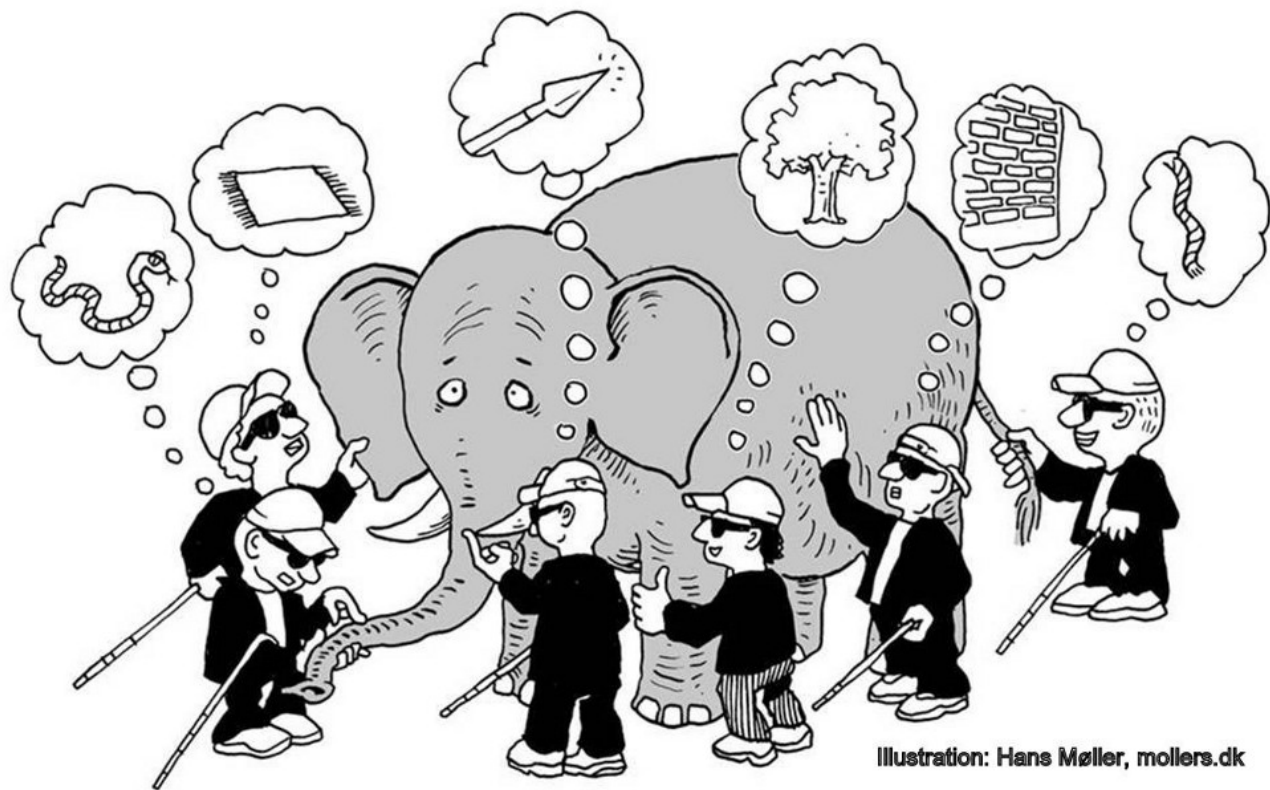
Facebook's revenue



¹The numbers do not include Instagram or WhatsApp users unless they would otherwise qualify as such users.

Sources: J Frost, L Gambacorta, Y Huang, H S Shin and P Zbinden, "BigTech and the changing structure of financial intermediation", BIS Working Papers, no 779, April 2019; World Bank; Forrester Research; GlobalData; iResearch; Mercado Libre; Nikkei; Worldpay; S&P Capital IQ; companies' reports and announcements; national data; BIS calculations.

Is it a bird, is it a plane ... ?



G7 Working Group
on Stablecoins

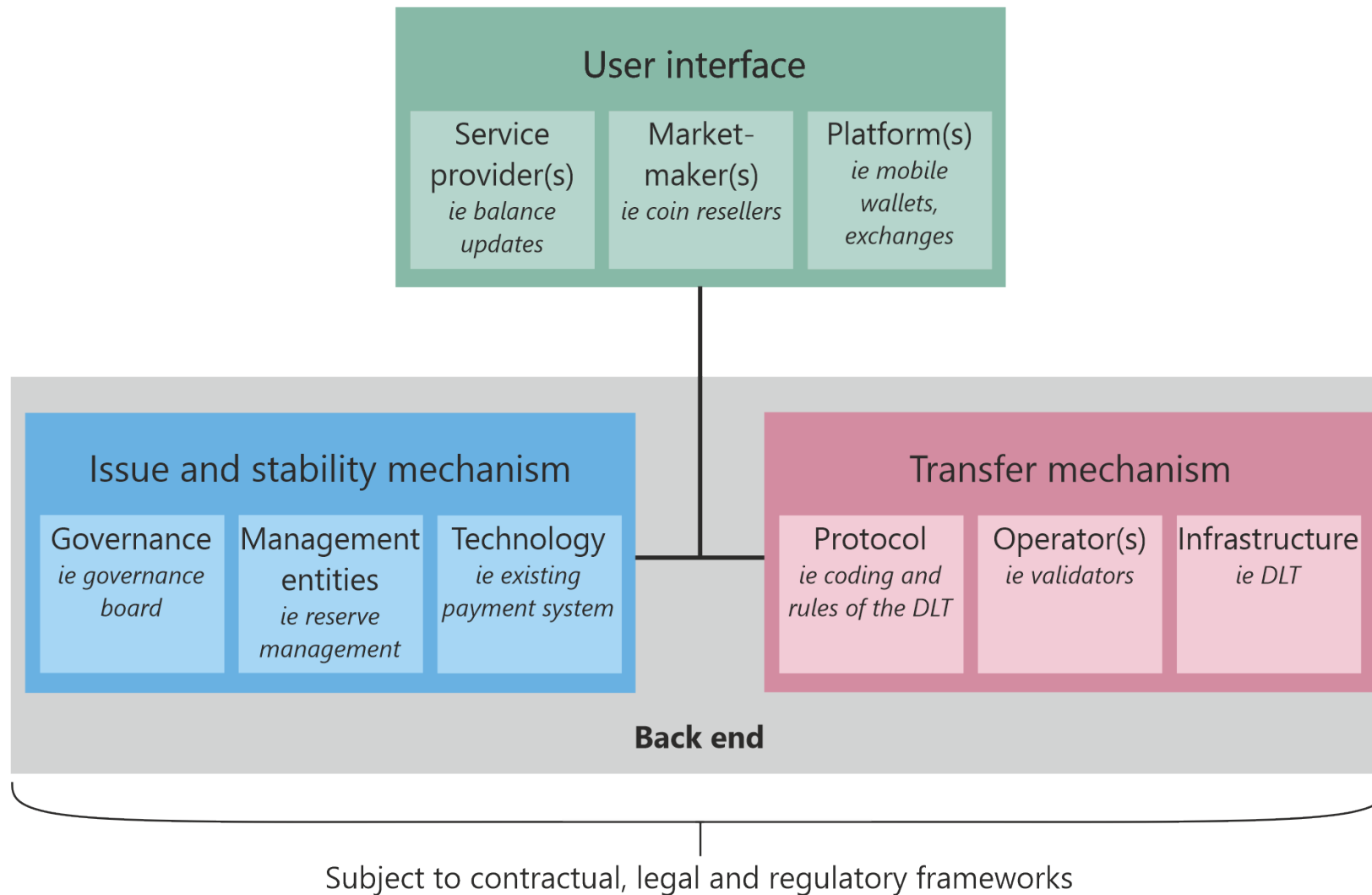
Investigating the impact
of global stablecoins

October 2019



Committee on Payments and
Market Infrastructures
BANK FOR INTERNATIONAL SETTLEMENTS

A functional view of the stablecoin ecosystem



¹ Bitcoin nor Ether are 'stablecoins'; they are included for reference.

