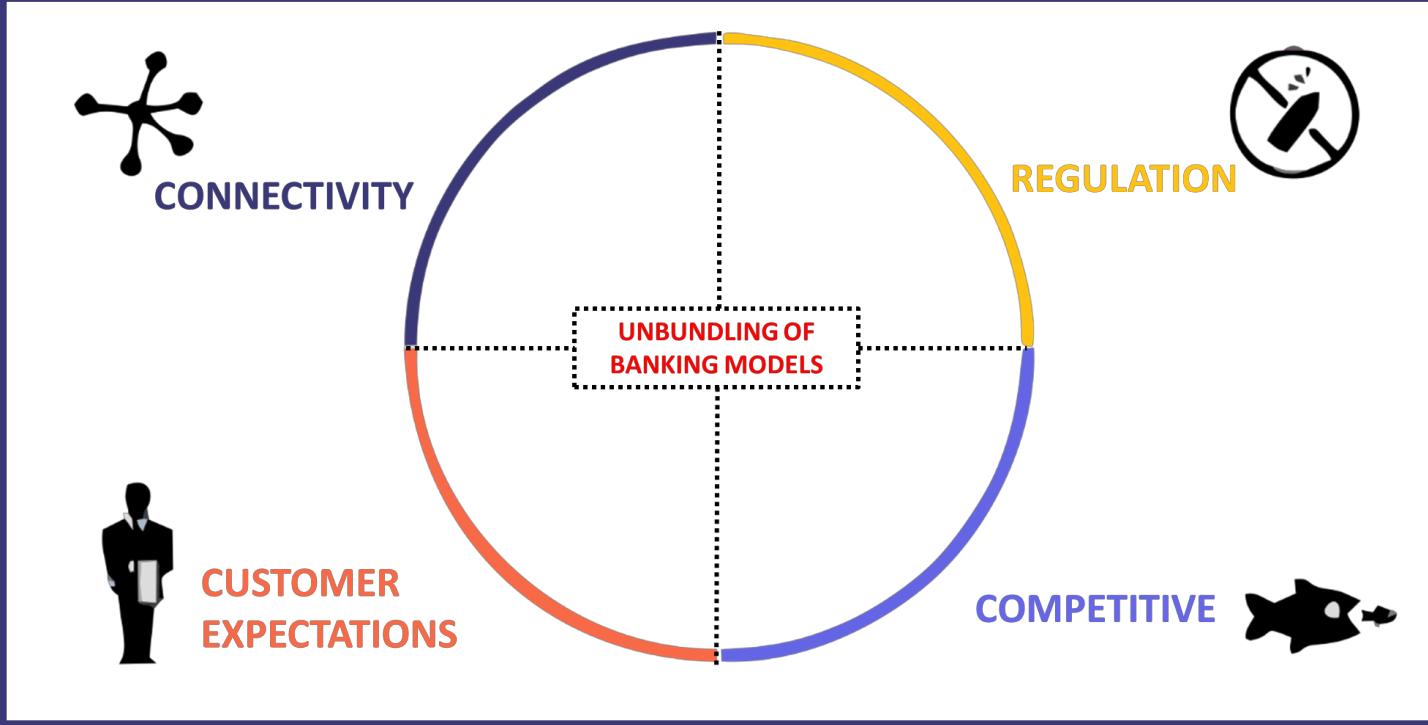




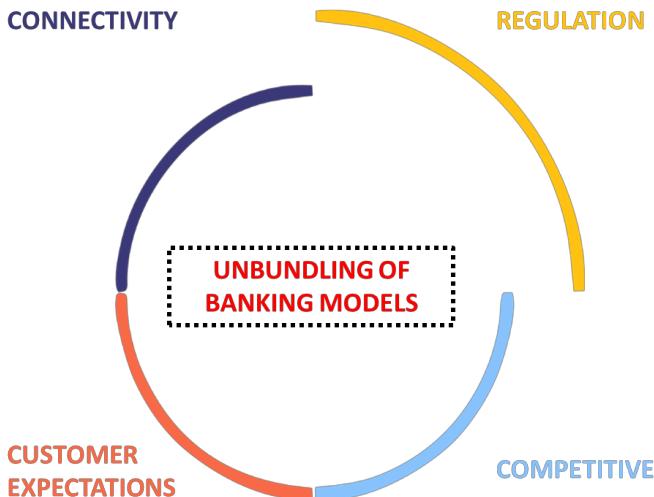
Open Banking APIs

The World of “Open” Banking

Emerging forces shaping the future of FSI



Emerging forces shaping the future of FSI



PAYMENT SERVICES DIRECTIVE 2 (PSD2),

The new EU directive requires Banks to provide third-party access to customers accounts for both account information and payment initiation via open APIs, starting 2018.



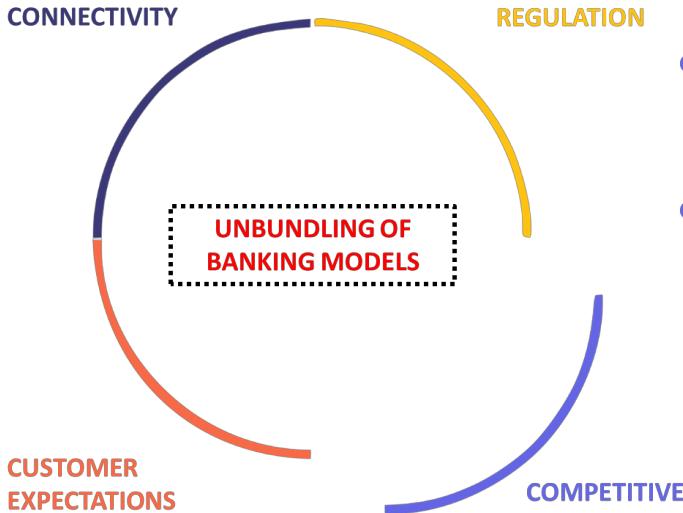
COMPETITION & MARKETS AUTHORITY (CMA)

Its report "Making banks work harder for you" published 9th August 2016 sets out a series of findings and measures intended to help customers find and access better value services and enable them to take control of their finances. This will also enable new entrants and smaller providers to compete on a level playing field.

PENSIONS DASHBOARD (ABI)

Pensions dashboards should let you see all of your pension pots all together - in an online place that you can choose. The UK Government's objective is for the service to be available to consumers by 2019.

Emerging forces shaping the future of FSI

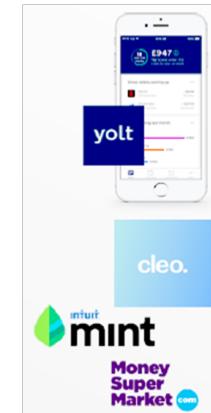


EMERGENCE OF NON-TRADITIONAL PLAYERS

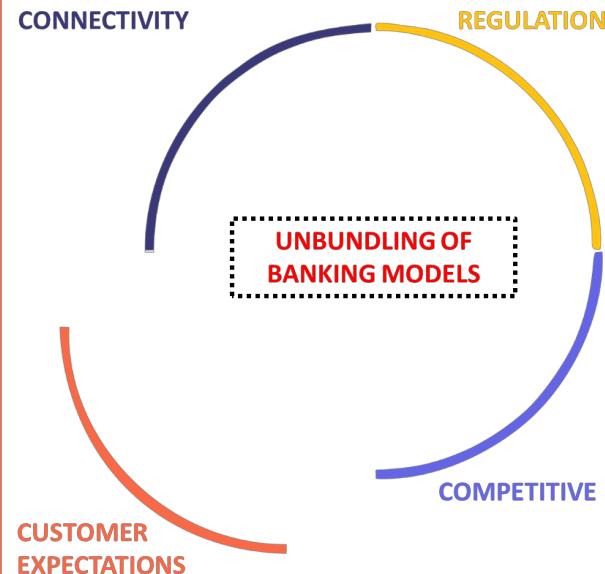
The emergence of non-traditional players in the FS market, largely from the FinTech community provides a threat to existing revenue streams and loss of direct customer relationship

EMERGENCE OF NEW SERVICE OFFERINGS

The ability to gain access to bank and customer data opens up renewed opportunity for new service offerings which provide additional value to customers, ranging from PFM solutions, product comparison and fast-switching services, online lending and cross-border payments solutions



Emerging forces shaping the future of FSI



HEIGHTENED EXPECTATIONS

Modern digital & social experiences are redefining the use of technology in our everyday lives. Customers have higher expectations on what their Banking service should provide.

MOBILE CONNECTIVITY

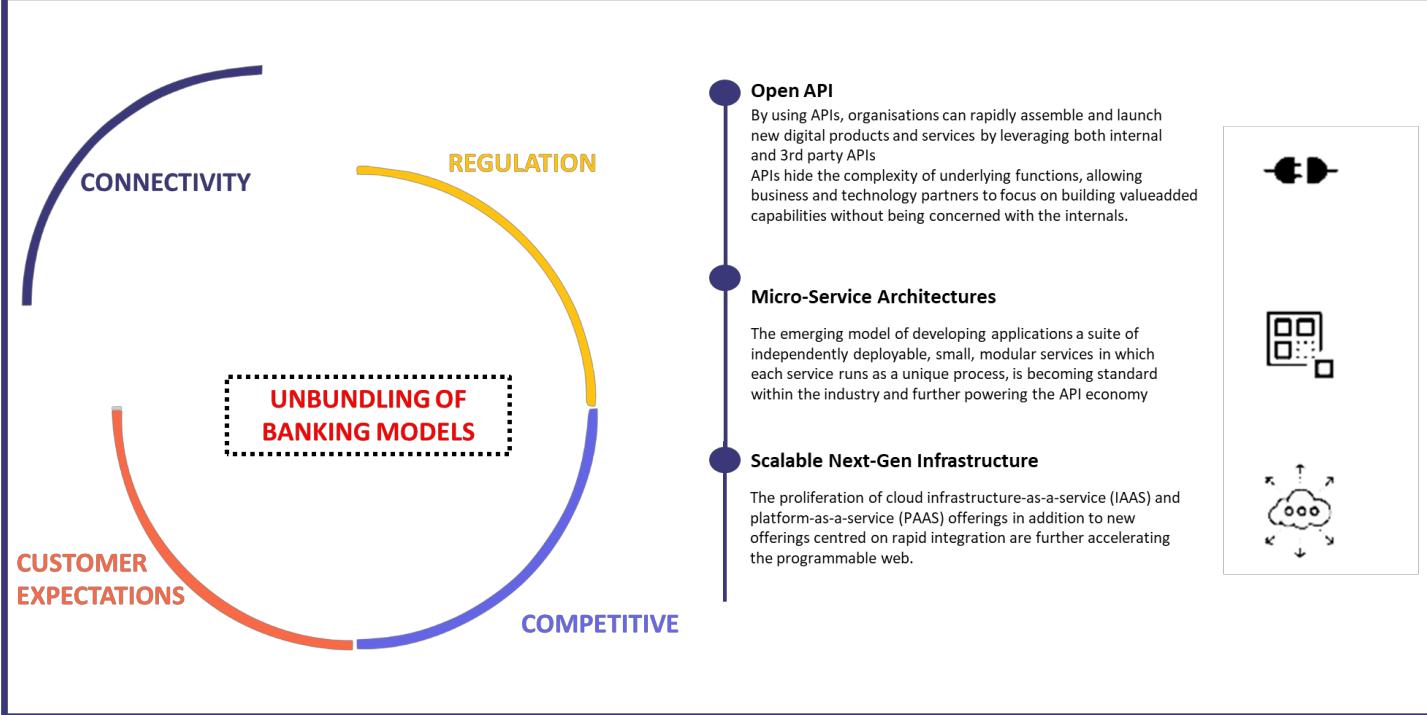
Fuelled by the always-on interconnected web and ubiquity of mobile coverage, our favoured digital interactions are increasingly mobile

CONTEXTUAL SERVICE

Customers increasingly expect intelligent, contextual services woven into their daily interactions. End-end services, not products.



