



Policy Aspects of Open Banking Schemes

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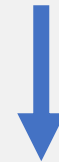
Open Banking gives customers a right to direct that the information they already share with their bank be safely shared with others they trust.



Customer Data held by banks



Trust in TPPs



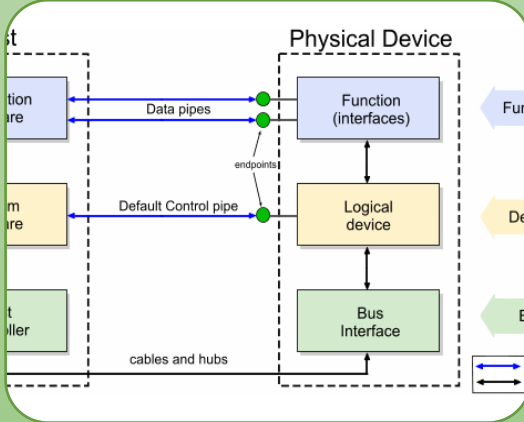
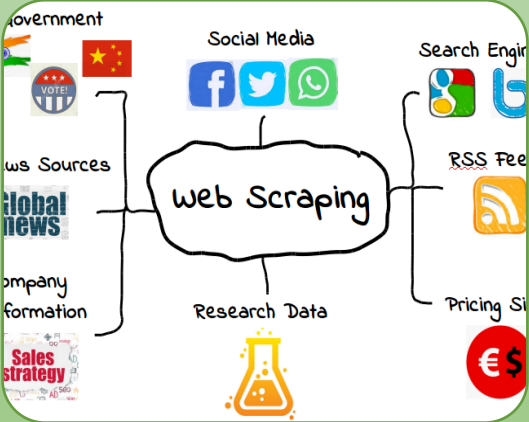
Greater Access

Greater Control

Term	Explanation
Open Banking	<p>The provision to enable access to customer's data in a readable manner (that facilitated its transfer and use) to TPPs.</p> <p>Implementation of the Consumer Data Right (Australia) or the Data Portability Right (EU)</p>
Open Data	
Open Finance	<p>The provision to enable access to customer's data in a readable manner to TPPs when the scope of participants opening customer's data is beyond banks.</p>
APIs	Automated programming interfaces
TPP	Third Party Providers (PISPs and AISPs)



Methods to access data



Web Scrraping

Flexible

Easy to implement

Requires that customers share username and password

Stability

No revoking rights

Accuracy of data

Reverse Engineering

APIs

Secure and stable

More control to banks

Consumer control through consent mechanisms

High costs

Less flexible to Fintechs

Policy Motivations of Open Banking

Motivations

Third party access

- **Structure** and **Secure** access (read) and usage (right) by TPP
- Enable services to **Scale** beyond individual institutions

Competition & Contestability

- Enable new players to contest the market and build services reliant on incumbent infra.
- Strengthen consumer choice & data rights

Foster INNOVATION

- Provide a market environment that reduces barriers of entry for innovation, fintechs and other new players
- Invites experimentation, sets guidelines, standards

Examples & Elements

- PSD2 regulatory framework
- New Zealand

- UK Open Banking regime;
- Australian Consumer Data Rights
- Brazil Communique

- Singapore sector strategy
- Mexico Fintech Law
- API guidelines for product development, security
- Publication of CB's own APIs

Challenges and Opportunities

	Supervisors	Banks	Fintechs	Consumers
+	<ul style="list-style-type: none"> Support their sup tech efforts 	<ul style="list-style-type: none"> New business models New revenue streams Deep customer insight More user-centric solutions 	<ul style="list-style-type: none"> Enables ecosystem development New business models Collaborative business models with banks Scale faster 	<ul style="list-style-type: none"> Access to a wider range of products and services Improved user experience Lower prices Financial inclusion limited to underserved but not to unserved.
-	<ul style="list-style-type: none"> Lack of APIs Standards Oversight might be limited and requires coordination with other authorities Accreditation criterio and process 	<ul style="list-style-type: none"> Need to develop APIs infrastructure (cost and time) Competition and revenue loss Customer disintermediation Cybersecurity risks 	<ul style="list-style-type: none"> Cybersecurity Compliance Consumer's Consent 	<ul style="list-style-type: none"> Privacy Data Security

Open Banking Development

2009

- UIDAI (India)

2011

- Midata Initiative (UK)

2015

- Open Banking WG (UK)

2016

- PSD2 (EU)
- API Protocol (Singapore)
- UPI (India)

2017

- RBI WG report (India)
- Farrel Report (Australia)
- NACHA API (US)
- Payments (NZ)
- AFIN (ASEAN)
- Amendment to Banking Act (Japan)

2018

- First Open API Launched
- GDPR (EU)
- PSD2 applies (EU)
- Open Banking Review (Canada)
- Open Banking Review (Australia)
- Fintech Law (Mexico)

2019

- Communique (Brazil)
- EBA WG on APIs (EU)
- PSD2 RTS deadline extended (EU)