Sources: G7 WG Investigating the impact of global stablecoins (2019); Bullmann, D, J Klemm and A Pinna (2019).

G7 Report: Investigating the impact of global stablecoins (GSCs)

"Absolute prerequisite"

Legal certainty

Sound governance

Risks regardless of size

AML/CFT compliance

Safety of payments system

Cyber security

Data privacy/protection

Consumer/investor protection

Market integrity

Tax compliance

+ Challenges if global

Transmission of monetary policy

Financial stability risks

Fair competition

International monetary system
and currency substitution

Back to simple framework ...

		Reach		
		Domestic		Global
Payments infrastructure	Overlay (Uses other infrastructure to transact)	   		   
	Stand alone (Traditional infrastructure and DLT)	  		

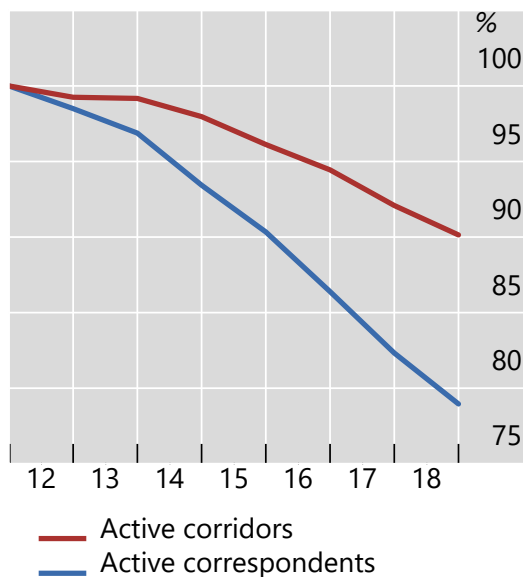
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The way forward

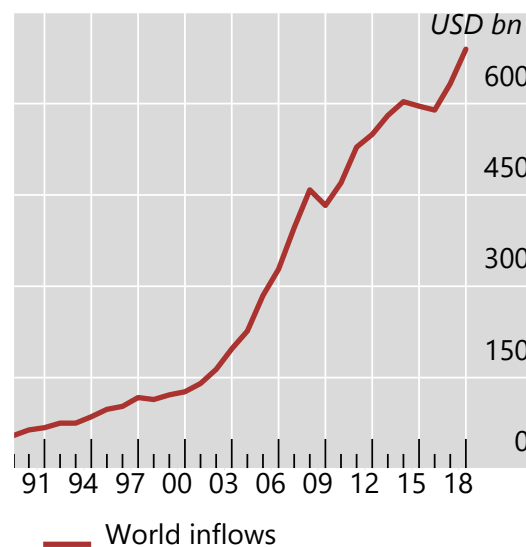
A wake up call for innovation in cross-border payments

"There is a broad perception and anecdotal evidence that, compared with domestic payments, cross-border retail payments remain slow, costly and opaque, with heightened risks to manage." CPMI, *Cross-border retail payments*, February 2018

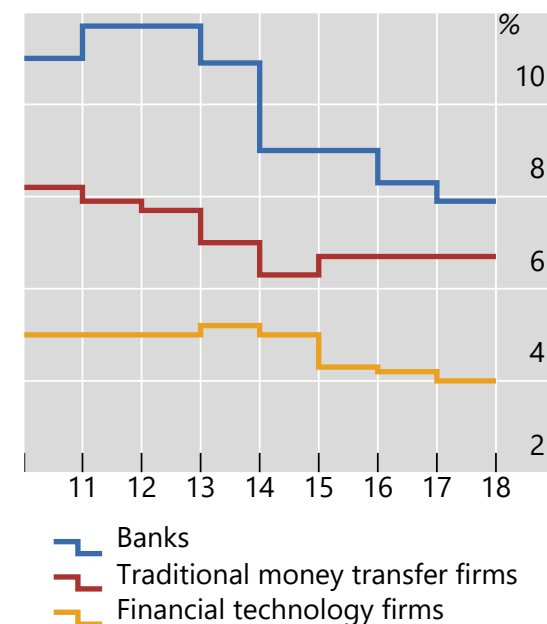
Decline in correspondent banking



Remittances volumes are rising



...at still high average costs¹



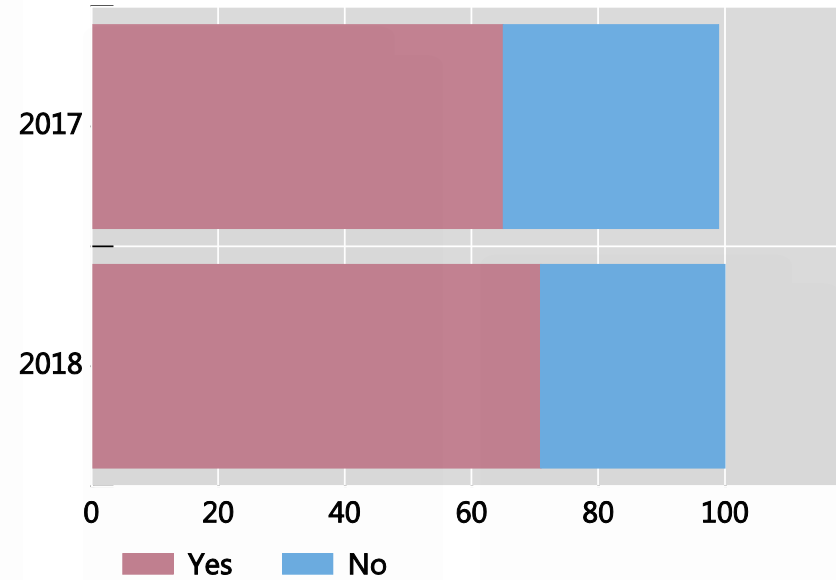
¹ Average total cost for sending \$200; figure adapted from *The Economist* (2019).

Sources: National Bank of Belgium; SWIFT BI Watch; *The Economist* (2019); World Bank, *Remittance Prices Worldwide*; World Bank; BIS calculations.