Emerging forces shaping the future of FSI



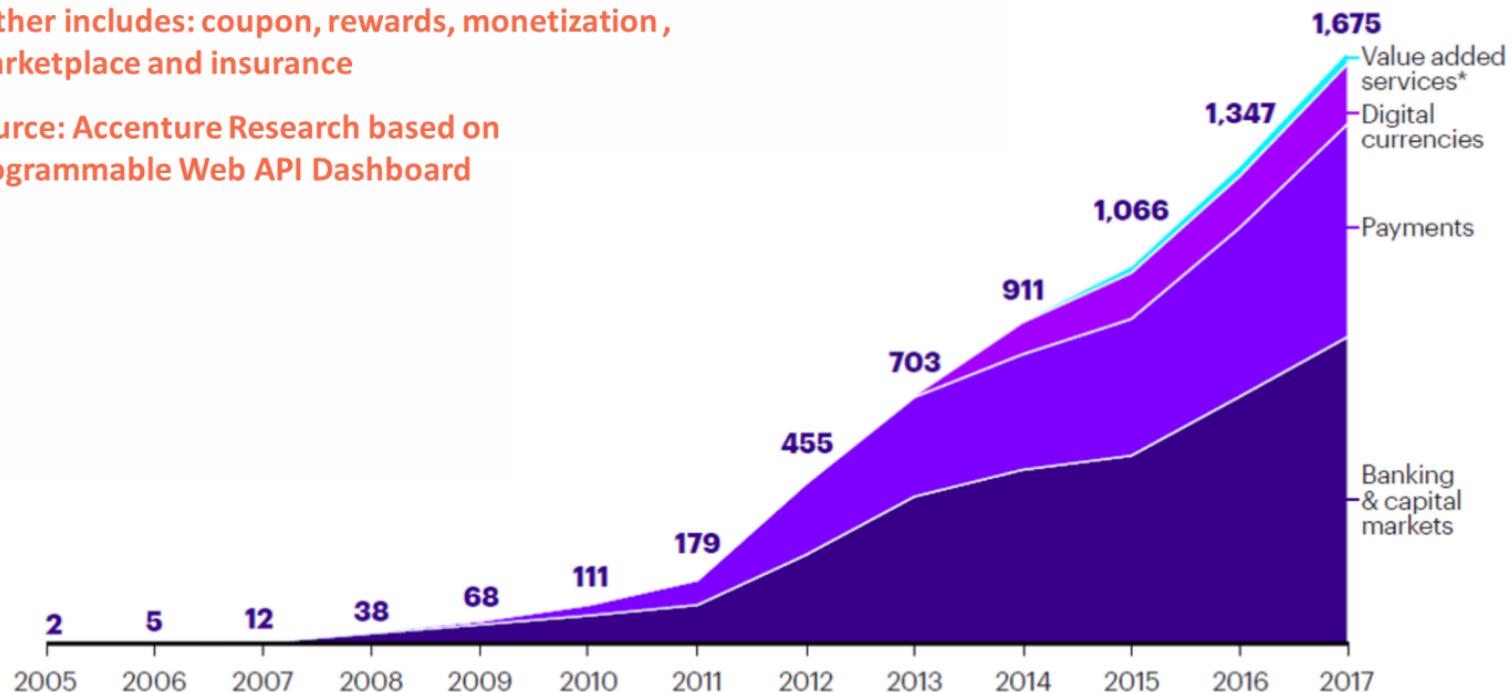
API economy explodes in banking

Growth in Financial Services related APIS

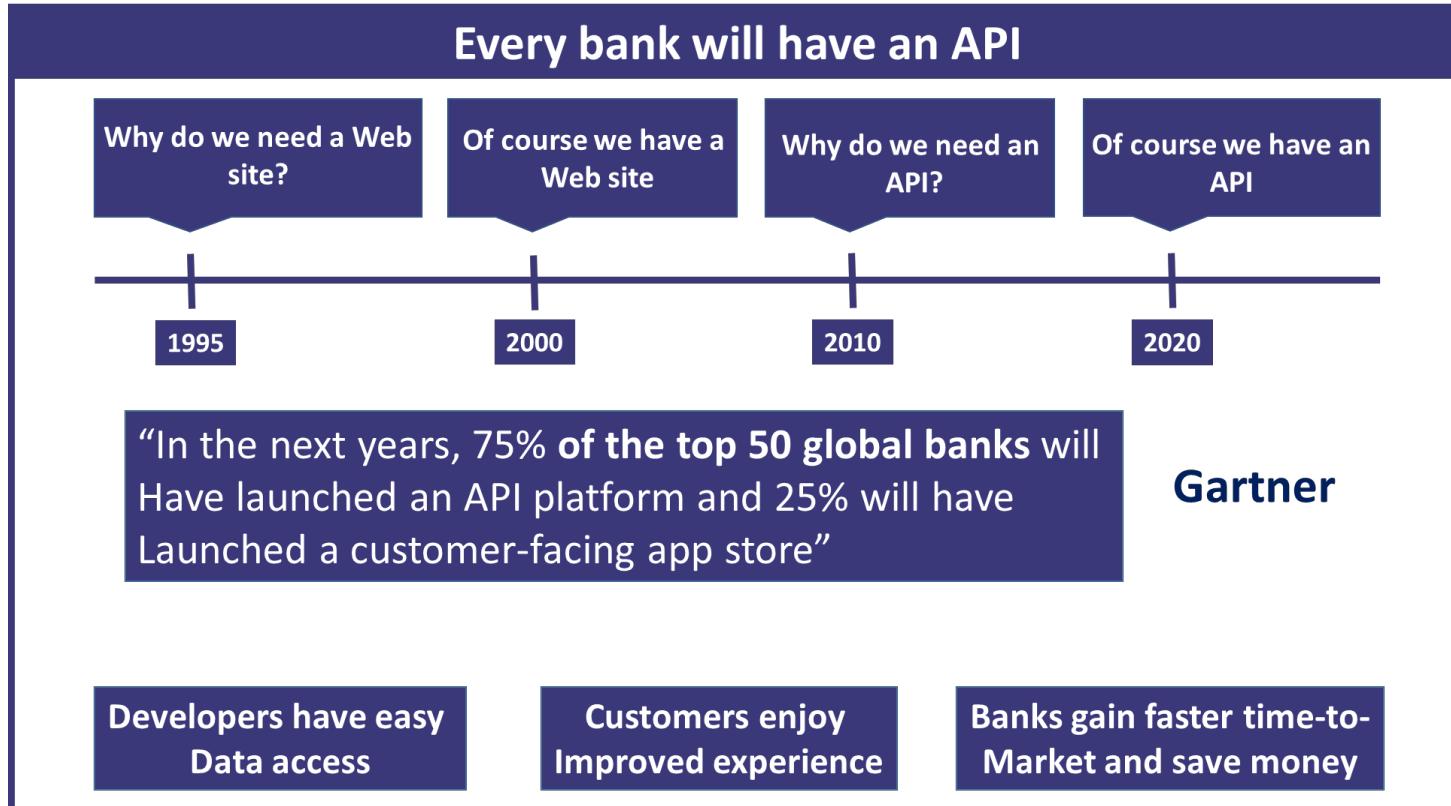
2005-2017 cumulative numbers

"Other includes: coupon, rewards, monetization,
Marketplace and insurance

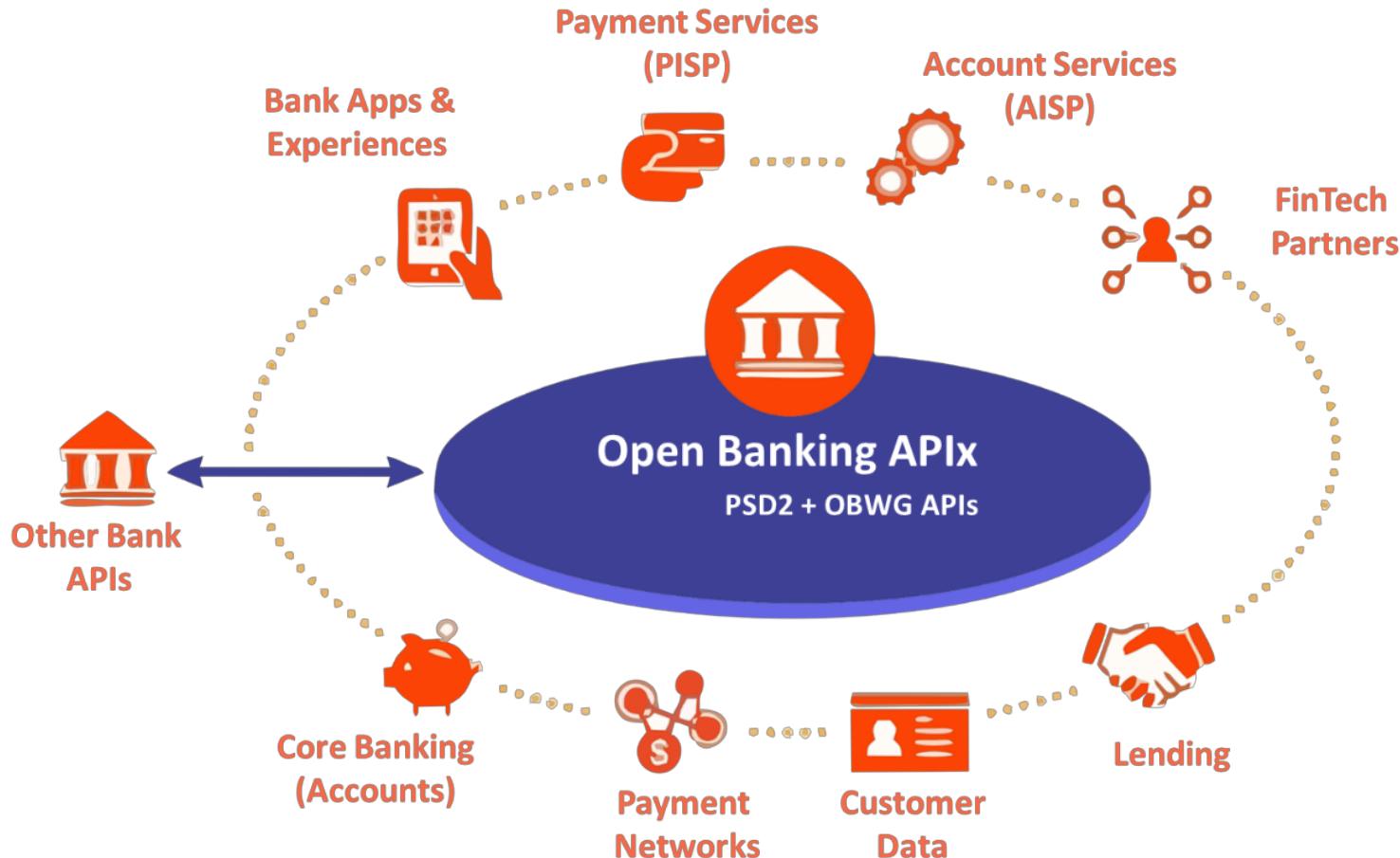
Source: Accenture Research based on
Programmable Web API Dashboard



API will soon become a hygiene



What Changed on January 13?



What is Open Banking?