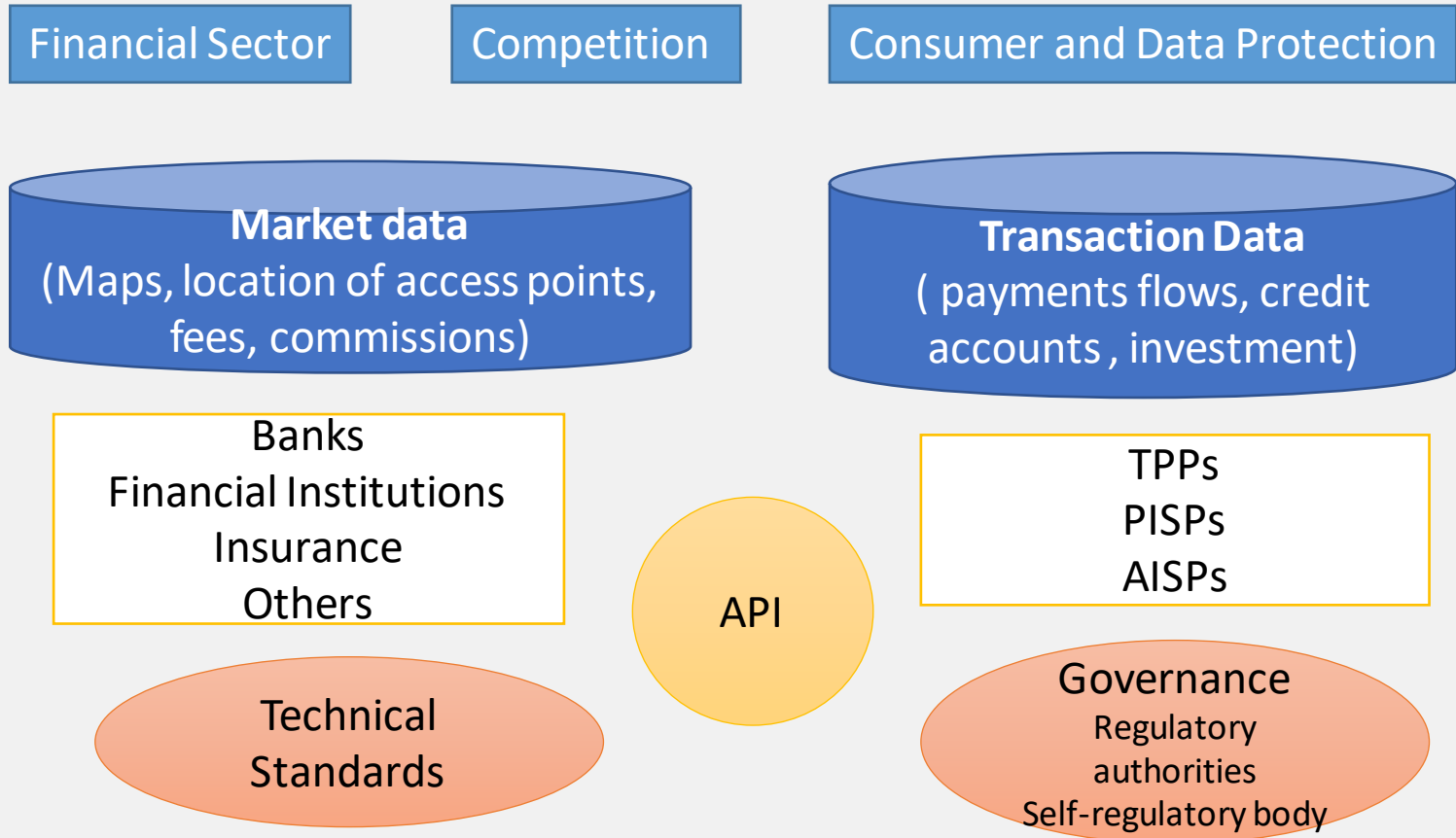
2020

- Secondary Regulation (Mexico)

2021

- Philippines
- Indonesia
- Colombia
- Peru

Open Banking Ecosystem





Design Features

Technical Requirements

Read/ Write or both

Security Measures

Customer Authorization




Scope of Data

Scope of Participants

Governance scheme *directory of TPPs

Type of Participation

Regulatory Approaches

	European Union (PSD2)	United Kingdom (Open Banking UK)	India (Universal Payments Interface)	Other countries
Legal basis	Second Payment Services Directive (PSD2)	Enforcement action by the competition authority (CMA)	Regulatory action	Australia has issued Open Banking regulations earlier in 2019, following the completion of public consultations. Japan, Singapore and Hong Kong are considering similar measures. Elsewhere, banks (e.g. BBVA) provide API access to selected partners.
Institutions affected	All banks	Nine largest banks	All banks	
Scope of API access	Read and write: "account information" and payment initiation	Read and write: accounts, balances, account statements, beneficiaries, standing orders, direct debits, scheduled payments, payment initiation	Read and write: access to balances, payment initiation, payment request initiation. Account address resolution service (routing the API call to an appropriate institution based on an e-mail-like account address)	
Institutional setup	The directive does not prescribe any institutional setup. Banks are free to set up their own consortia if they wish so (e.g. "The Berlin Group")	"Open Banking Implementation Entity": a utility (Open Banking UK Ltd.) created by the CMA to steward the standard and oversee its implementation. Funded by the participating banks	API service provided by a payment system operator (National Payments Corporation of India)	Mexico started the open banking journey with APIs to access 3 levels of data Brazil
Technical standards	No precise technical standards prescribed, but "strong consumer authentication" (2FA+) required	Prescribed API based on RESTful principles; where practicable, ISO 20022 field names and definitions are used	A custom messaging standard based on XML/Web Services.	
Implementers	 		 <p>भारतीय राष्ट्रीय भुगतान निगम NATIONAL PAYMENTS CORPORATION OF INDIA</p>	



Data Portability Right



Ability of consumers to decide whether service providers can access their existing information stored by other service providers. In the EU the PSD2 aimed at enhanced competition and security and is consistent with the GDPR.



The Hong Kong Monetary Authority issued an Open API Framework in July 2018, setting out a four-phase approach for banks to implement Open APIs, starting with information sharing on products and services, and ending with sharing of transactional information and payments initiation services. The HKMA will also define a detailed set of standards in 2020 for Phase III and IV Open APIs.



In Australia, the Consumer Data Right Act enables consumers to share their data with whichever authorized parties they choose. Standards and guidance on data security issued by the Australian Prudential Regulation Authority (APRA) and Privacy Act's requirement to secure personal information.



In Singapore, MAS and The Association of Banks have published an API playbook to support data exchange and communication between banks and FinTechs. The API Playbook contains detailed guidelines on information security standards in domains such as authentication, encryption, authorization, hosting security, secure coding, vulnerability assessment.



Mexico introduced the concept of data portability through the adoption of the Fintech Law under its article 76 on Application Programming Interfaces (APIs) which envisions 3 different levels of data sharing. It also introduced very detailed security measures.



Approaches to Consent Mechanisms



Explicit consumer consent and withdraw of consent



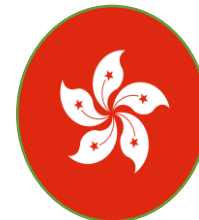
customers able to give specific instructions on type of data shared, users, purpose, duration the sharing arrangement



consent which can be withdrawn at any time



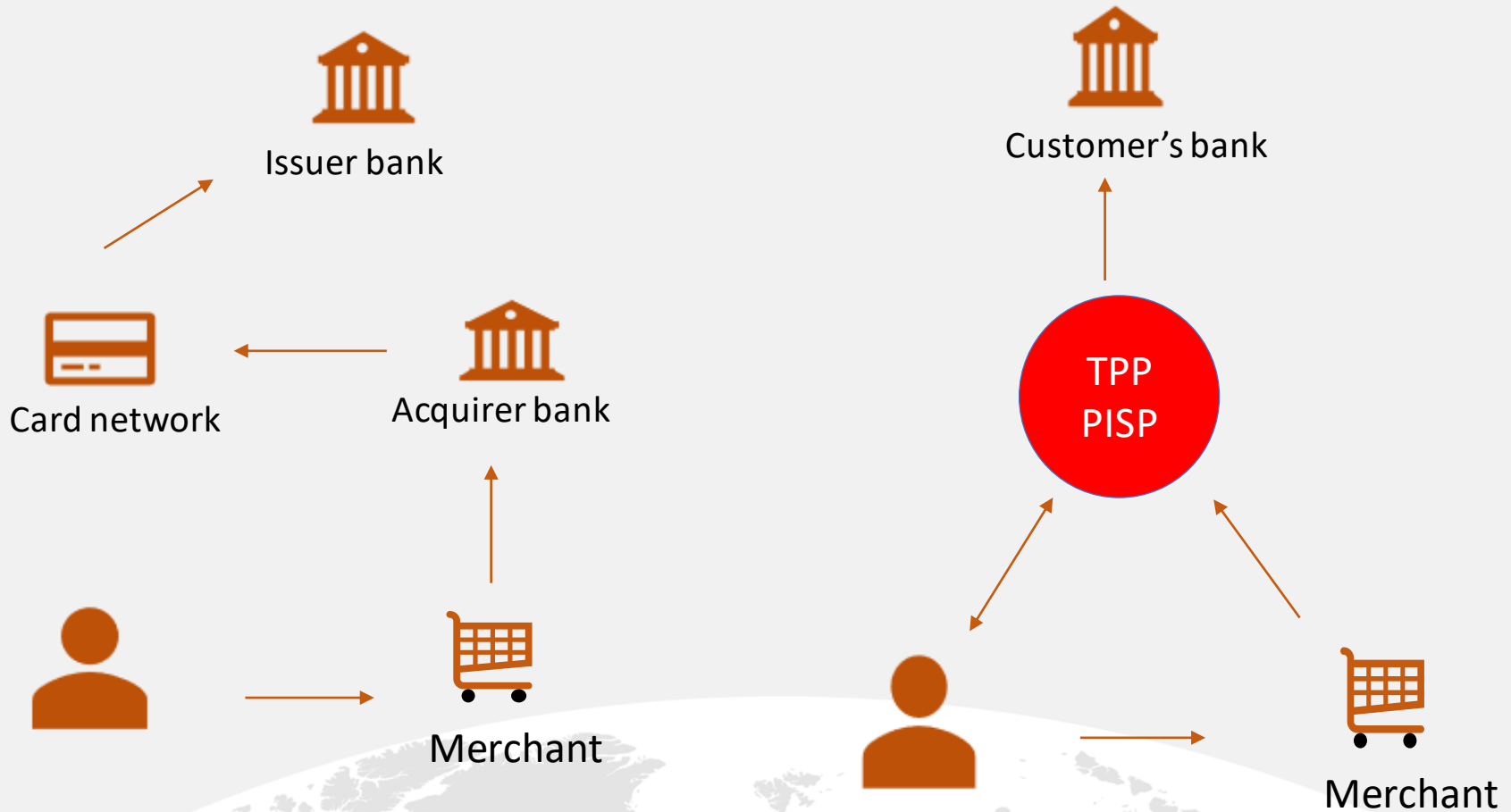
the consent architecture established in the RBI Master Directions determines that no financial information of the customer shall be retrieved, shared or transferred by the Account Aggregator without the explicit consent of the customer.