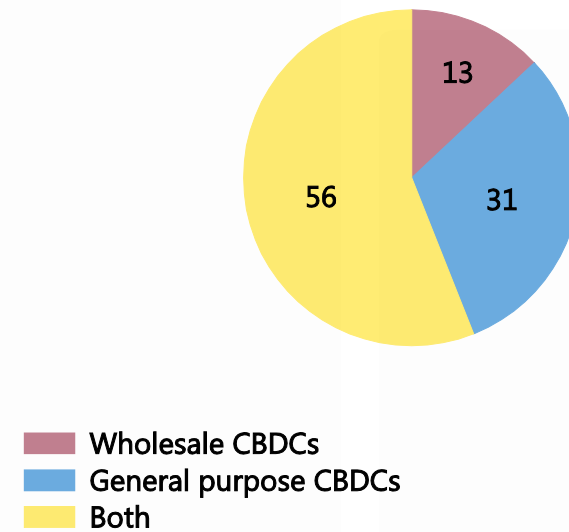
Central bank CBDC work

Share of respondents

Engagement in CBDC work



Focus of work¹



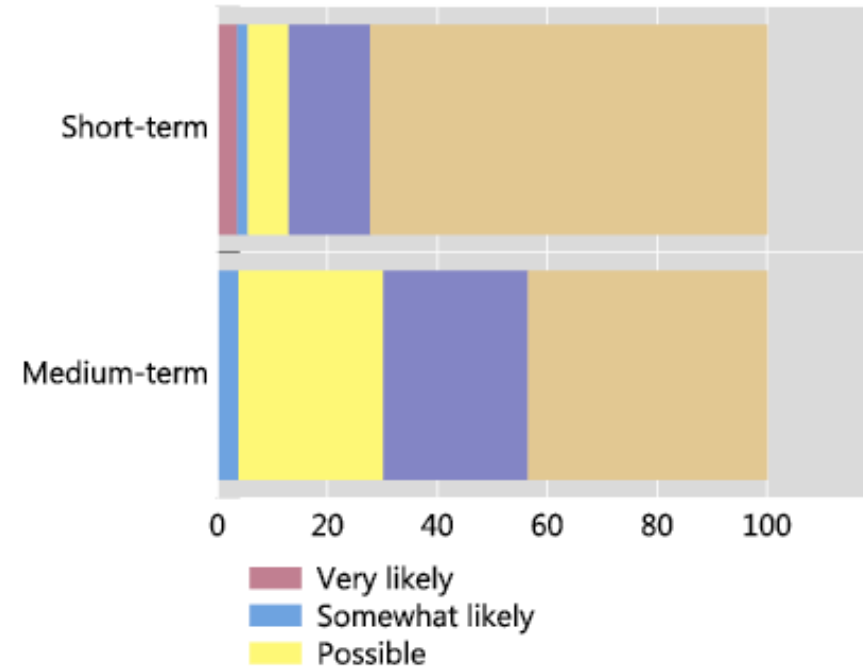
¹ Share of respondents conducting work on CBDCs, 2018 survey.

Source: Central bank survey on CBDCs.

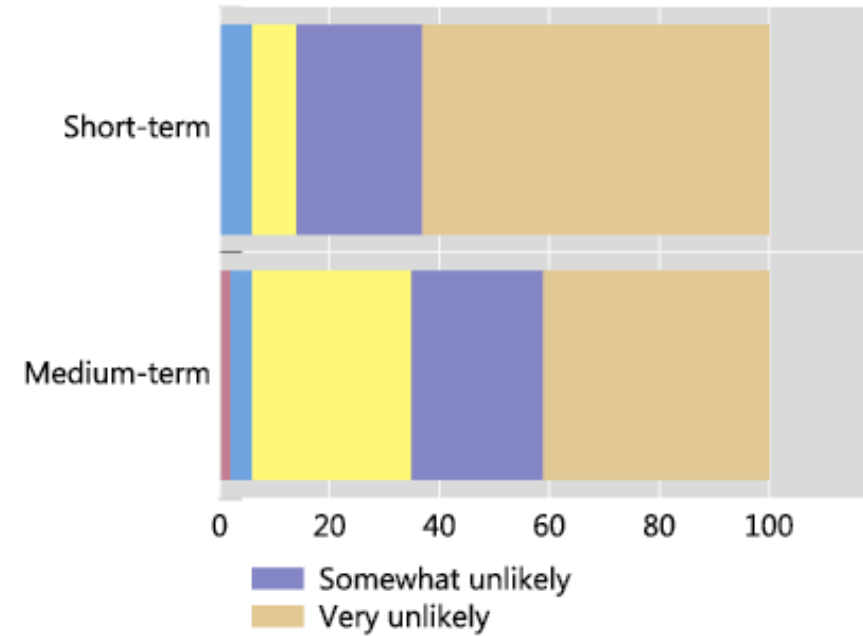
Likelihood of issuing a CBDC

Share of respondents

General-purpose CBDC



Wholesale CBDC



Source: CPMI central bank survey on CBDCs and digital tokens.

Fin

CPMI-related resources

- Investigating the impact of global stablecoins (2019): www.bis.org/cpmi/publ/d187.htm
- Central bank digital currencies (2018): www.bis.org/cpmi/publ/d174.pdf
- Digital currencies (2015): www.bis.org/cpmi/publ/d137.pdf
- Distributed ledger technology in payment, clearing and settlement (2017): www.bis.org/cpmi/publ/d157.pdf
- Principles for financial market infrastructures (2012): www.bis.org/cpmi/publ/d101a.pdf
- Proceeding with caution - a survey on central bank digital currency (2019): www.bis.org/publ/bppdf/bispap101.htm
- The role of central bank money in payment systems (2003): www.bis.org/cpmi/publ/d55.pdf

Perspectives from the Industry

Lars Mikkelsen-Jensen



Research Insights

Banking on the platform economy

Trust in banks

Most consumers say they are willing to share personal information with their banks. Even more compelling, nine out of ten express confidence in their bank's ability to protect their personal information and data.

The platform advantage

Banking executives tell us that platform business models can significantly benefit customers and, therefore, banks themselves. Using market platforms, banks can enable trusted exchanges, as well as provide infrastructure and rules for marketplaces.

Roadblocks ahead

Bankers identify regulatory compliance, cybersecurity, and lack of trust and confidence in ecosystem partners as key inhibitors to adopting platform business models.

IBM Institute for
Business Value



Trust



68%

of consumers surveyed indicate they are willing to share personal information and data with their banks or other financial services institutions, the highest percentage response for any industry measured¹



72%

of bank executives surveyed tell us that platform business models are disruptive for the banking industry as a whole

Banking and financial service companies



Insurers (for example, health, auto, life)



Telecommunication companies



Travel and transportation providers



Streaming entertainment providers



Healthcare providers



Government organizations



Your employer(s)



Utility companies



Retail merchants



Social media companies



Educational institutions



Online storage service providers



News and current affairs organizations



Traditional industries are interacting in ways that were unthinkable even as recently as a decade ago.

Financial services are being mixed in with services or products from other areas and industries – from healthcare and telephony, to mobility and media, retail and logistics, and numerous other areas.

Banking is becoming embedded – sometimes almost invisibly – in non-bank business processes.

New types of ecosystems are emerging, powered by dynamic new business models, often based around platforms and network economics.