Open Banking is:

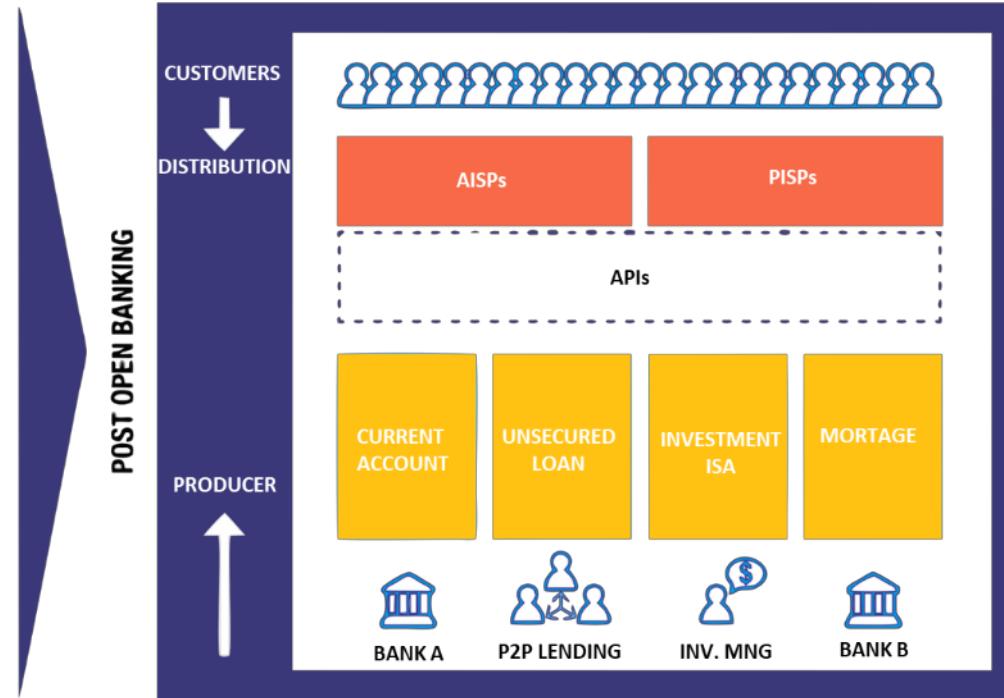
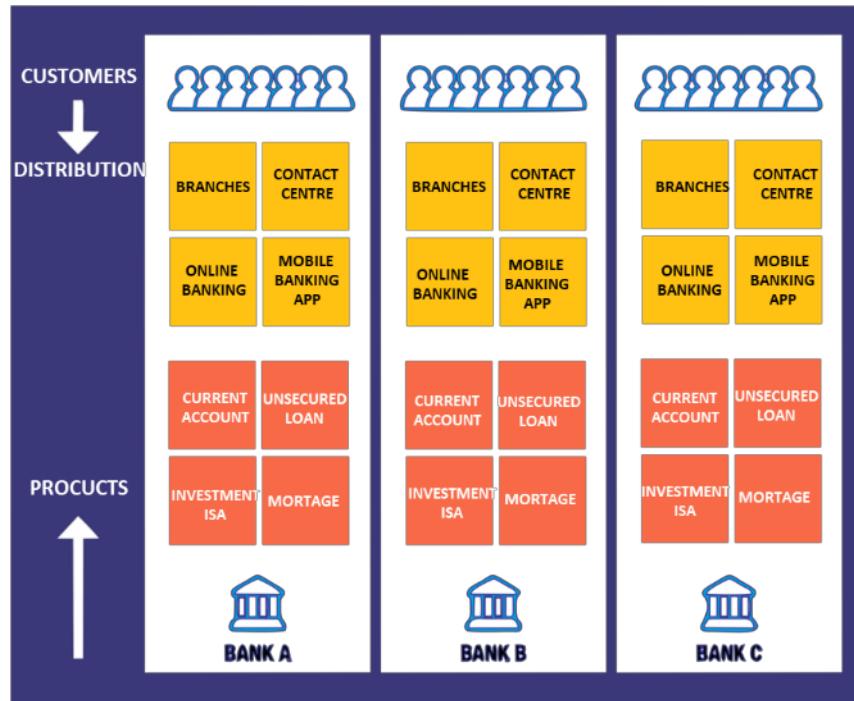
A **new** and **secure** way for customers to **take control of their financial data**

A **new** and **secure** way for customers to **make payments** from their bank accounts

A set of **technologies** and **data standards** that can be used by the developer community

Security, privacy and **express consent** are the pillars of Open Banking

Post Open Banking era



Spectrum of Open APIs



Institutions outlined in Open Banking

PISP

Payment Initiation Service Provider

Open Banking allows regulated Third-party PISPs to **Initiate payments**

Directly from customer Payment accounts so Long as they have the Customer's **consent**.

AISP

Account Information Service Provider

Regulated third-party AISPs can access **Customer data** (with the Customer's Consent) To provide an Customer's payment Accounts with different Banks in one place (e.g. a mobile app).

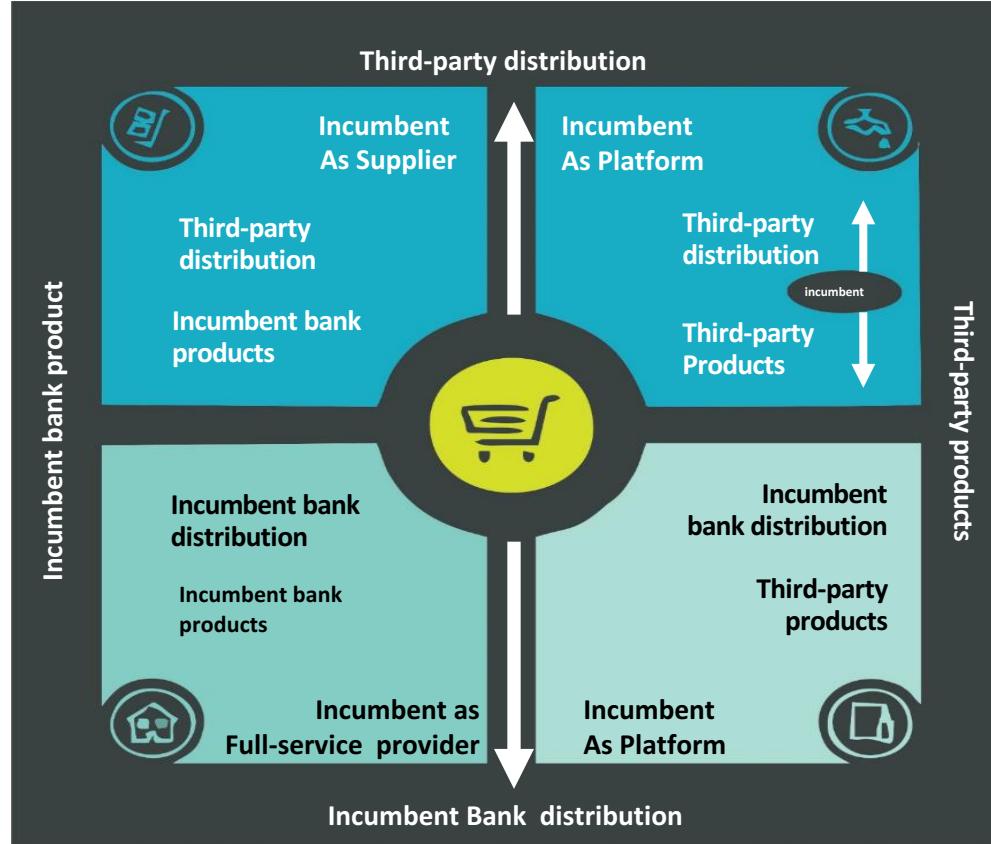
ASPSP

Account Servicing Payment Service Provider

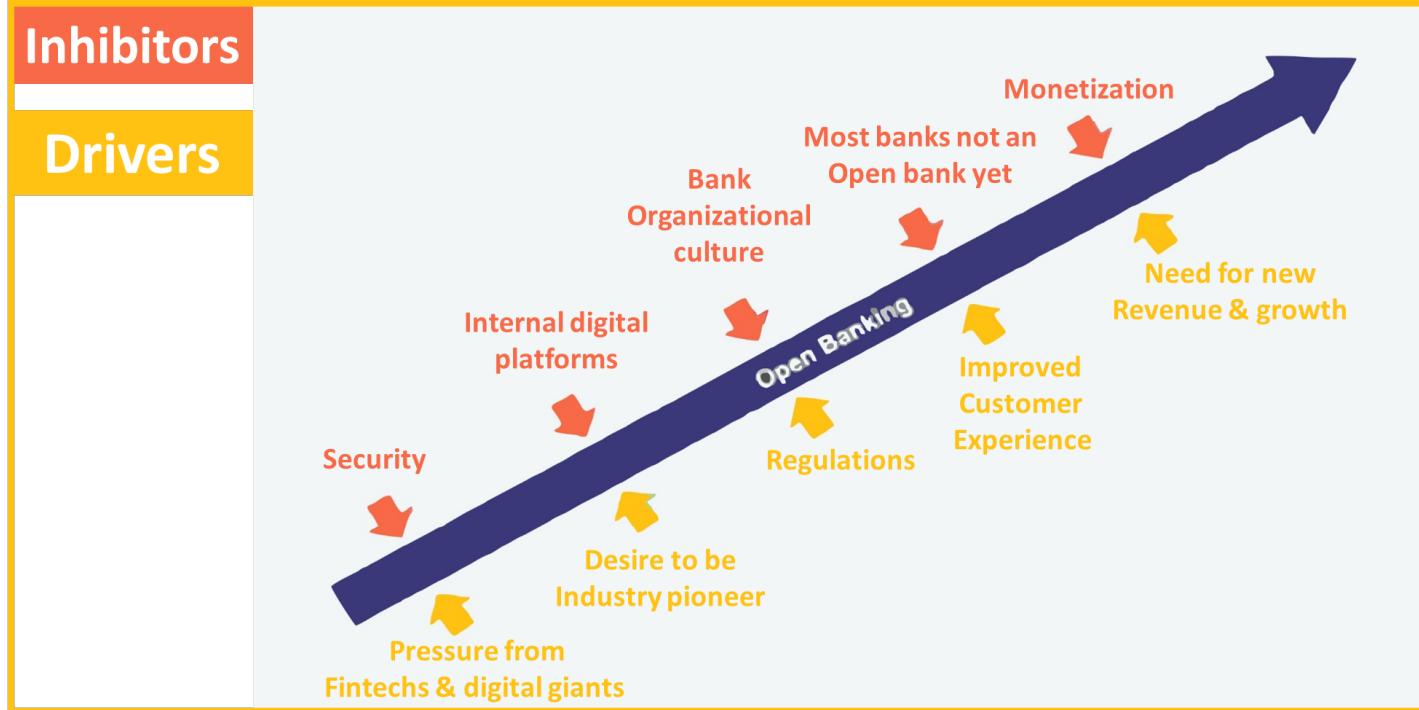
An ASPSP is the Institution holding a Customer's payment Account.