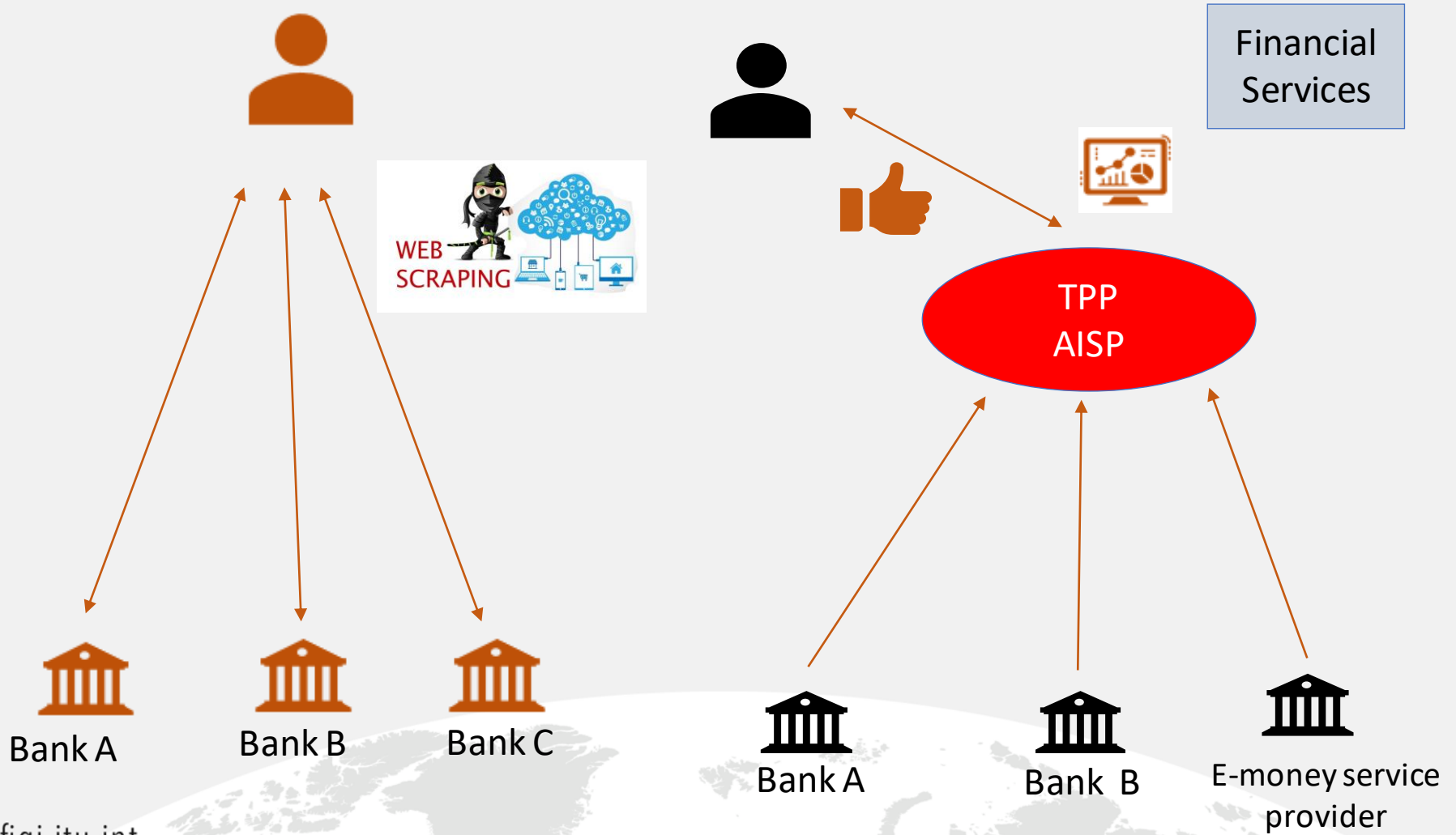
consent from the data subject and mandates to inform on mandatory or voluntary data supply the purpose of using data and the categories of person to whom their data may be transferred. There is the right to withdraw consent.

Customers should be able to grant persistent authorization , revoke the authorization and manage this authorization transparently.

Payment Initiation Service Providers (PISPs)



Account Information Service Providers (AISPs)





Governance Arrangements



Berlin Group
Open Banking
Europe
Konsentus LAC
NPCI

Central Bank
Financial Sector
Authority
Competition
Data Protection
Consumer
Protection

Industry driven
Collaborative
approach

Adoption of Technical Standards

Approach to Adoption	Country examples
Standards adopted through regulation	UK, India, Australia, Mexico
Industry	US and to a certain extent EU
Collaborative approach	Singapore
Self-regulation (institution)	Brazil

- Protocols (JSON, REST, SOAP, YAML or XML) .
 - (Swagger, Mashery, blueprint, Google discovery service WADL (W3C))
- Scalable by design
- Secured (encryption for default storage and in transit, reduce the possibility of data breach, minimize damage when data breach occur)
- User Authentication (API key, credentials, OAuth)
- Developer enablement (portal, source code, integration tools)
- Hosting flexibility (decoupling frontend channels from other systems)
- Data availability for analytics and data mining

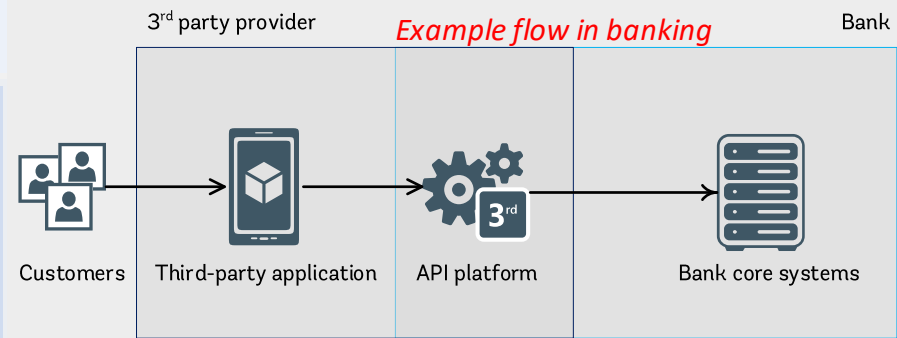
Use Cases



Open architecture/ Collaborative approach/ Proprietary

APIs in Banking

- APIs provide machine-readable access to consumer or other data stored by financial institutions. They may allow third parties to programmatically consult information or generate transactions (e.g. payments)
- Third parties can add value to the customer by providing other or using / accessing existing bank account data to provide new services. Example: analyze transaction history to recommend best savings or loan products
- APIs evolved from the practice of 'screen-scraping', allowing third parties to access internet banking services on behalf on their customers. Screen scraping has been considered inefficient + unsafe.