Customers can be approached and engaged in innovative ways – and by different parties. Retailers are orchestrating payments systems. And social media businesses are establishing new forms of currency.

Organizations in virtually every sector seem to be contesting the relationship with customers, hoping to become not only the provider of their own products, but also an entry point for other businesses seeking access to their primary customers.

And this cross pollination of customer access is based on insights gained from **robust data.**

Organizations seek to establish and maintain a primary relationship with their customers – and to avoid being disintermediated by insurgents from both their own and completely different industries.

But the playing field for deep customer engagement is not a level one.

Unlike aspirers from other industries – and perhaps counterintuitively – banks are uniquely positioned for success in becoming the prime entity for building and maintaining relationships with customers.

Banks possess a key advantage that most organizations don't have.

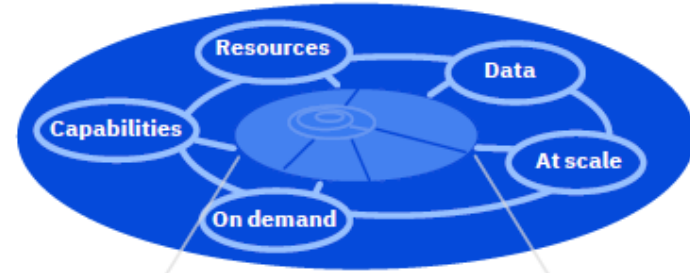
Our research suggests that people are willing to share their personal data with their banks, and banks are trusted to keep the data safe and use it ethically !

The emergence of "Platforms"

Three types of platforms emerging from business ecosystems

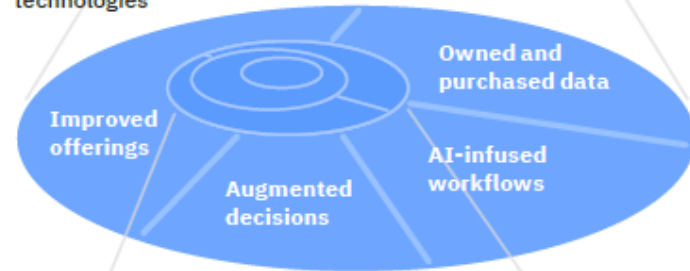
Market platform

Enabling trusted exchanges between multiple parties on a global scale and leading standards to sustain trust and security



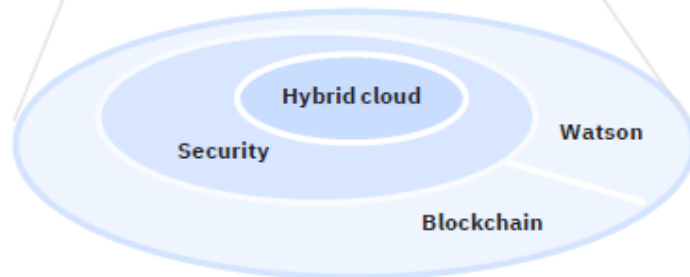
Business process platform

Enabling users to optimize value across all business and functional components and to reconfigure workflows with latest technologies



Technology platform

Enabling users to access more secure, resilient infrastructure to win in the agile, scale-driven as-a-service economy



Source: IBM Institute for Business Value analysis.

FinTech – disruption or innovation?

The growth of the FinTech industry is challenging incumbent financial institutions on all fronts of their business model, disrupting at micro and macro economic level; leading to national and global considerations

*>Fin·Tech *noun* : an economic industry composed of companies that use technology to make financial systems more efficient.*

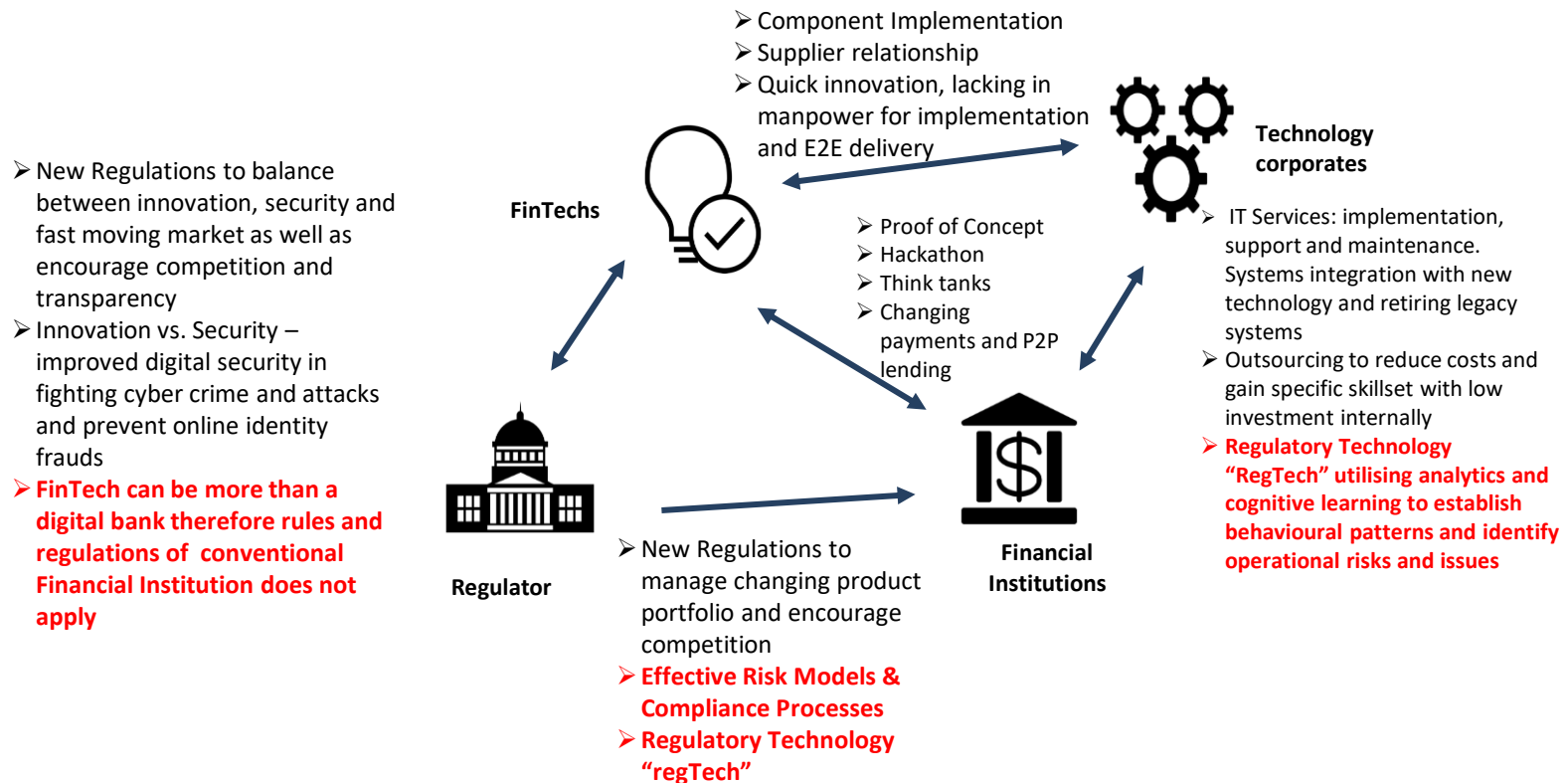
“Financial technology, also known as FinTech, is a line of business based on using software to provide financial services. Financial technology companies are generally startups founded with the purpose of disrupting incumbent financial systems and corporations that rely less on software.”