Business model

Strategic options for banks

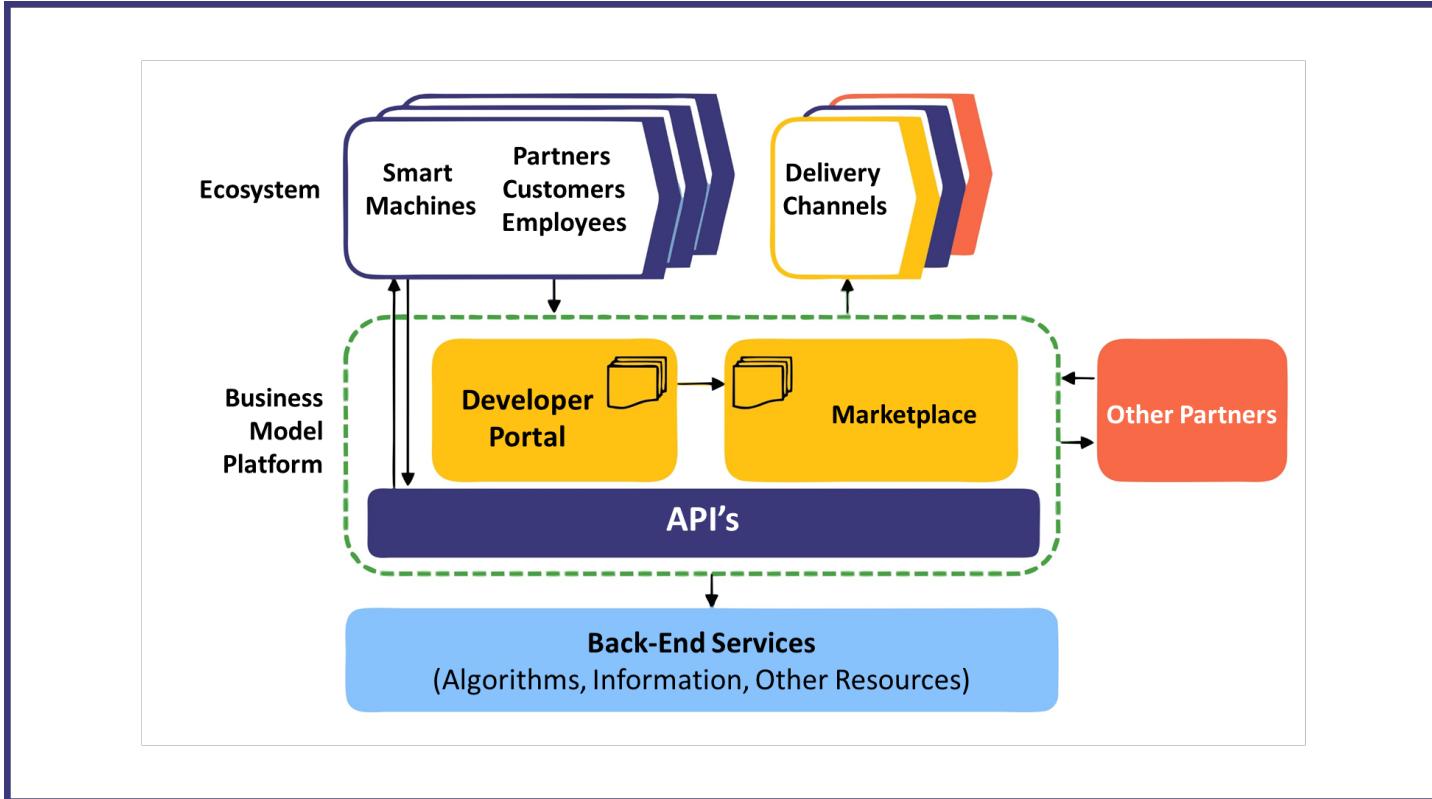


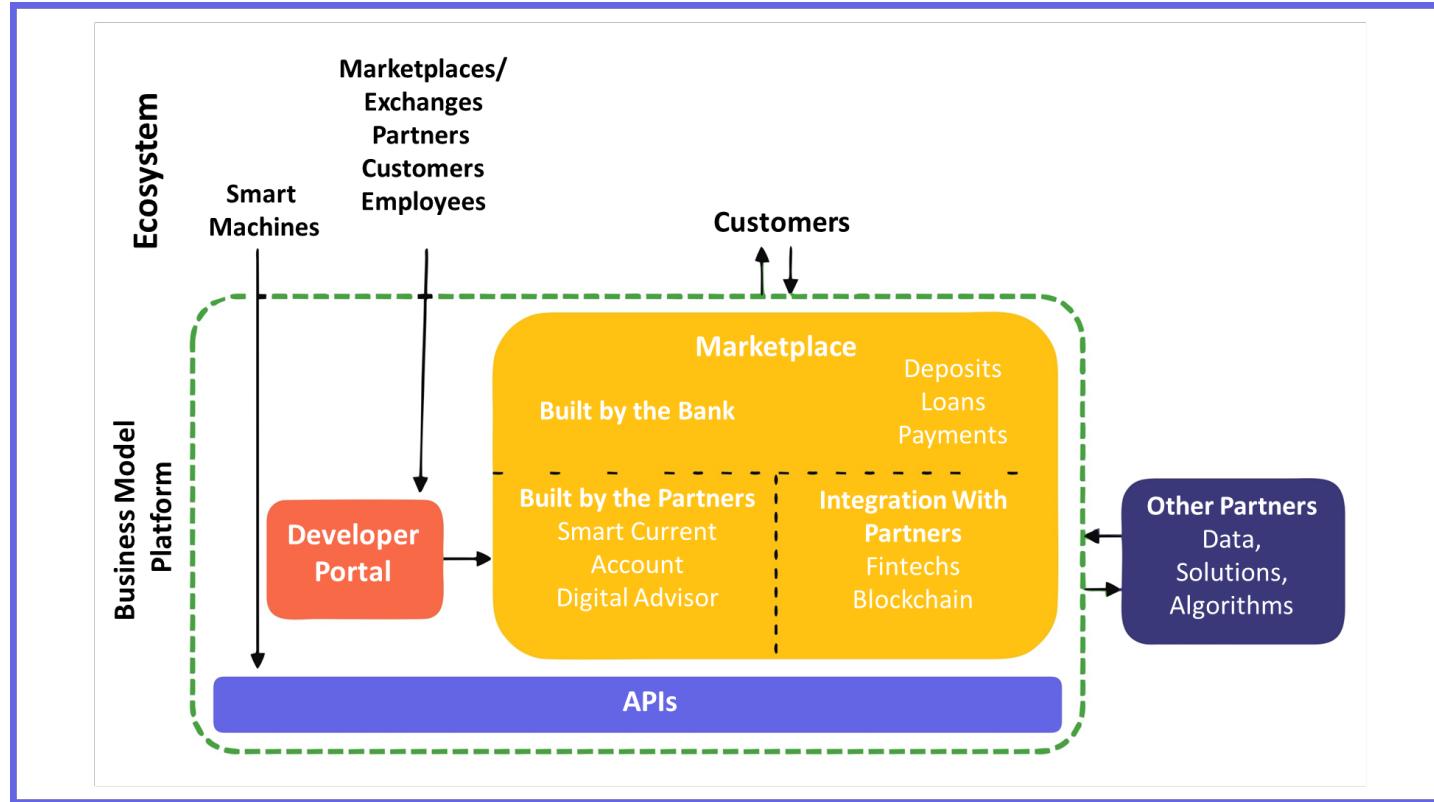
Open Banking Drivers and Inhibitors

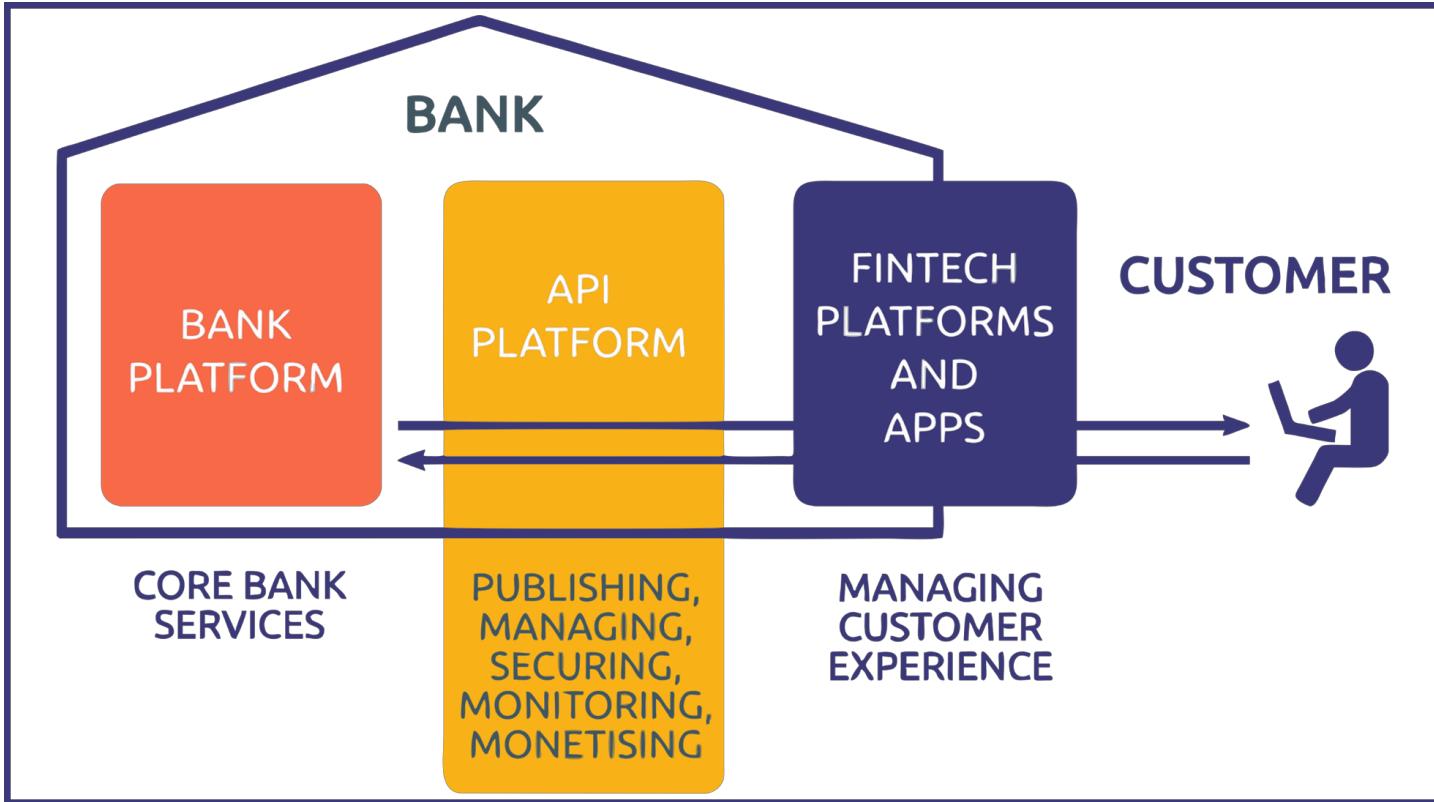


Five Main Elements of the Digital Platform That Enables Open Banking

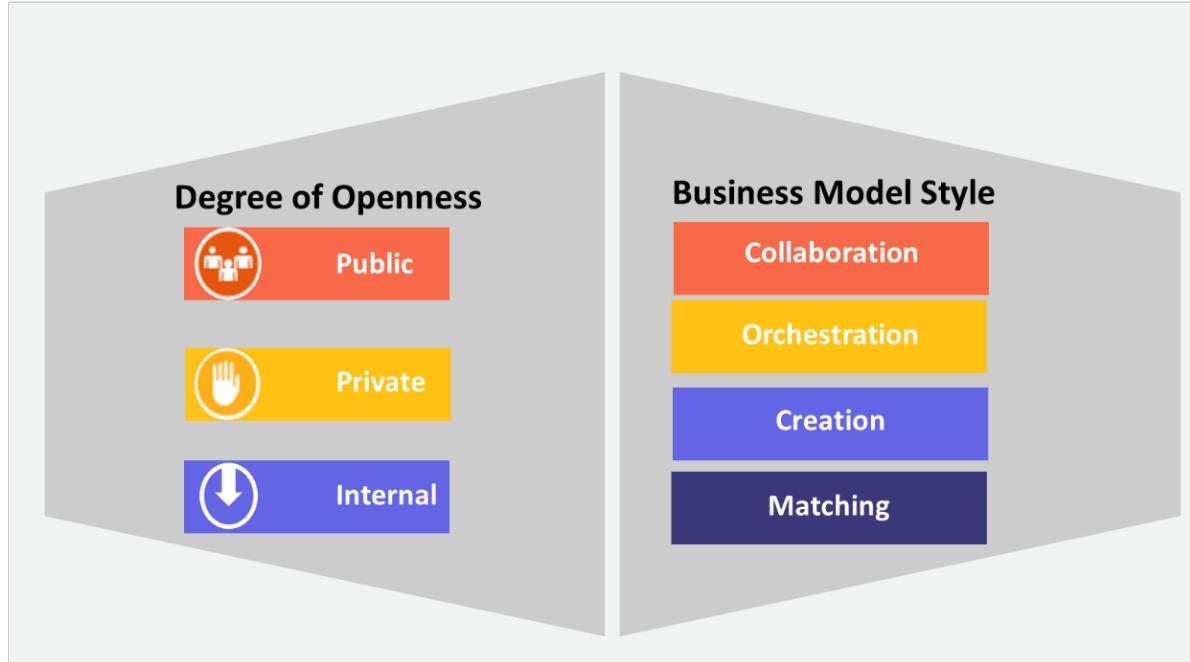




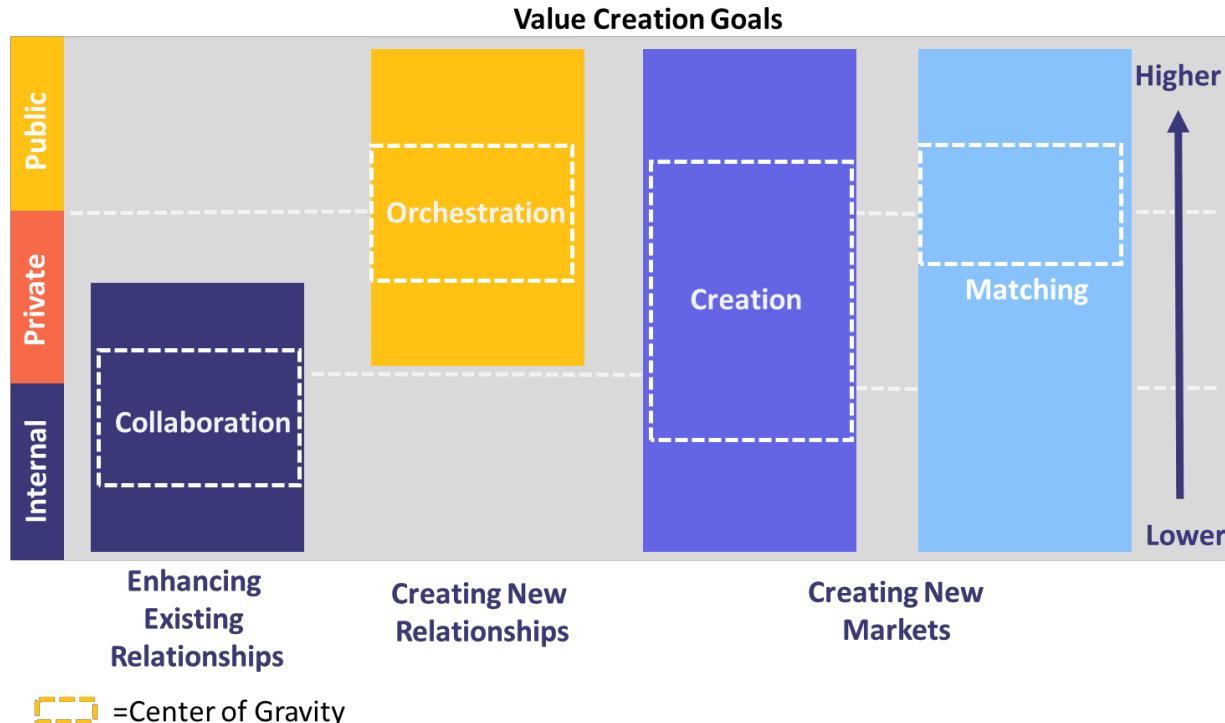




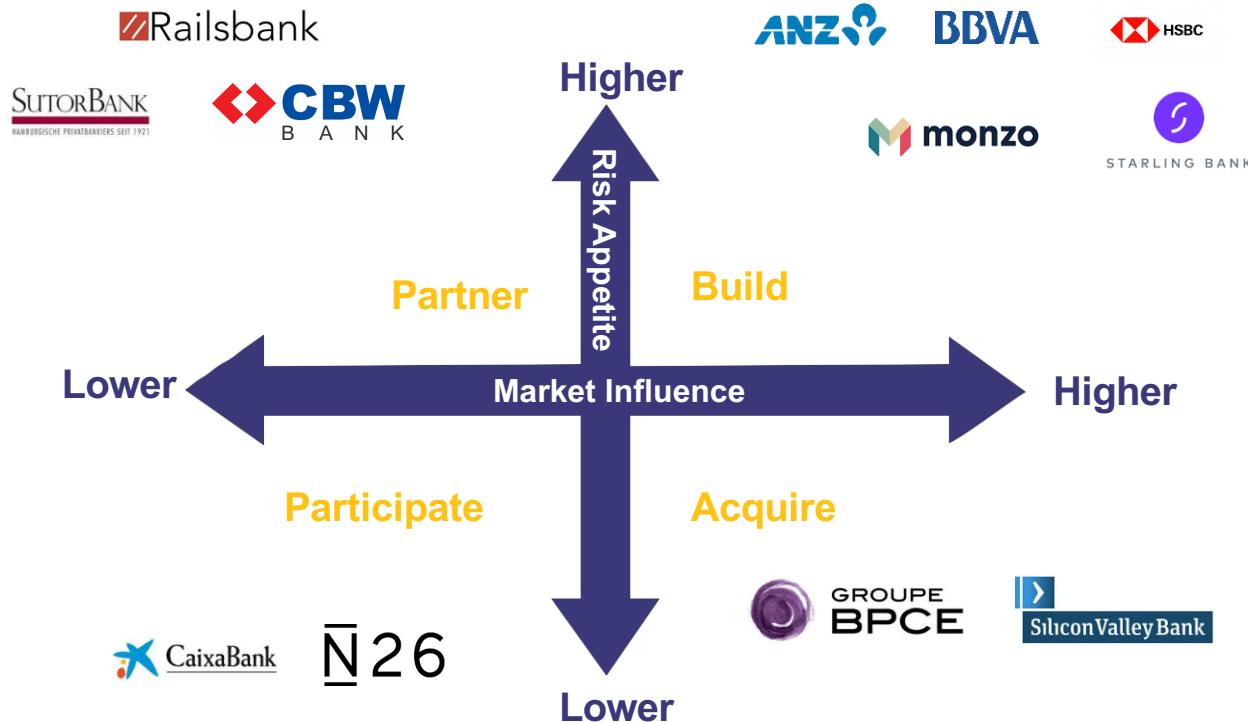
Two Dimensions to Platform Business



Value creation through platform business model

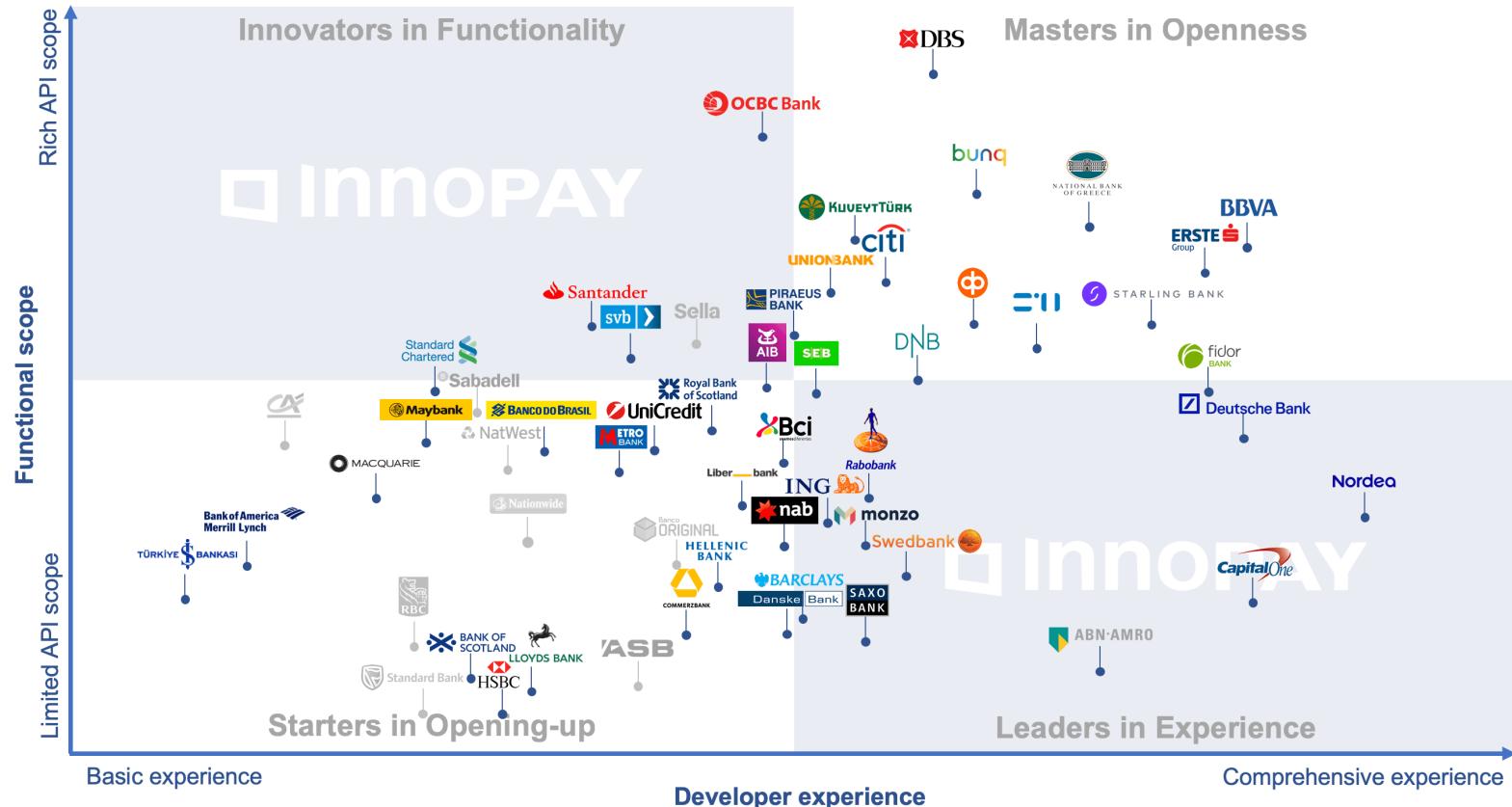


How to Build an Open Bank



Open Banking Case studies

Banks across the world step up with Open Banking initiatives



*Grey indicates limited portal accessibility, thereby complicating full assessment

INNOPAY Open Banking Monitor (OBM) – Developer Portal benchmark (update February 2019)

INNOPAY

Open Banking platform capabilities



API Catalogue

All product functionalities exposed by banks through APIs



API Documentation

Clear and unambiguous API Documentation to enable API consumers to facilitate self-service



Developer Usability

Tools, guides and experience provided by the bank to the developer community to interact with the available APIs