- ### Example data/services provided through bank APIs:
- “Read access”**
 - Access to the list of accounts held with a financial institution
 - Access to list product catalogue
 - Access to account balances and credit limits
 - Access to transaction histories, including transaction-level data (e.g. merchant name/type)
 - “Write access”**
 - Initiation of different types of payments
 - Update of client information

APIs beyond Banking

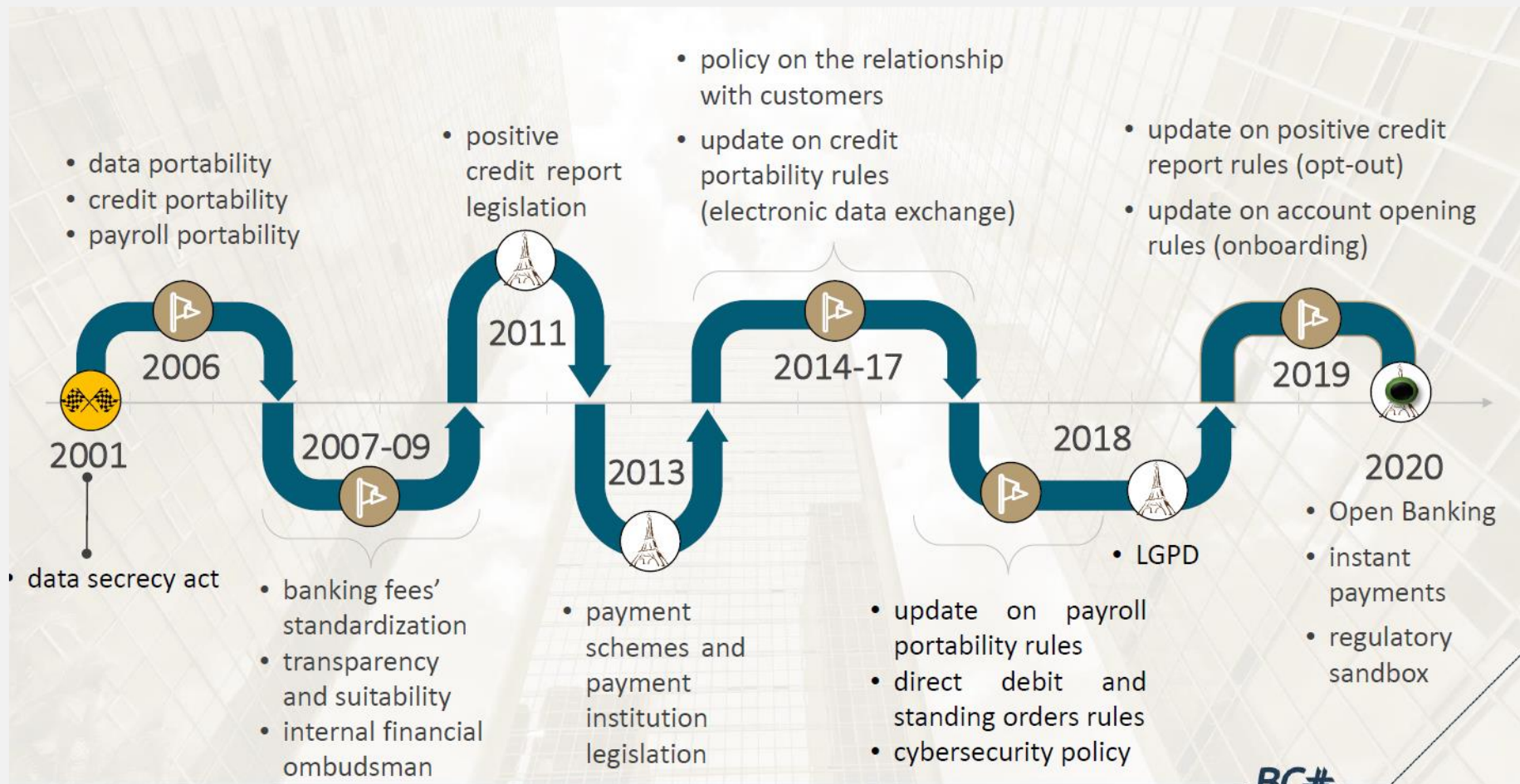
- APIs are a more common feature for integration between processes and companies in the broader digital economy
- Many third parties outside banking are generating or using data that is increasingly relevant for integration with consumer or business banking processes
- Different regulatory, industry, community and private approaches and initiatives have emerged to manage and develop API standards, in part to enhance interoperability and technical efficiency and security



Data Dimensions

	Public / Semi-Public	Product and Service Data	Subscriptions & applications	Account Data	Transactions
Description	Non-bank and public data sources	Financial institutions publishing catalogue	To facilitate new client acquisition and product applications	e.g. For enquiries, account aggregation services	To integrate with regulated or other payment and transaction services
READ/ WRITE	Most read only write: Applicable for updates to registries	Generally read only rights	Requires Write capability	Can be both read and write ability	Requires write capability
EXAMPLE	Non-financial data - Central registries	Banks publishing product catalogue, pricing, ATM and branch locations	Price comparison and lead generation services	Account aggregator and management service (e.g. find best product)	Initiation of transactions (Payments, loan agreements...)
ACCESS ELIGIBILITY	open to most users - Access to credit or legal registries restricted	Lower risk and access requirements	Requires vetting by bank or authorisation / verification of 3 rd parties	Requires customer permission	Requires authorisation by institutions and customer permission / instructions

Open Banking Policy and Regulatory Journey: Brazil



BC#

Developing Faster Payments: EU, India, Brazil

Customer-facing services: Acting as the customer’s interface to the payments system, especially for corporate treasury.

Payment services provider (PSP): Enabling customers to use their online banking credentials to make instant payments and engage in e-commerce.

Technology provider for corporates and merchants: Helping corporates like large merchants and airlines manage access to accounts, identity services and process payments.

“Request to Pay” (RtP) for Europe: RtP—highly successful in the UK—is an overlay on Instant Payments that creates a more convenient user experience. Retaining control of overlays like RtP will help banks maintain their direct customer relationships.

UPI india

2015

Rely on phone numbers, account numbers and domain-based aliases at the choice of the customer

Customers can use the app of any bank or non-bank to initiate a UPI-based payment

Pan European Card Scheme EU

European regulators want to break the international card schemes in Europe—and the ERPB SEPA API Access Working Group is considering ways to enable Europe’s national schemes to link up.

Brazil PIX

2020

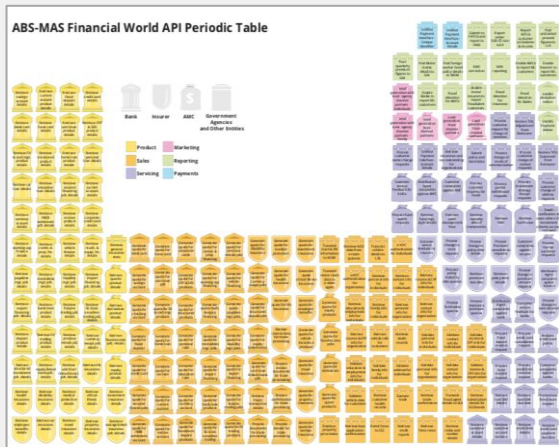
users to select a phone number, e-mail address or other alphanumeric as their alias.