Types of Fintech

- **B2C FinTech** : seek to disrupt established Financial Services organisations' customers and take market share from them
- **B2B Fintech** : rather than compete with financial services incumbents, wish to partner with them to deliver services. Many have aspirations to become “platform” companies
- **Ecosystem** – those FinTech organisations who see their success in establishing network roles inside ecosystem of FinTechs and their partners

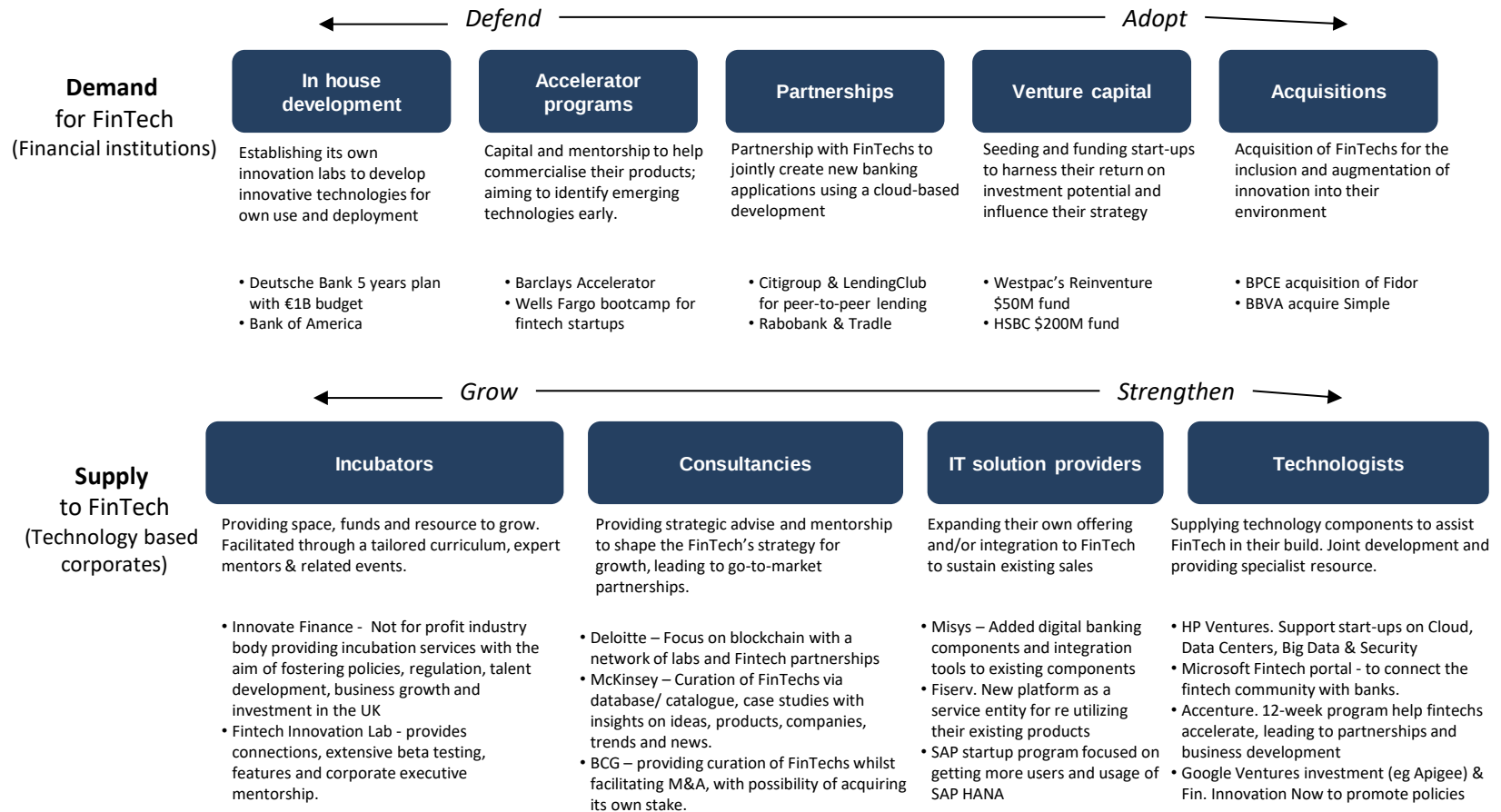
Complexity of relationships – responding to the changes

Despite some success stories, **incumbents and new entrants are struggling to make new relationships and emerging use cases work against a backdrop of continued existing technical debt**, constrained investments and lack of appetite for continued proofing of technologies



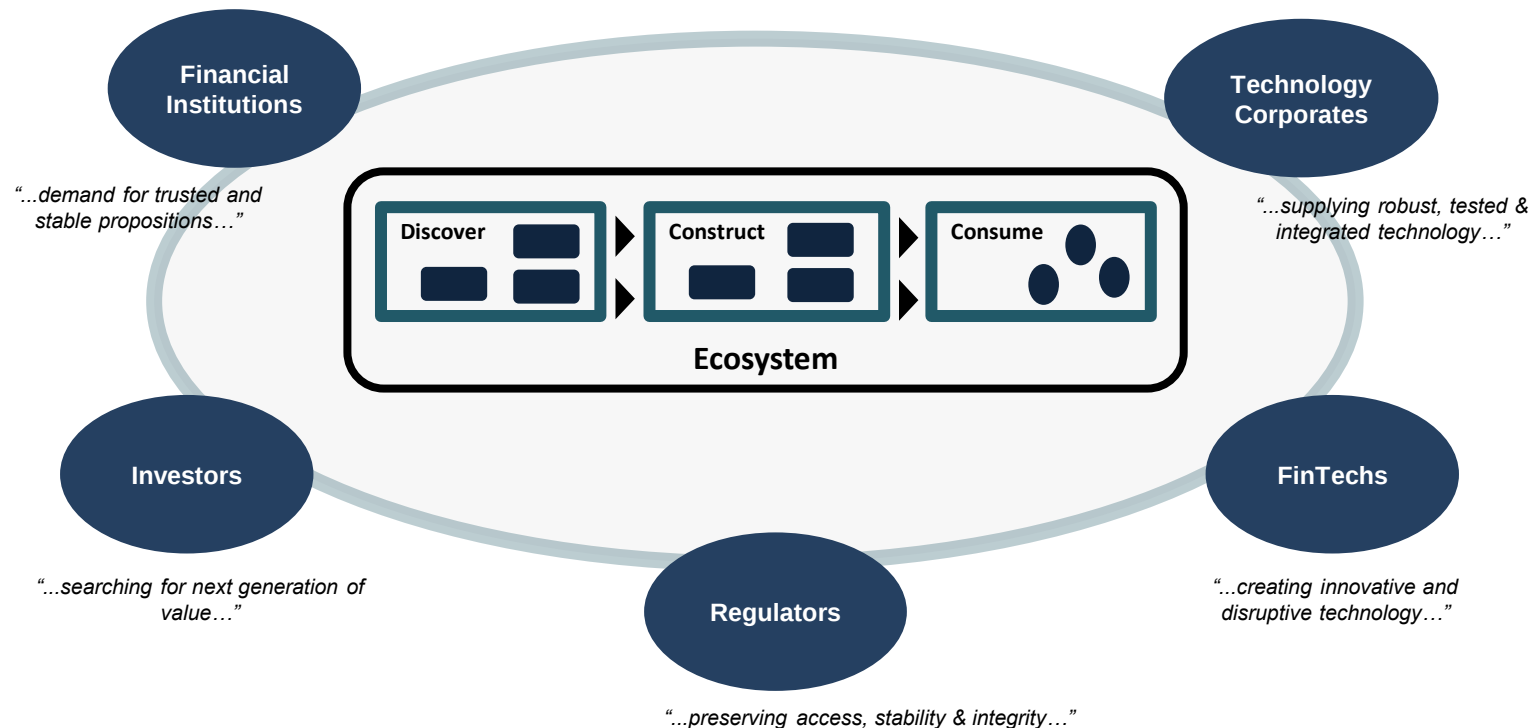
A broad range of reactions to the FinTech market