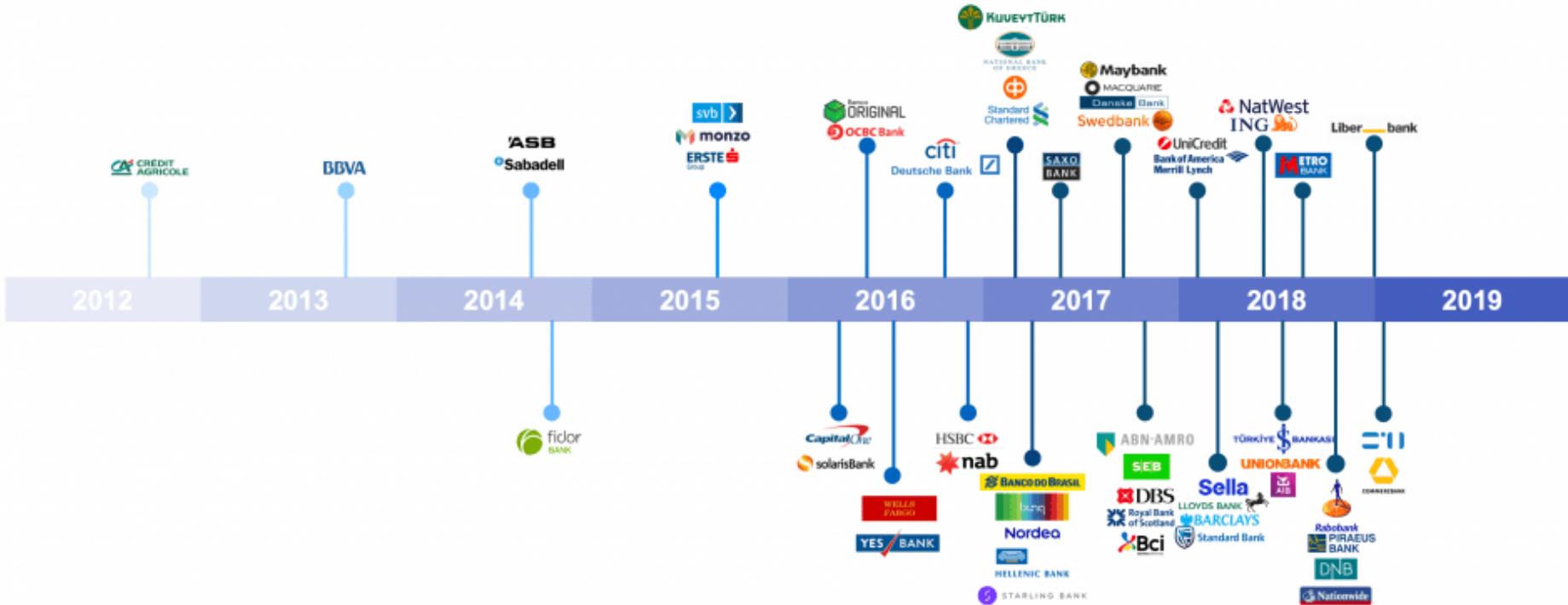


Developer Community

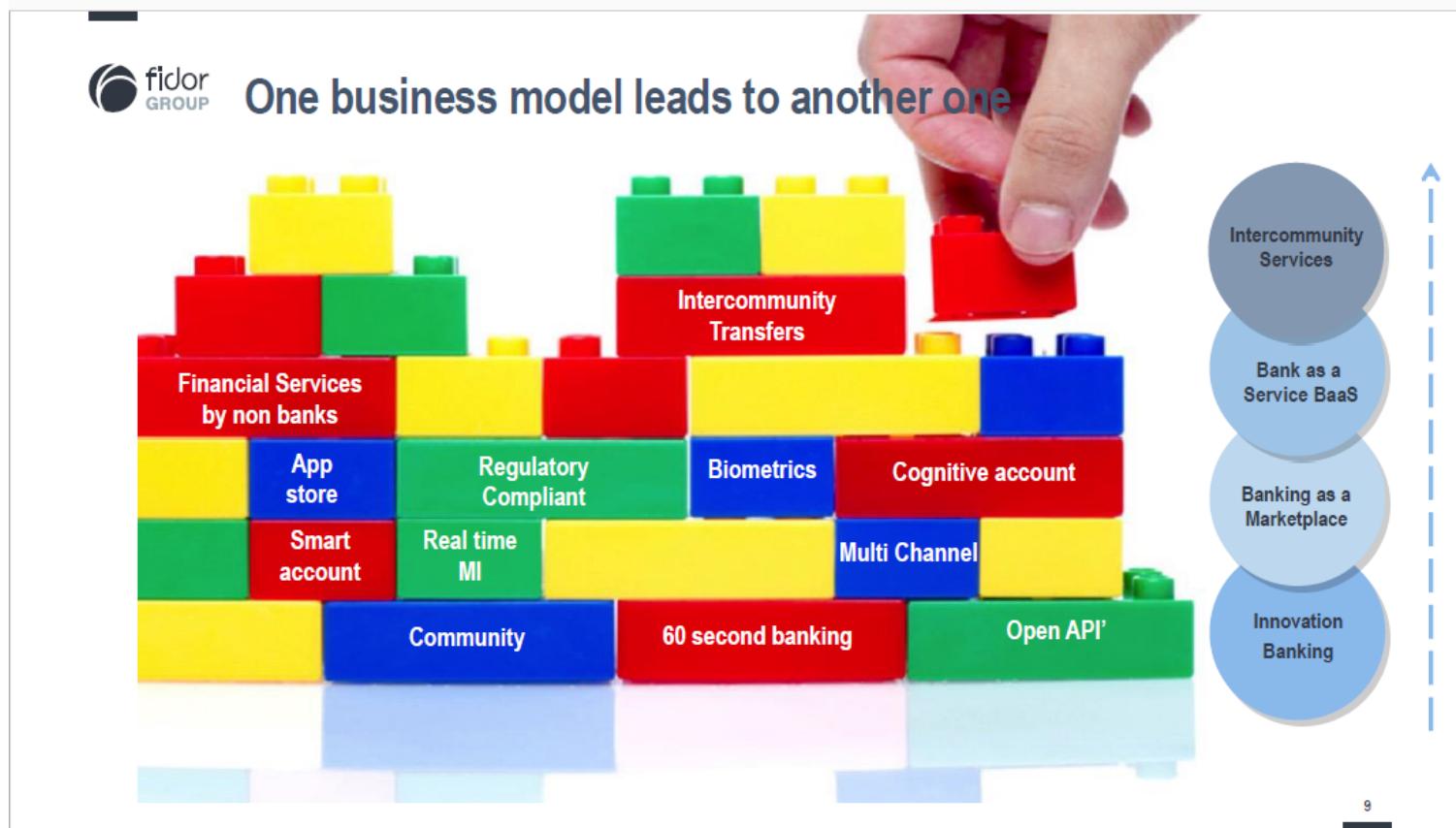
Actively engaging with developers by creating direct channels like online community or hackathons



Developer Portal capabilities are key to winning in Open Banking



Case Study: Fidor Bank



Case Study: Fidor Bank



Search

- Introduction
- Getting Started
- Develop and Debug
- Approval and Operation
- Core Resources
- Money Transfer
- Sepa Mandates and Direct De...
- Transfer Approvals - Trust Ac...
- Errors

Application Manager
Developer Community
Imprint

Introduction

Welcome to the Fidor Banking API! Our API allows you to easily access your Fidor bank account, get information about your transaction history and submit various types of payments. In addition you may provide services for Fidor customers and access their accounts if certain conditions are met.

For general introduction to our developer program please visit our [developer community](#).

Our API is RESTful, we use JSON format and OAuth2.0 authorization.

Endpoints

Here's a quick overview of our API endpoints:

Method	Endpoint	Usage	Returns
GET	/users/current	Get user's data	users
GET	/customers	Get customer data	customers
POST	/customers	Create customer object	customer
GET	/accounts	Get customer's bank accounts	accounts
POST	/internal_transfers	Send money to another fidor user	
GET	/internal_transfers	Get all fidor-to-fidor transfers for the current user	internal transfer
POST	/sepa_credit_transfers	Send money to another bank account through SEPA	
GET	/sepa_credit_transfers	Get all sepa transfers for the current user	sepa credit transfer

Case Study: Credit Agricole

CA STORE

Search my need

✓ SUBSCRIBE

Application Catalog

47 RESULTS | THE MOST RECENTS

1 | 2 | ... | 4

Catalogs

Applications

Ideas

Platforms

All

iOS

Android

WebApp

Windows 8

Windows Phone

f I Love
2394 Followers
47

My coloc' Administrator My Coloc' by Crédit Agricole Atlantic Vendée, the 100% free

★★★★★ 0 ⚡

Pocket savings Alaroa Pocket saving is an application that makes it possible to realize

★★★★★ 0 ⚡

Benefits Mozaïc Administrator With the Mozaïc card, enjoy good plans to enjoy more while

★★★★★ 0 ⚡

ici CENTRE LOIRE

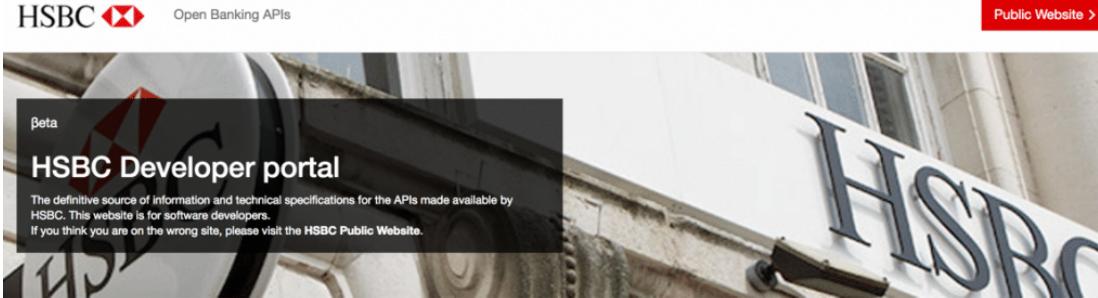
RIGHT HERE

My card

Enjoy your meal

The screenshot displays the Credit Agricole (CA) Application Catalog. At the top, there's a search bar labeled 'Search my need' and a 'SUBSCRIBE' button. On the left, a sidebar offers filters for 'Catalogs' (Applications, Ideas), 'Platforms' (All, iOS, Android, WebApp, Windows 8, Windows Phone), and social media links (Facebook 'I Love' 2394 Followers, Twitter 47). The main area shows a grid of 47 recent applications. Visible titles include 'My coloc' by Crédit Agricole Atlantic Vendée', 'Pocket savings' by Alaroa, 'Benefits Mozaïc' by Administrator, 'ici CENTRE LOIRE', 'My card', and 'Enjoy your meal'. Each app entry includes a small icon, a brief description, a rating (e.g., ★★★★☆), and a download button.

Case Study: HSBC



Open Banking APIs

HSBC Open Banking APIs make it easier for personal and business customers to compare what's offered by different banks. We provide up-to-date information about the location and facilities of our branches and ATMs, detailed product information for personal and business current accounts, lending products for small to medium enterprises and commercial credit cards.

This Beta version uses a draft schema modelled on the CMA9 IEWG data dictionary.



Branch locator >

Free data on the locations of and facilities at HSBC branches



ATM locator >

Free data on the locations of HSBC ATMs

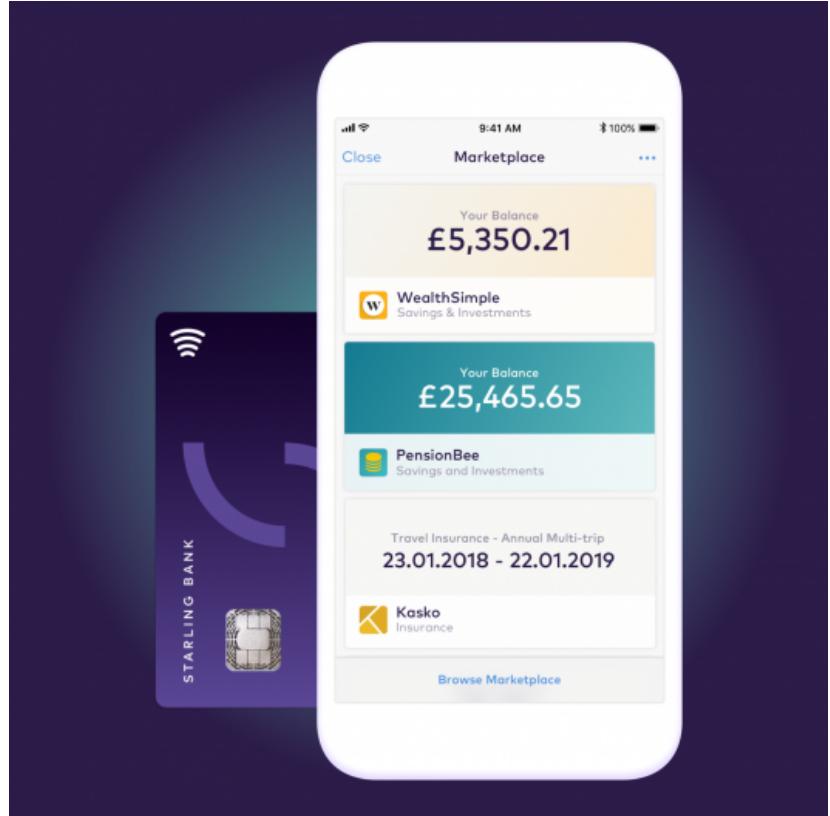


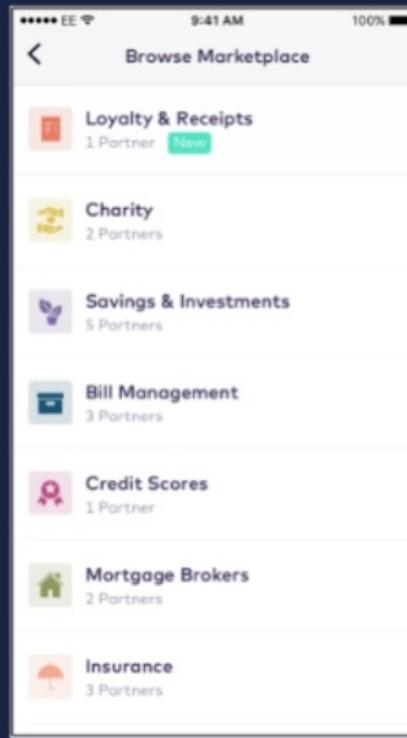
Product finder >

Get up-to-date information about HSBC current accounts, SME lending products and commercial credit cards.

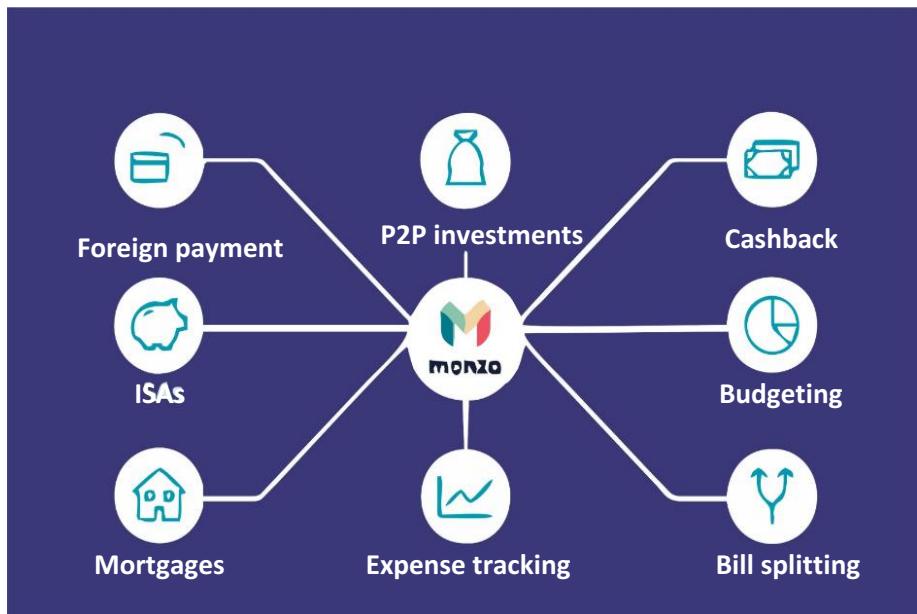
Case Study: Starling Bank

- In 2017, Starling launched a full set of Open APIs, and enabled integration with companies like Moneybox, Yoyo Wallet, Yolt, Tail, and Flux. Now we're excited to take that to the next level by integrating financial services providers into the Starling Marketplace.