Setting up API Framework: Singapore

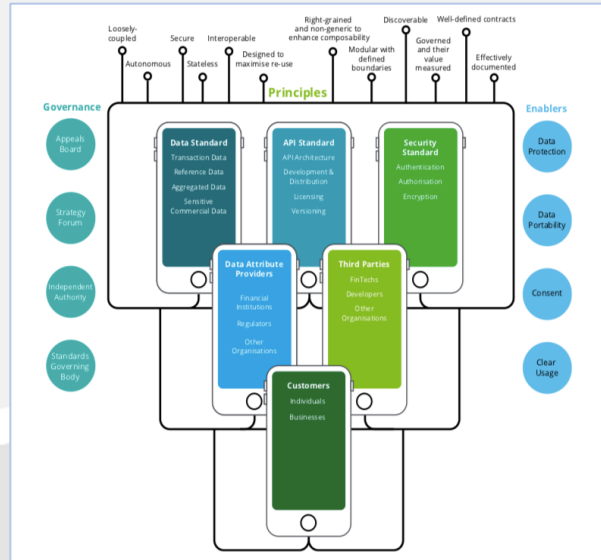
API PLAYBOOK

- MAS Developed advice and used soft regulatory power
- to encourage banks to publish APIs and promote usage.
- Guidelines are quite detailed
- API publication fair – usage not yet matching expectations

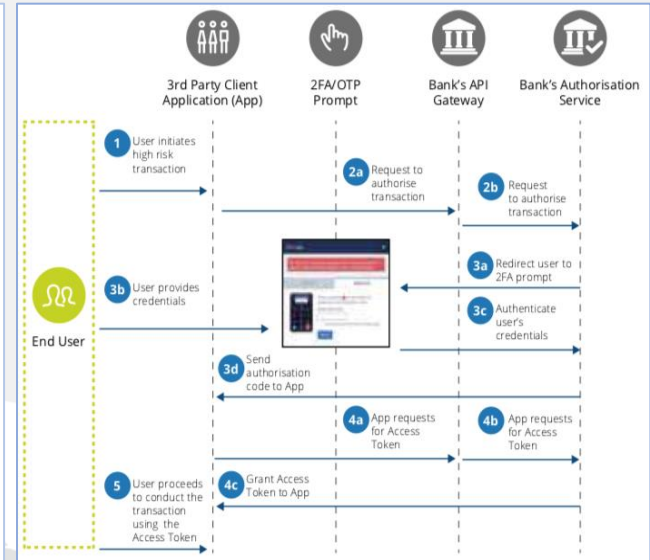
A classification and lexicon of APIs



Guidelines on setting robust APIs



Examples of use cases



Consent Mechanism: India

#1. Unbundling Consent Managers:

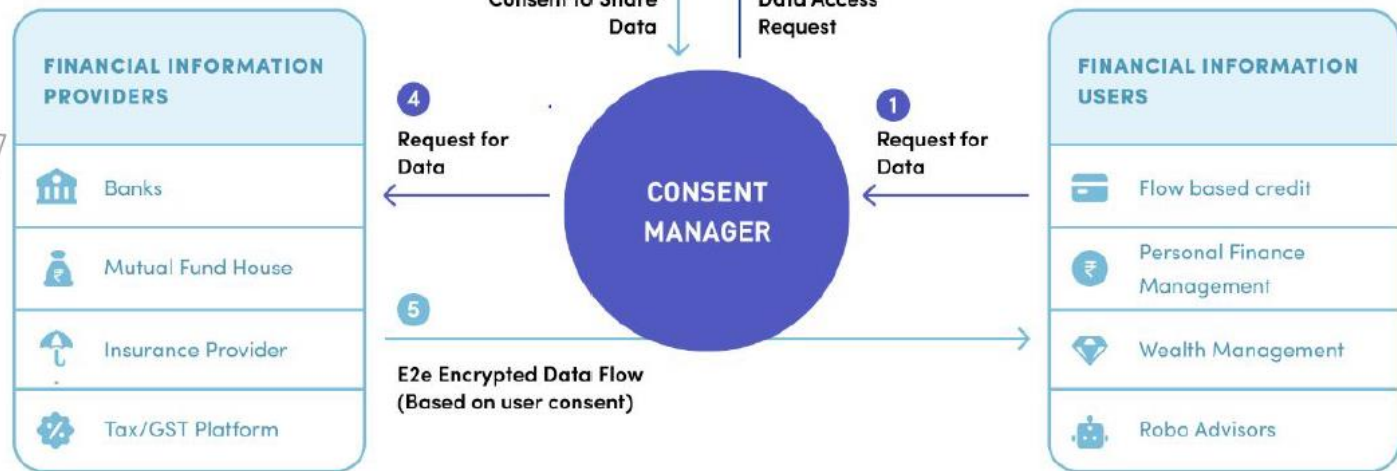
- For FIU - unleashes innovation
- For Consumer - single view, access to all consents; No relinking required for each FIU

#2. “Certified” Information Users:

- Certified by a third party agency (not regulated)
- Enables faster scaling of FIUs

#3. Market pull for becoming an Information Provider:

- Principle of reciprocity
- No regulatory mandates

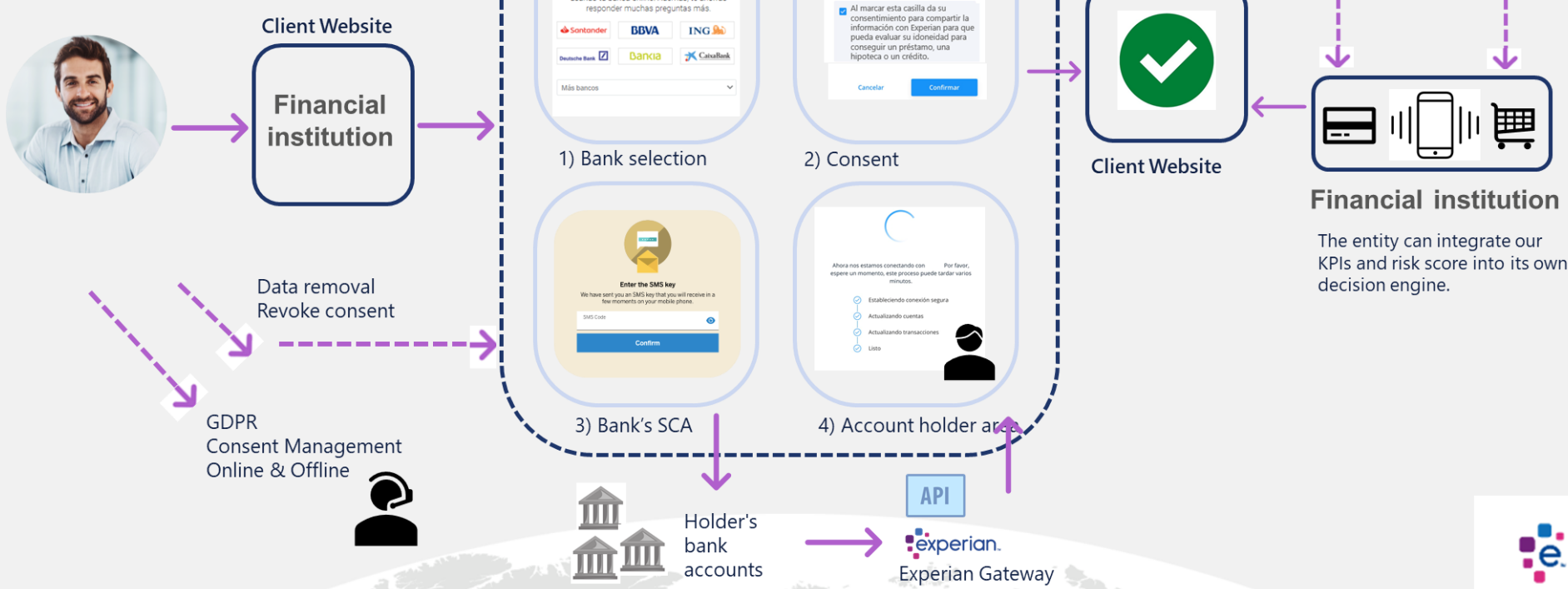


Source: DEPA, https://niti.gov.in/sites/default/files/2020-09/DEPA-Book_0.pdf

Consent Mechanism: Experian EU

The account holder, Juan, is invited to provide their consent and share their bank account details through a widget (website, SMS or e-mail)