An analysis of the participants in the FinTech market shows a scattered range of strategies focussed mostly on curation of FinTechs to find and develop the 'killer tech'.



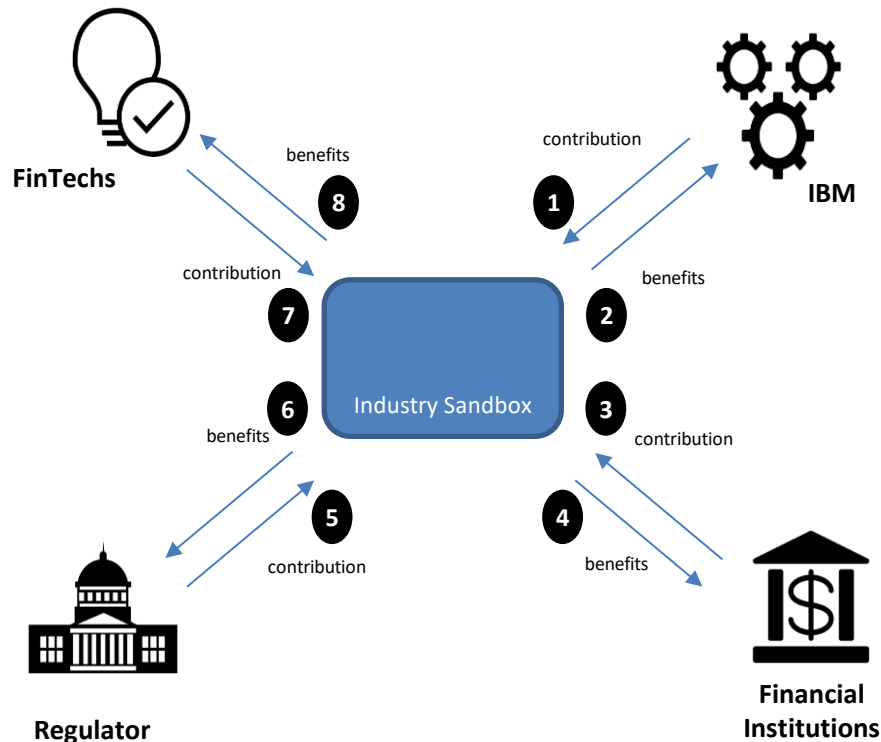
FinTech – the ecosystem platform

One of the first strategic objective of the Platform unit is to design and support the development of a full-fledged industry ecosystem for all players in financial markets to come together and 'create, design, collaborate, compete, test and run in a structured way of working



Role of an industry sandbox

The Financial Conduct Authority, UK's regulator, and Innovate Finance has initiated the concept of an Industry Sandbox - a proving ground for enterprise grade FinTech innovation to be taken into production – a mutually beneficial platform for controlled introduction of innovation



1. Supply of IT skills, products, research and distribution network
2. Access to new tech, co-created assets, inorganic innovation, new markets and opportunities
3. Demand and funding for innovation and productionised IT
4. Supply of tested innovation new Intellectual property and innovation
5. Providing regulatory guidance and feedback
6. Receives insights into new technology implications on economy
7. Supply of new ideas, prototypes and intellectual property
8. Receives off market regulatory and industry testing and feedback

It's all about data

- Companies are moving from process driven business models to data driven business models.
- We generate 2.5 Quintillion bytes of data each day
...and we have just started.
- The next wave will be DEEP DATA.
(eg sensors on fingernails)
-fuelled also by Blockchain, 5G, Quantum computing