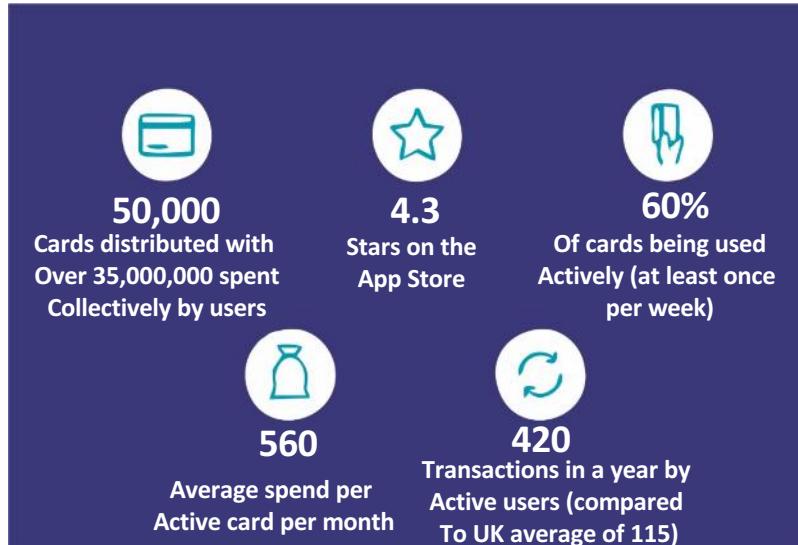




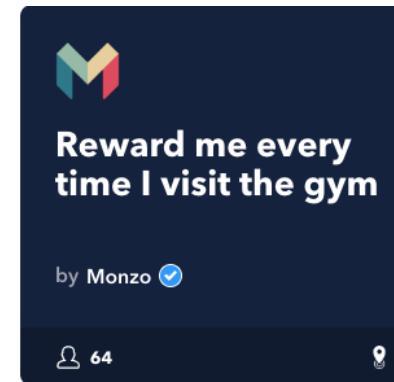
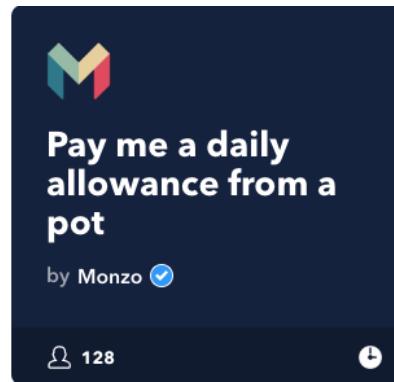
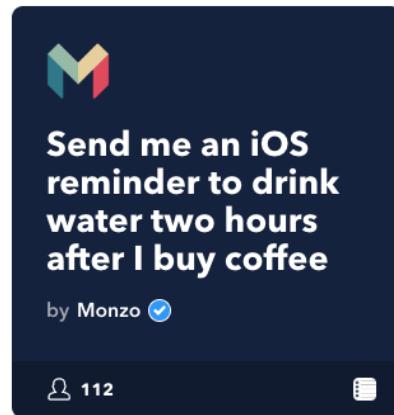
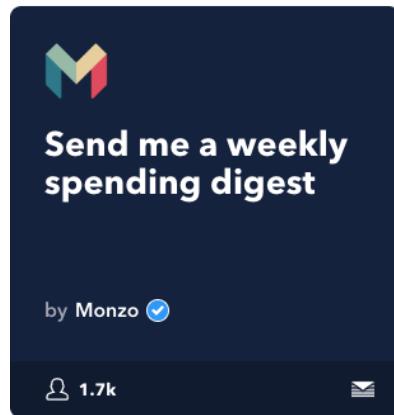
Case Study: Monzo Bank



Monzo metrics



Case study: Monzo + IFTTT



Case Study: BBVA



Retail Customers

Customers lets you easily create, retrieve and update customer records in our banking core.

[Overview](#) [API Documentation](#)



Retail Accounts

Accounts allows you to access key account data and enhance your financial management services.

[Overview](#) [API Documentation](#)



Retail Cards

Cards allows you to integrate pre-authorized bank card data and improve your ecommerce potential.

[Overview](#) [API Documentation](#)



Retail Payments

Payments allows third party apps to offer money transfer services to pre-authorized users.

[Overview](#) [API Documentation](#)



Retail Loans

Loans enables consensual access to customers' pre-approved loans and conditions.

[Overview](#) [API Documentation](#)



Retail Notifications

Notifications provides real time notifications of operations performed in BBVA by pre-authorized users.

[Overview](#) [API Documentation](#)



Business Business accounts

Download the account statements of your business customers in the standard format AEB43

[Overview](#) [API Documentation](#)



Aggregated Data PayStats

PayStats allows you to dive into BBVA cards purchase data and drive your business intelligence.

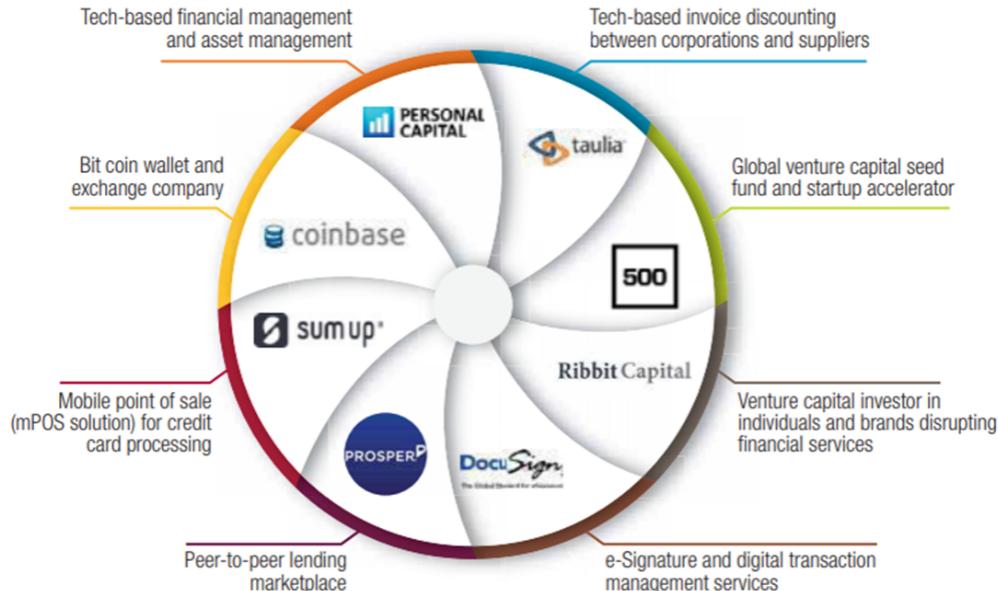
[Overview](#) [API Documentation](#)



Coming soon

We are creating more awesome APIs

Case Study: BBVA



Case Study: Deutsche Bank

Move to Next Gear: Establish Innovation Platform in Frankfurt

FinTech Europe

Fintech Innovation Platform in Frankfurt

- Deutsche Bank joins as Founding Member
- It's an open and multi-corporate Platform
- Focus is set on later stage Fintechs
- Agreement for 3 years
- Set-up: Jan-May 2018 (current)
- Launch event 29 May 2018
- Start 1st batch: Jan 2018
- 4 x other corporates have already joined, 2 x Germany + 2 x Europe

INVOLVED PARTIES



OBJECTIVES

- Fuel digital pipeline for own agenda
- Position DB as a innovation leader in fintech space
- Drive business growth via investment opportunities
- Help build Frankfurt as a leading fintech ecosystem in Europe

PROGRAM STRUCTURE (2 x / Year)

1. Selection

Long List of > 200 startups

2. Execution

3 months accelerator phase

3. Follow- Up

Cooperation
Investment

Case Study: Deutsche Bank

FinTech Partner for Deutsche Bank



Invoice Scanning



Video Authentication



eSafe



Finanzguru API



Insurtech



PFM



Multi Bank Aggregation



Savings



Account change



Payments



Billing



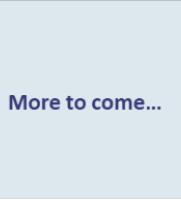
Freelancer platform



Accounting



Factoring



More to come...

What is Open Banking exactly?

- Open Banking forces the UK's nine biggest banks – HSBC, Barclays, RBS, Santander, Bank of Ireland, Allied Irish Bank, Danske, Lloyds and Nationwide – to release their data in a **secure, standardized form**, so that it can be shared more easily between authorized organisations online.
- This data includes some simple records, such as the location of branches and the exact details of certain banking products.
- This first part of Open Banking went live in March 2017. It should make it easier to find banks with disabled access, for instance, or compare the features of different personal and business accounts in order to get the best deal.

Regulatory requirements for open banking

- The new rules state that banks must **create open APIs** so that customer data can be shared with **authorised third-party** applications in a secure, common and consistent format.
- They include open APIs for what the CMA calls **product and reference data**. These will allow developers to create price comparison services, or include ATM locations on their maps, for example.
- They also cover more **confidential customer transaction** data. This data will allow developers to securely view things like transaction history when applying for a mortgage, or to alert users that they are at risk of becoming overdrawn, for example.
- AIB Group, Bank of Ireland, Barclays, Danske, HSBC Group, Lloyds Banking Group, Nationwide, RBS Group and Santander have all been working together to create that open API standard.
- In practice, this should look like a set of documentation, development code and reference implementations that anyone can use, dramatically bringing down barriers to participation in financial services

Benefits of “Open” Banking

Benefits to customers

- Open Banking will give consumers much more freedom to **compare and seamlessly switch** financial service providers, while simultaneously holding their funds at a trusted, well-established bank.
- Consumers will have a **real-time view of all their finances** on a single platform rather than juggling multiple accounts. This empowers them to make better decisions when dealing with financial products, investments, and expenditures.
- Individuals who may not qualify for traditional banking services or find them too costly, will realize **financial inclusiveness** benefits including: low-fee or no-fee accounts, alternative credit assessment methods, easy transfers to family and colleagues, account access anywhere via smartphone, and automated 24x7 support in the language of their choice.
- As Open Banking expands, it will also improve the efficiencies of business banking in areas such as **accounts-receivable processing**

Benefits to banks

- Banks have the opportunity to **expand their offerings** by opening up their core business functions to third-party integration via APIs. The most progressive of banks are building **developer portals** (websites) and **sandboxes** (platforms on which to experiment) to nurture innovation ecosystems.
- Enhanced service offerings that are customized to end-users' needs will help banks drive **customer satisfaction**.
- Launch of digital-only services will improve banks' revenues and profitability.
- Banks have a prominent “chair at the table” in terms of participation in **regulatory conversations and technical consortia**, where they can help define the priorities and details of Open Banking’s technical specifications