Data recovery and consent management



For any further questions on Open Banking you can always reach out

fmontes@worldbank.org



Policy Aspects of Innovation in Payments

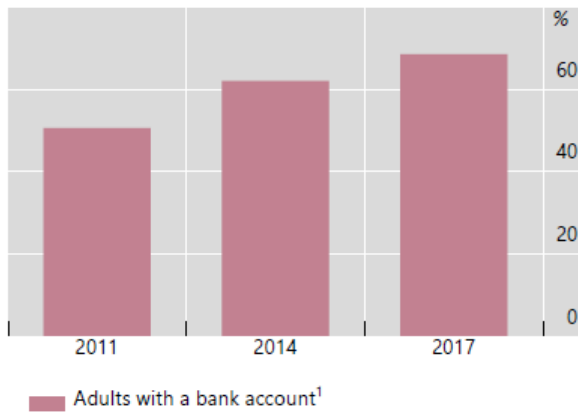
- Dorothee Delort
Payment Systems Development Group
World Bank



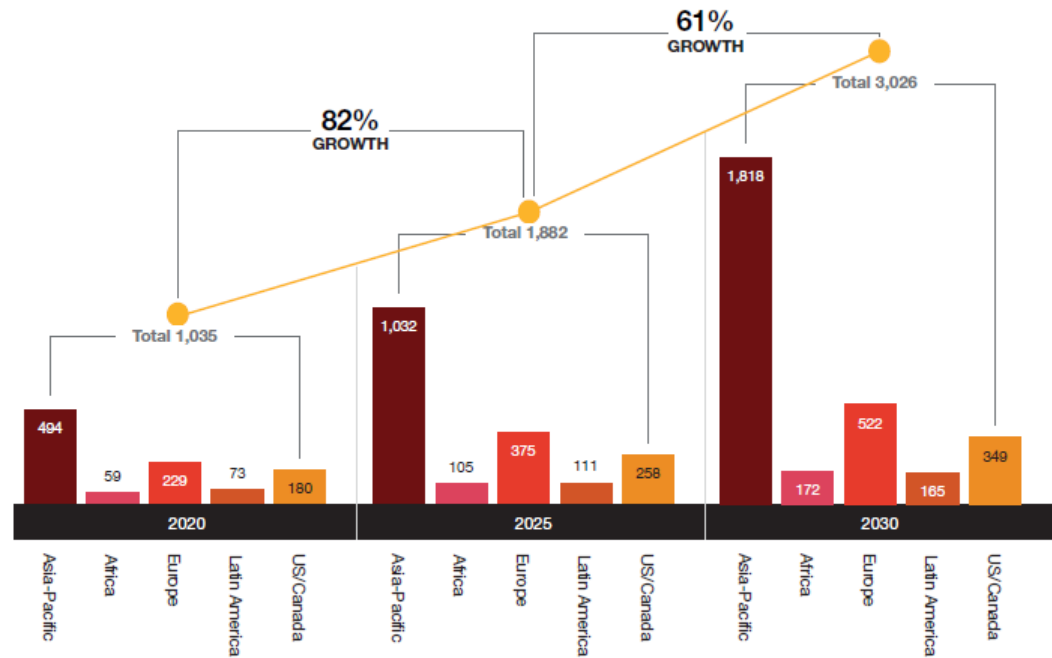
Innovation in payments

large-scale disruption at an unprecedented speed

Global access (financial inclusion)



Number of cashless transactions in billions



Note: Cashless transaction totals for 2025 and 2030 are projections.
Source: PwC Strategy& global payments model, 2021

Innovation in payments
products, access modes & technologies

The PAFI "fintech wheel"



innovation in payments

The 3 pillars



I. Changes to links between payments and accounts: the 4 waves

- Digital access to bank accounts
- The "prepaid" concept and entry of non-banks
- De-linking of initiation of payment from maintenance of account
- De-linking of account from payment



II. Changes in payment processing

- Faster payments
- Distributed ledger technologies (DLT)
- QR codes
- Integration with ID



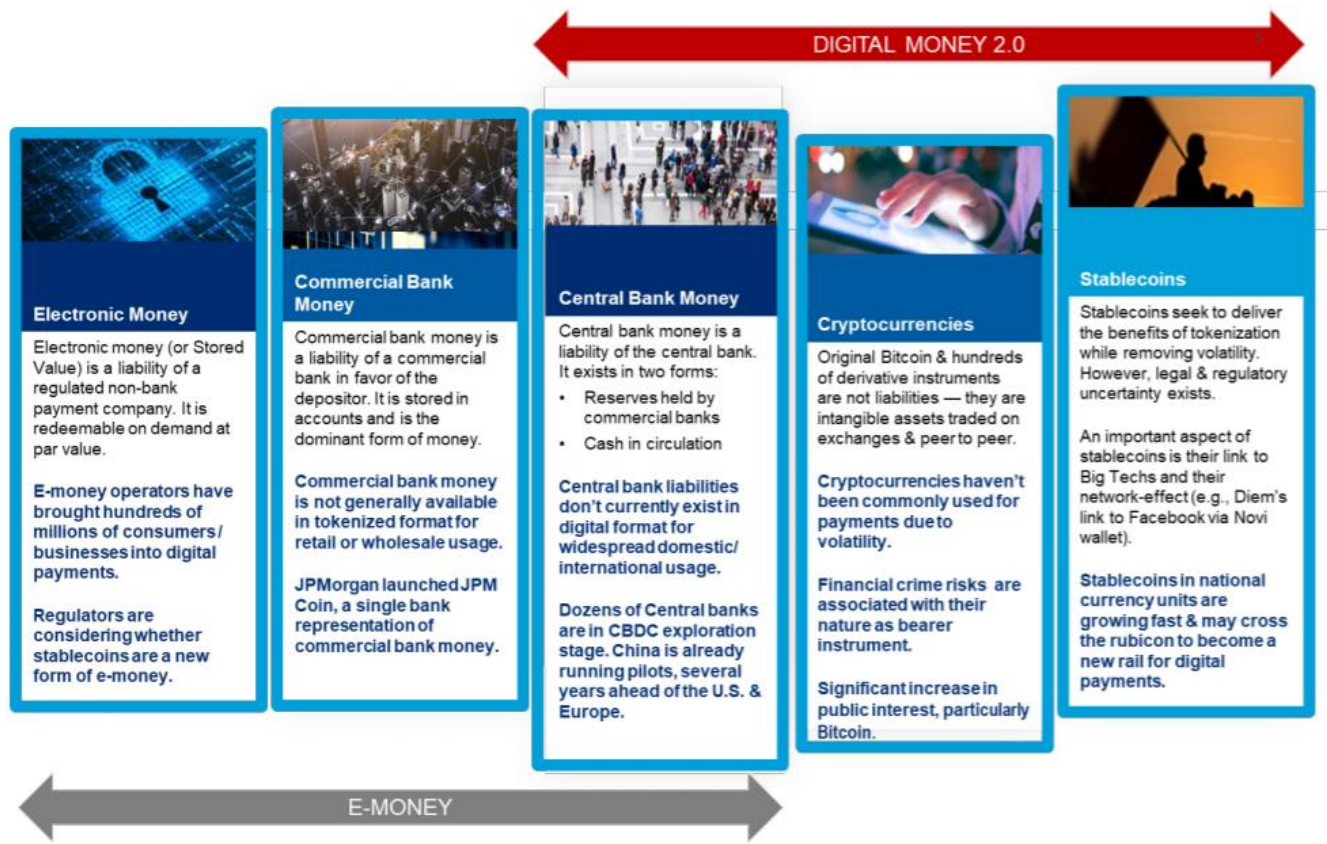
III. Changes in user engagement and business model