AI for Regtech

Purpose of AI deployment

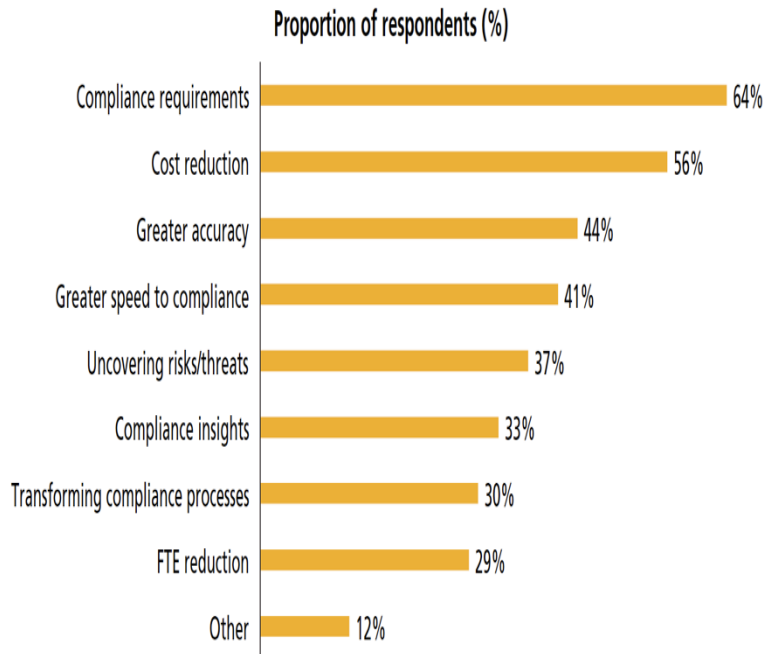


Figure 7: Main challenges to implementing AI for FCRM

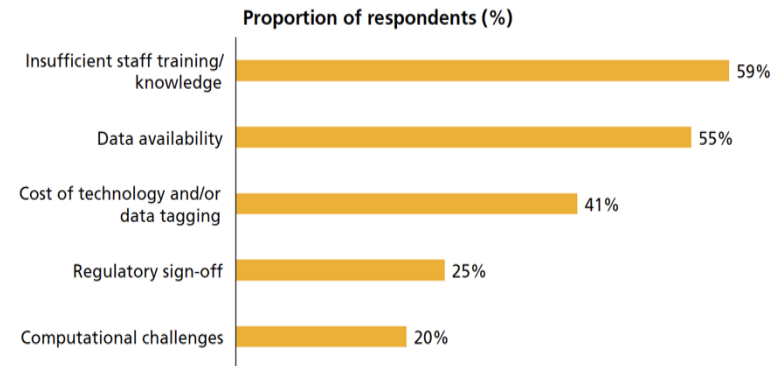


Figure 12: Main challenges to implementing AI for financial risk

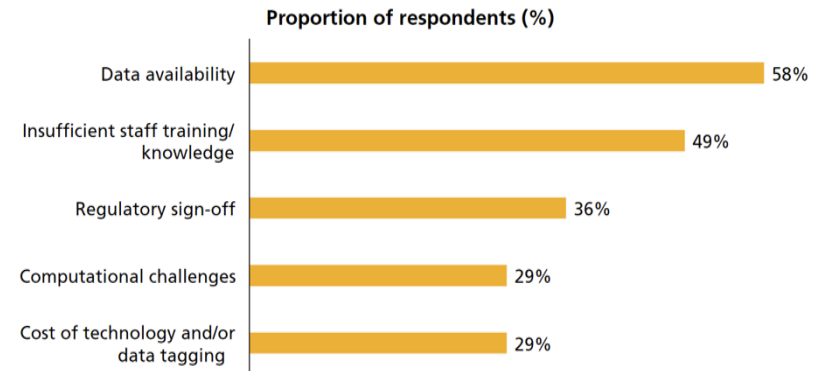
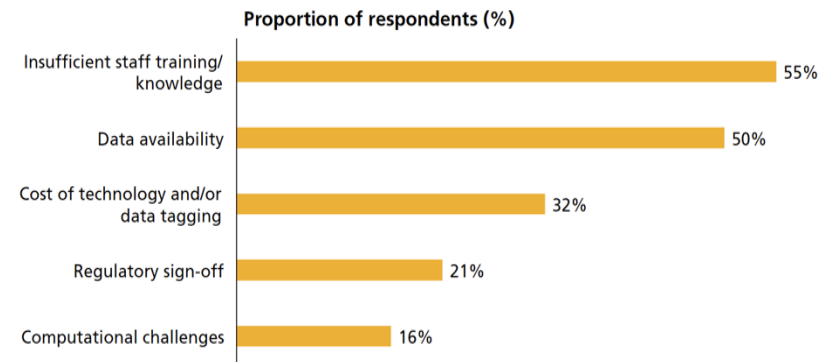
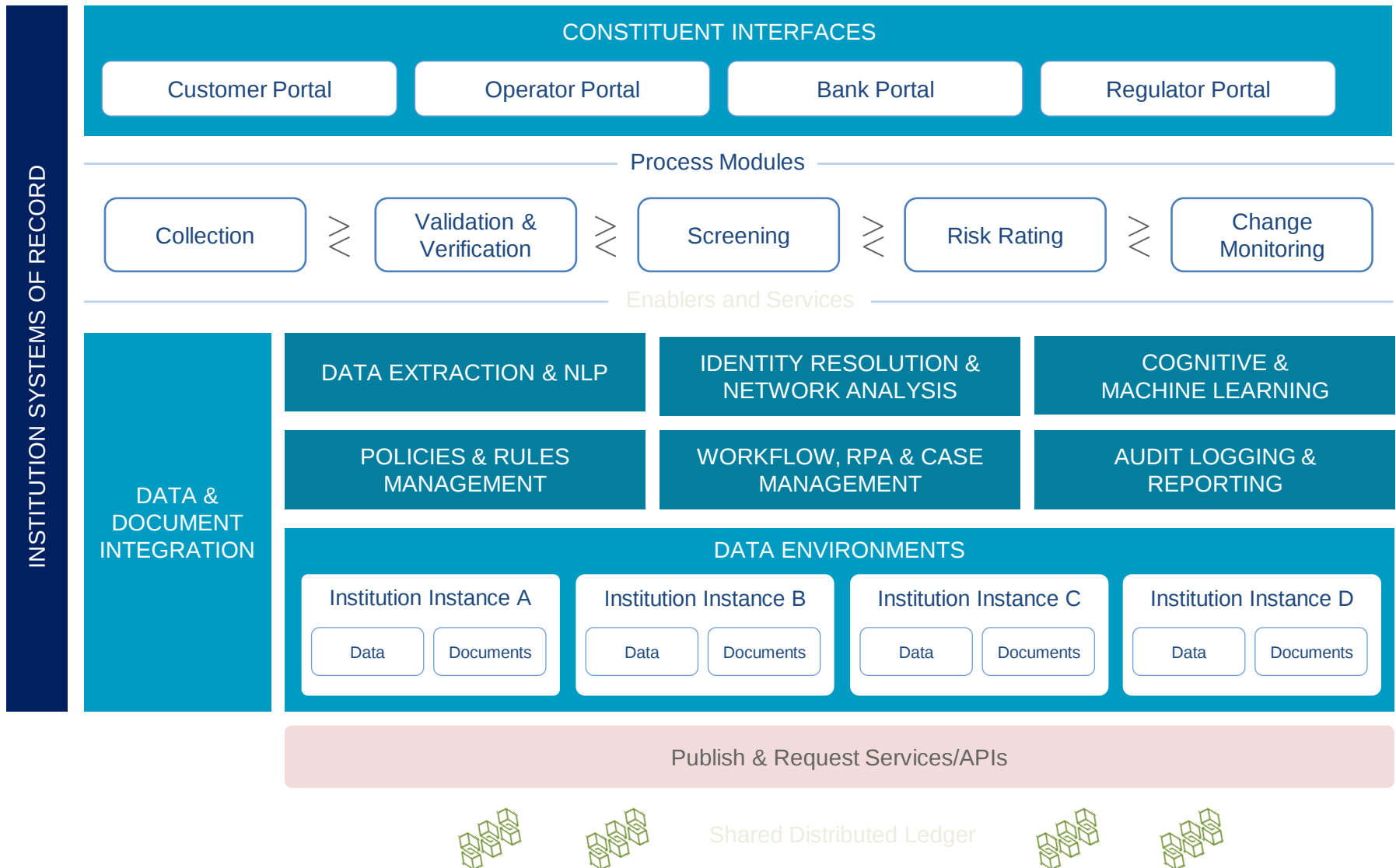


Figure 18: Main challenges to implementing AI for GRC



Watson Financial Crimes KYC Platform

The Watson Financial Crimes platform includes a broad set of capabilities to streamline various KYC activities, improving efficiency, increasing consistency, and providing for a better customer experience.



Surveillance Insight for Financial Services

Detect, profile and prioritize risky & non-compliant behaviour with holistic and cognitive insights

Fuse insights from multiple data sources over extended periods to detect suspicious activities

View linkages with multi-dimensional instant drill-down & playbacks

Build employee profiles analyzing personality & behavior traits

Continuously updated risk models improve alerts and investigations



Reduced cost of employee non-compliance & misconduct

Faster detection of sophisticated scenarios

Risk based prioritization of alerts and reduced false positives

Concerns

- Ownership of data
- Collecting and selling data
- "Above legislation" companies – and the role of government
- Cloud
- The value of GDPR
- A level playing field – legislation
(seen from a mid-size danish bank)

IBM's Principles of Trust and Transparency:

- The purpose of new technology is to augment mankind, not replace it. (“new collar jobs”)
- Data and the insights it yields belong only to the owner of that data.
- AI should be open, transparent and explainable.