- Integration with day to day interactions
- Invisible payments
- Big Data and analytics

changes to the way payment services are linked to an account
the rise of e-money

- The e-money revolution:
 - leveraging third-party agent networks
 - regulatory simplification of know-your-customer (KYC) requirements
 - alternative pricing models
- From MNOs offering basic person-to-person money transfers using feature phones, to the generalized offering of *electronic wallets*, to “*super apps*” that have adopted a platform business model
- Crypto-assets and stablecoins, a more radical disruption, but actual usage of crypto-assets for payments (i.e. cryptocurrencies) is very limited
- Central bank digital currencies (CBDC) are another innovation that have the potential to disrupt the prevailing tiered structure in which banks and other authorized PSPs provide access to transaction accounts

changes to the way payment services are linked to an account
e-money, cryptocurrencies & stablecoins



Source: Citi

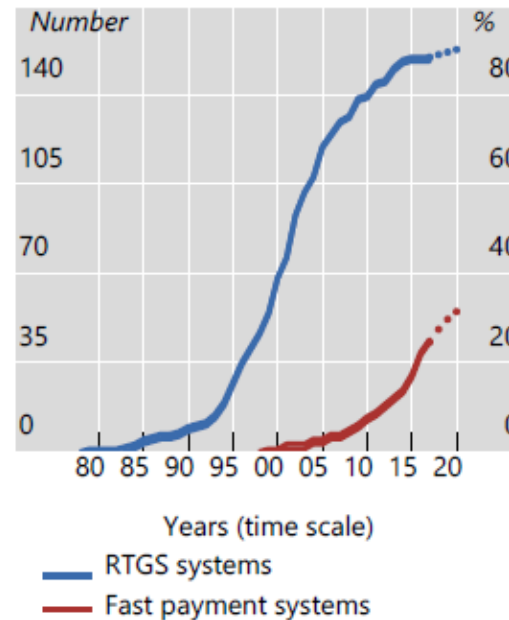
changes in payments processing

the fast payments surge

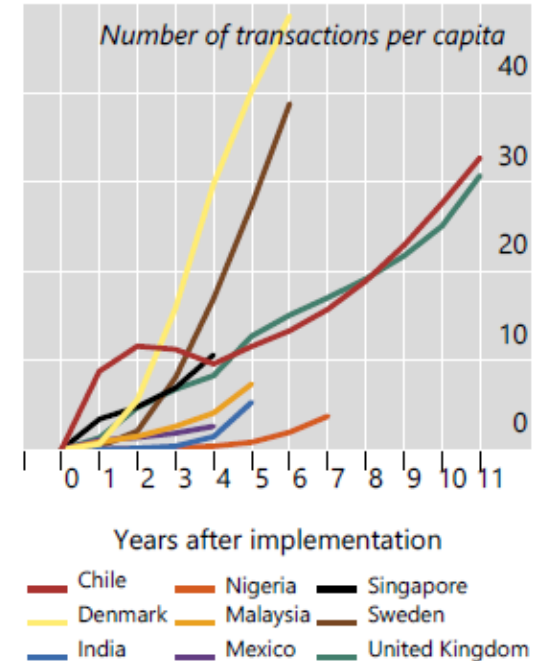


Stakeholder	Primary FPS implementation drivers
 Public authorities	<ul style="list-style-type: none"> Digitization of payments Leading innovation in the jurisdiction Enhancing consumer experience
 Operator	<ul style="list-style-type: none"> Market push (recommendation by financial institutions, banking and payments associations) Enhancing consumer experience Digitization of payments Leading innovation in the jurisdiction
 Payment service providers	<ul style="list-style-type: none"> Better customer experience Innovation/newer channels, use cases and technologies Competitor participant's fast payments offerings

Diffusion of fast payments ¹



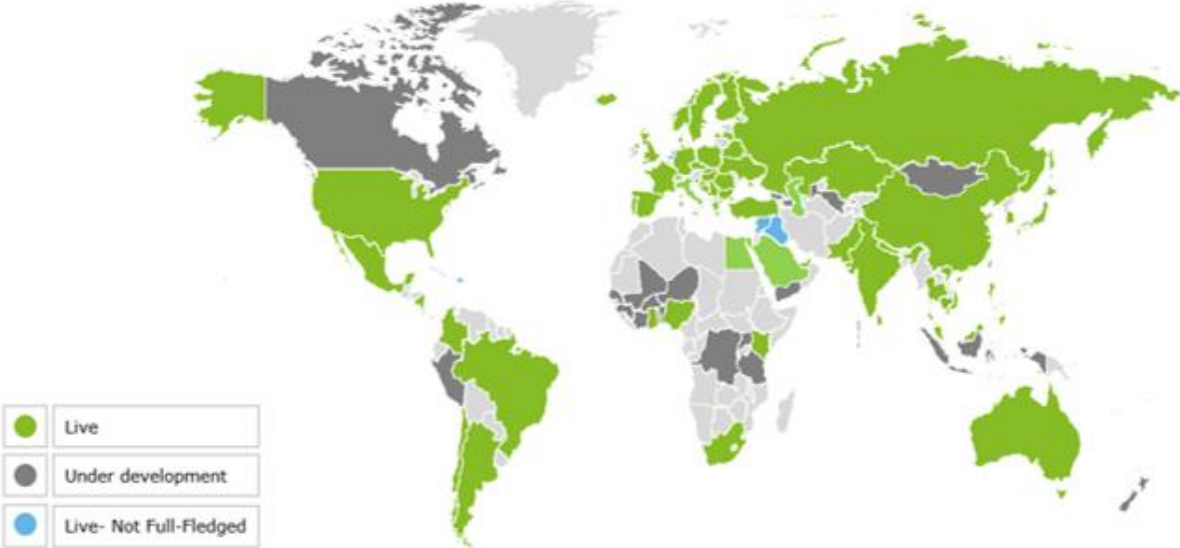
Use of fast payments



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);

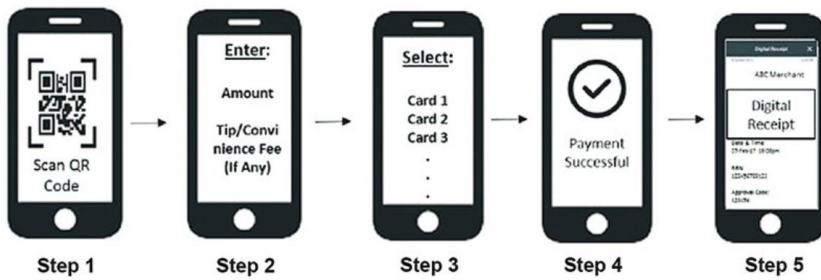
changes in payments processing

the fast payments surge



Note: SCT Inst and BCEAO have been considered as a single jurisdiction

changes in user engagement & market structure
QR code or merchants' payments made easy



changes in user engagement & market structure
QR code or merchants' payments made easy

Process for the adoption of standardized QR Code for payments in Thailand



changes in user engagement & market structure (2/2) *the big upset: Fintech and Bigtech*

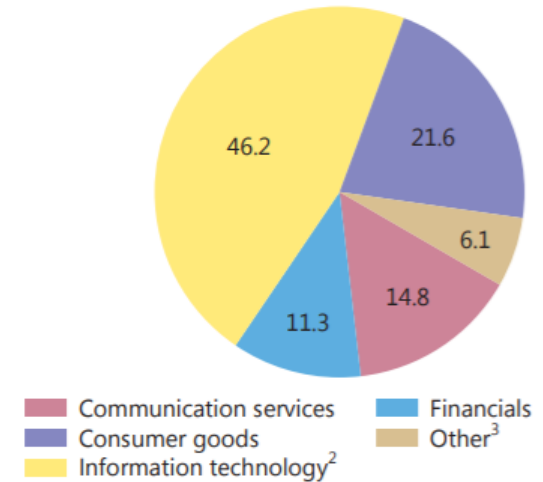
Big techs are increasingly moving into mobile payments



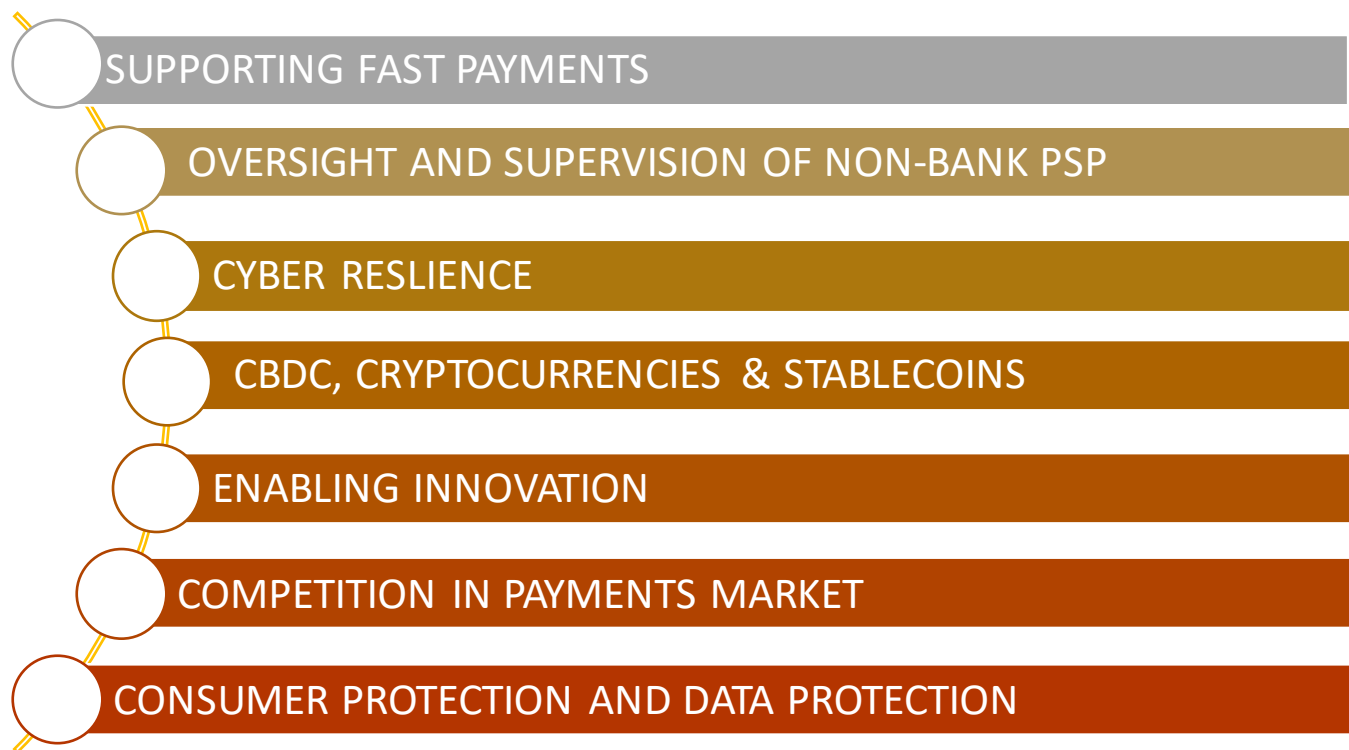
venmo



Big techs' revenues by sector of activity¹

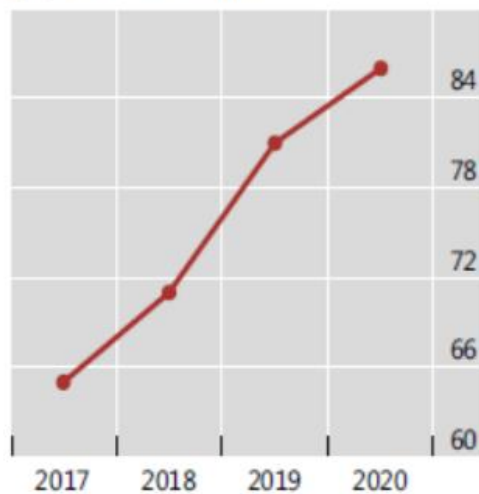


A challenge for central banks

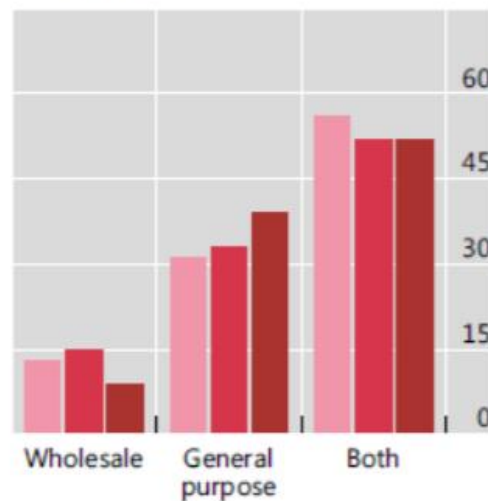


A challenge for central banks

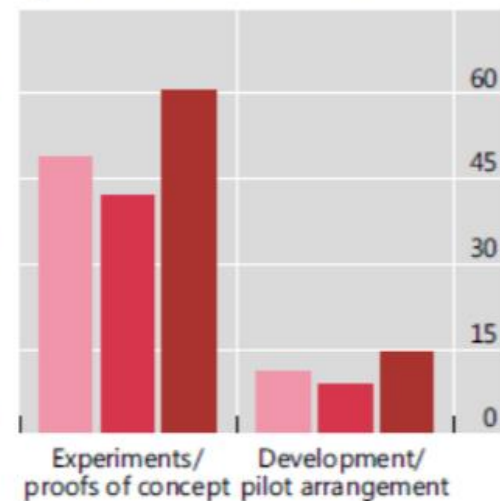
Engagement in CBDC Work



Focus on Work



Type of Work in Addition to Research*



2018 2019 2020

Note: * share of respondents conducting work on CBDCs

Source: BIS Paper No. 114 titled "[Ready, steady, go? Results of the third BIS survey on central bank digital currency](https://www.bis.org/papers/ready-steady-go?lang=en)". Material available freely at www.bis.org

Considerations to inform a strategy on innovation in payments





QUESTIONS?