The phenomenon of our time – data – is also the issue of our time.

Increasingly we will all be judged on whether we are not just dataminers – but data stewards.

We must handle business and individual data properly, being transparent about how it's used and by whom

Ginni Rometty , CEO IBM Corp.

Thank you



En kvinde passerer overvågningskameraet i Akto, der er kendt for en massiv overvågning af borgerne. Foto: Greg Baker

Kina indfører obligatorisk ansigtsgenkendelse

Af Thomas Aagaard xhta@berlingske.dk

Ansigtsgenkendelse er blevet et obligatorisk skridt på vejen til at få et sim-kort i Kina. Det er nemlig blevet lovpligtigt for kinesere, der vil købe et nyt sim-kort at lade sig registrere med et såkaldt ansigtsscan først.

Det er ikke længere tilstrækkeligt for kinesiske mobiltelefonere, der ønsker et nyt sim-kort, at fremvise gyldigt ID og få taget et billede, hvilket hidtil har været kravet. Fremover skal kinesere også have ansigtet scannet af programmer, der benyttes i forbindelse med ansigtsgenkendelse.

Sådan lyder en ny landsdækkende lov ifølge The Guardian. Den nye lov, som trådte i kraft 1. december, påbyder alle teleselskaber at anvende »kunstig intelligens og andre tekniske metoder« til at verificere identiteten på borgere, der ønsker at kø-

be og registrere nye sim-kort til deres mobiltelefoner.

Ifølge Kinas industriministerium skal loven hjælpe med til at »beskytte kinesiske statsborgeres rettigheder i cyberspace« - med ansigtsgenkendelsen bliver de fleste mobilbrugere dog også væsentligt nemmere at spore, skriver The Guardian.

Et ansigtsscan kan anvendes til at overvåge befolkningen i højere grad, end Kina allerede gør. Billedet kan eksempelvis med kunstig intelligens sammenholdes med billeder og optagelser fra overvågningskameraer andre steder i landet for på den måde hurtigt at finde frem til, hvor i det store land en bestemt person opholder sig.

Den omstridte teknologi bliver stadig mere udbredt i Kina, hvor kameraer til ansigtsgenkendelse allerede er blevet installeret i supermarkeder, lufthavne, skoler, offentlige transportmidler og koncertsteder.

Menneskeretsorganisationen Human Rights Watch mener, at det nye tiltag er endnu et skridt på vejen mod,

at Kina bliver en »dystopisk overvågningsstat«, skriver The Guardian.

Kina har i årevis forsøgt at opfordre interneth brugere til at lade sig registrere med den rette identitet online i stedet for at være anonym på sociale medier. I 2017 vedtog landet således en lov, der forpligter sociale medier og websteder til at verificere brugeres identitet, før de lader brugere skrive på deres platforme, oplyser BBC. Med den nye lov bliver det så endnu nemmere at holde øje med, hvad kinesere foretager sig online, idet de fleste tilgår nettet via deres mobiltelefoner.

Det nye tiltag har allerede fået flere anonyme, kinesiske brugere til at slå alarm online, skriver både BBC og The Guardian.

»Der er end ikke plads til en lille smule frihed. Alt bliver kontrolleret. Du kan ikke sige, hvad du vil, eller vælge, hvad du vil,« skriver en bruger på den såkaldte mikroblog Weibo. Andre brugere bifalder tilsyneladende indgrebet, som de finder, i højere grad beskytter deres rettigheder.

Closing remarks

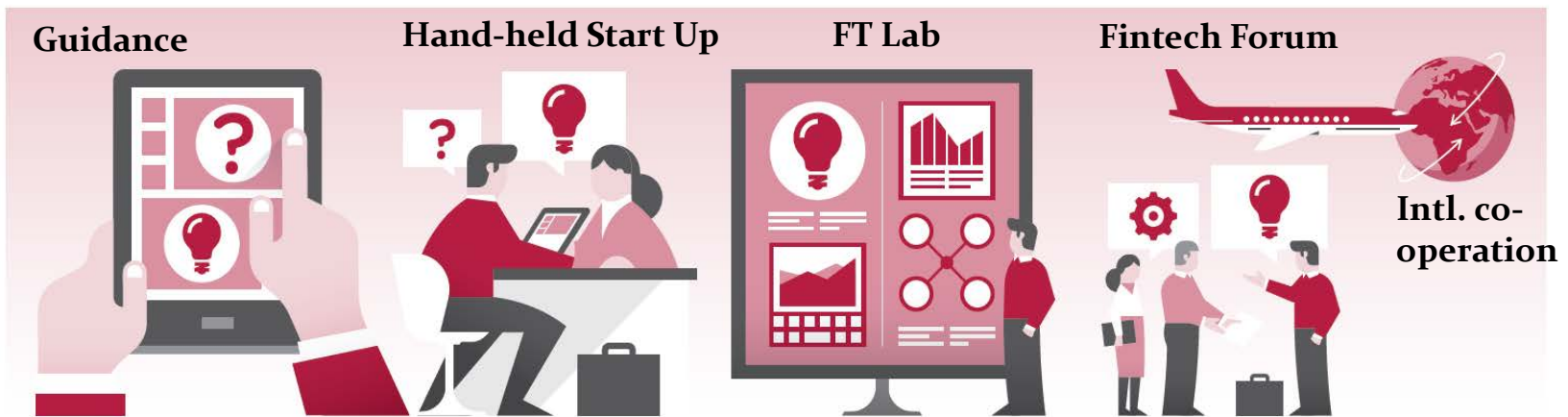
Fintech conference 4 December 2019

Rikke-Louise Ørum Petersen

Deputy Director General, Finanstilsynet

Regulatory support and sandboxes

- We launched our fintech initiatives in the summer of 2017
- This is an engine check
 - Are the initiatives correct and the tools appropriate?
- We are eager to learn more about how new technologies can be used to create better financial services



Open Banking – Healthy competition or unnecessary risks?

- An untraditional way forward – innovation through regulation
- There is a need to foster dialogue between the banks and the TPPs – the FSA will consider how it can contribute more
- We may need PSD3 (or 3.1) before we can deliver on the promise of open banking
- A key question (here and elsewhere) is data ownership



OPEN BANKING?

Crypto assets – the hype is over...

- The technology has matured – it is not just bitcoin and AML issues
- It is smart, but also difficult to understand...
- ...and difficult to regulate – especially within the narrow frame of financial regulation
- Is new regulation necessary or can the existing be adapted?



Big tech and the use of data



- Is the potential move of big tech into finance good or bad?
- Smart products and use of data, reach, financial inclusion vs.
- Competition and data issues, level playing field (and maybe even question of legal tender)
- An issue that is broader than financial regulation!

We would like to hear your views...

Discussion paper

Fintech – in the area of tension between financial regulation and new technology