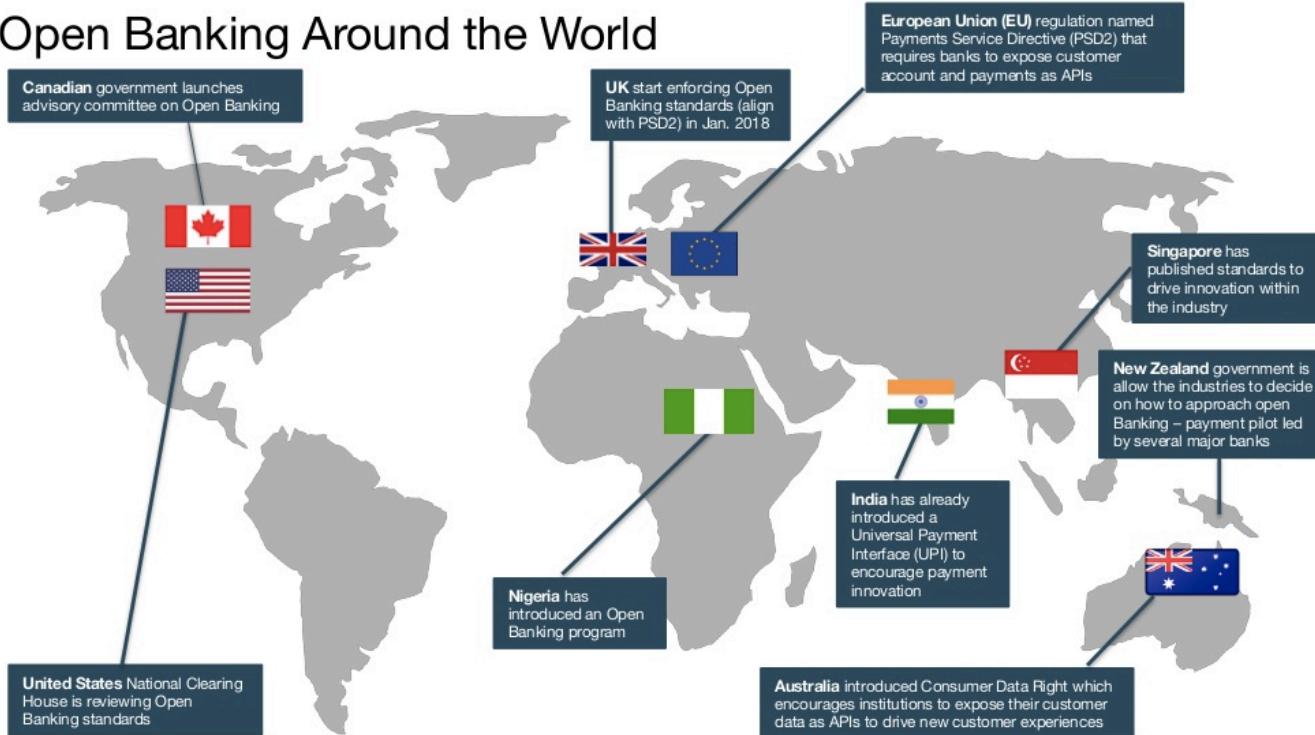
Benefits to fintechs

- Fintechs have **available numerous paths to innovation** through the aggregation of services and data.
- Fintechs will have easy outreach to banks' customer base. Whereas in other fintech sub-sectors, it has been the startups that drove early customer adoption, with Open Banking it appears to be **banks' existing customer base – paired with compelling applications** – that will create the critical mass of adoption.
- Access to vast transactional data held by banks, combined with big data and **artificial intelligence techniques**, allow fintechs to construct a business strategy around leading-edge analytics and personalization.
- Fintechs can build **virtual services** in which they act as the front-end, but refrain from **actually holding deposits or offering financial advice**. This allows them potentially to **circumvent complex and expensive banking compliance requirements**.

Benefits to non-financial service providers

- Involvement with financial transactions and related data is lucrative opportunity, even if one is not a financial company. That's why digital consumer giants including [Google and Facebook are promoting their own payment services](#). Open Banking benefits these companies by providing a standard interface with which to [access consumers' funds and financial data](#), instead of building interfaces ad hoc. In the UK, which mandates that banks provide account access APIs to all qualified third-parties, a company like Facebook no longer must negotiate access terms for its Messenger Payments service, with what might be a banking competitor.
- Meanwhile, professional services firms are filling a knowledge gap by sharing leading-edge practices in compliance, data security, forensics, and governance. [PwC](#), for example, has [its Financial Crimes unit working with banks](#) on fraud and anti-money laundering, as well as security concerns, related to Open Banking

Open Banking Around the World



Regulatory frameworks around the globe

- United Kingdom
 - De facto leader in Open Banking driven by **activist regulators** providing detailed specifications and access requirements
 - The Open Banking Implementation Entity (OBIE) is responsible for creating relevant standards, under the governance of the Competition and Markets Authority (CMA) and in collaboration with banks, building societies, financial technology companies, third-party providers, and consumer groups

Regulatory frameworks around the globe

- Europe
 - The second Payment Services Directive (PSD2) requires banks to open up their data to third-parties, causing a revolution in the payments domain
 - EU member states were expected to incorporate this directive into their national laws by 2018
 - The European Banking Authority's Regulatory Technical Standards (RTS) only specify technical framework conditions related to payments (cards and e-wallets). Its next specification on the critical issues of strong customer authentication and secure standards of communication is to be released on 14 September, 2019
 - This, coupled with the absence of a pan-European implementation entity, has caused a significant gap affecting PSD2
 - The Swiss Open Finance API (SOFA), driven by the Swiss Fintech Innovation Association (SFTI), aims to implement standardized APIs for their Open Banking sector.

Regulatory frameworks around the globe

- United States of America
 - There are no specific regulations designated for Open Banking, however federal authorities have issued guidance.
 - They are in learning mode
- Australia
 - Australia's Competition and Consumer Commission is planning that the big four banks – ANZ, the Commonwealth Bank of Australia, NAB, and Westpac – will have to make banking data available to third-party providers by June 2019.
 - The Open Banking initiative is a subset of the evolving Consumer Data Right (CDR) framework.

REGULATORY FRAMEWORKS AROUND THE GLOBE

- China
 - Mainland China is enjoying benefits similar to those of Open Banking through pervasive adoption of mobile banking and social apps, with government openness to well-regulated innovation.
 - In July 2018, the Hong Kong Monetary Authority (HKMA) published the Open Application Programming Interface Framework for the banking sector and announced the launch of Open API on its website.
- Singapore
 - Singapore is taking a different approach than Europe by not enforcing rules for banks to open access to data.
 - The Monetary Authority of Singapore has endorsed guidelines for Open Banking without any regulatory supervision. It is working on building a public API architecture and developing common standards to permit new uses of data by financial institutions

FINANCIAL FUNCTIONS TARGETED BY OPEN APIs

- In 2018, BBVA became the first major European bank to partially implement PSD2 by opening up eight of its core banking APIs in Spain



Account Information

32.9%



Payments/Transfers

28.7%



Transaction (pay with points, etc.)

18.2%



Lending/Financing

7.0%



Location/Branch

7.0%



Investment

6.3%



Forex

4.2%



Insurance

2.8%

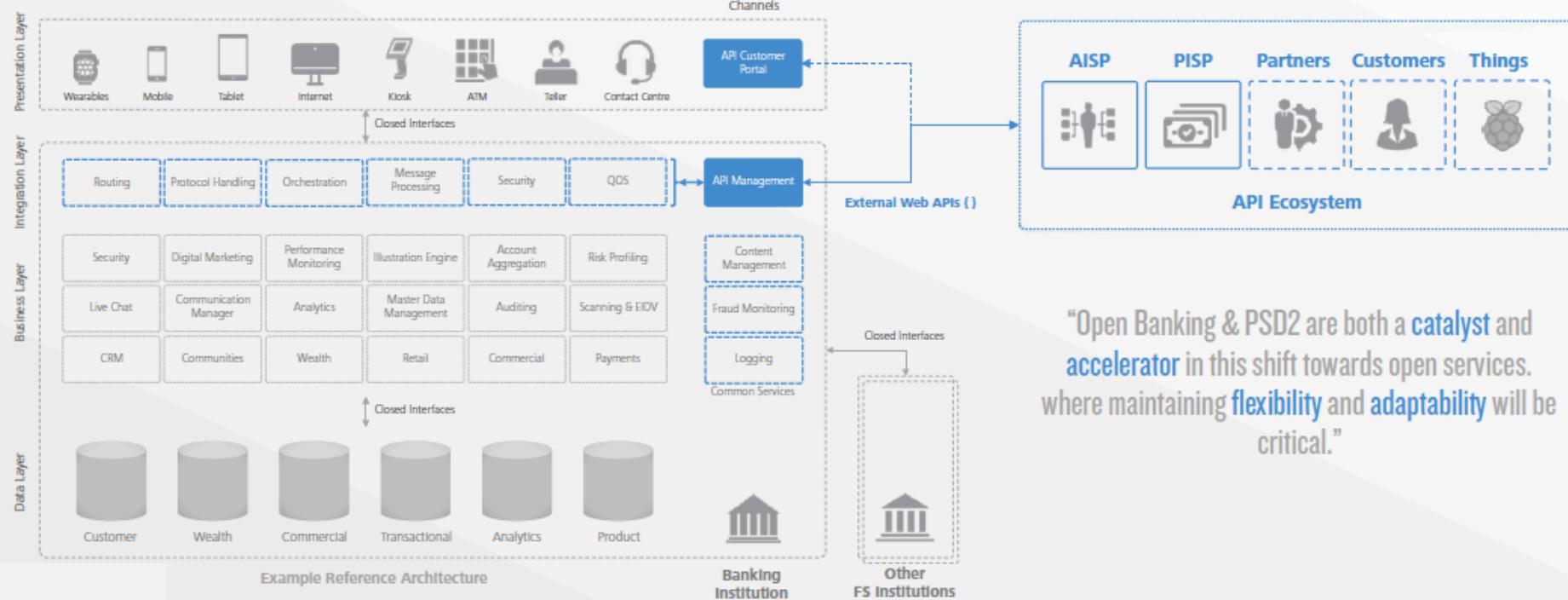
Examples of API successes:

- [Yolt](#), owned by ING, is the first third-party provider to successfully complete API connections under the new Open Banking regulation, partnering with [nine major high street banks in the UK](#).
- Hamburg-based [Deposit Solutions](#) has built a platform that allows banks to offer attractive third-party deposit products through their own customers' existing accounts. Thus, banks can expand their offerings without building new retail distribution channels or setting up shop in new geographies. They have mediated over EUR 9 Bn in deposits to date.
- [Spiir](#) is a Danish startup that received an investment of EUR 3.25 Mn from Danske Bank for their new Nordic API Gateway platform

Bank	Fintech/Third-Party Provider		
Atom	Deposit Solutions		
Barclays	Flux	PayPal	
Citibank	IBM Cloud		
CYBG	The ID Co.		
Fidor Bank	Token		
First Direct	Bud		
Fortuna Banque	Luxhub	Temenos	
HSBC	Linxo	Yolt	
JPMorgan Chase	Finality	Intuit	
Lloyds Banking Group	Yolt		
Monzo	Emma	Flux	Moneybox
Natwest	FreeAgent		Tall
Nordea Bank	Tink		
RBS	Yolt		
Revolut	SnapCar		
Santander	Funding Circle	Kabbage	Moneybox
Smart Bill	Yodlee		
Starling Bank	Emma	Moneybox	Wealthsimple
	Flux	PensionBee	Yolt
	Habito	Tall	Yoyo Wallet
Tandem	Personetics		
TrueLayer	Canopy		
Wells Fargo	Intuit	Xero	
Yes Bank	Paisabazaar		
ANZ Bank	Data Republic		
Deutsche Bank	Quantiguous Solutions		
RBS	FreeAgent		

PARTNERSHIP

M&A



API PLATFORM CAPABILITIES

API Gateway	Exposing Bank APIs	Versioning	Throttling	API Support	Enrolment
OAuth / Open ID	API Management	Deployment	Rate Limiting	Training & Documentation	Auditing
Fraud Protection	Service Orchestration & Aggregation	Caching	Monitising	3rd Party Provisioning	Governance
Access Control	Routing	Publishing	Policy Enforcement	Analytics & Reporting	Monitoring & Error Handling

At Deloitte Digital we have established relationships with leading vendors in the API Management space (including Mulesoft, apigee, 3scale) and open source stacks including Zool.



[API Management Vendors](#)

The Bank Open Project



The Bank Open Project is a leading
Open source API App Store for
Banks and a developer community
Around.

**1. Open
Standard**
For bank APIs

2. API Platform
Deployed at the bank

**3. Developer
Community**



Token is an Open Banking Platform on the blockchain leveraging smart-contracts to monetize access for banks for TPPs

FCA has authorized Token to deliver payment initiation and account information services, under the terms of PSD2.



TrueLayer is an API platform for developers to access bank data they need to build new apps and services

Zopa has worked with TrueLayer to create an income verification product which removes the need to manually upload documents to verify income - replacing it with Open Banking data.



Plaid offers a suite of API tools to allow developers to integrate with bank infrastructure and access and authorize user bank accounts



citi VENTURES

Investors

Chase
Bank of America

Simple
wealthfront

robinhood
TransferWise

Capital One
Stash

TD Bank
Acorns

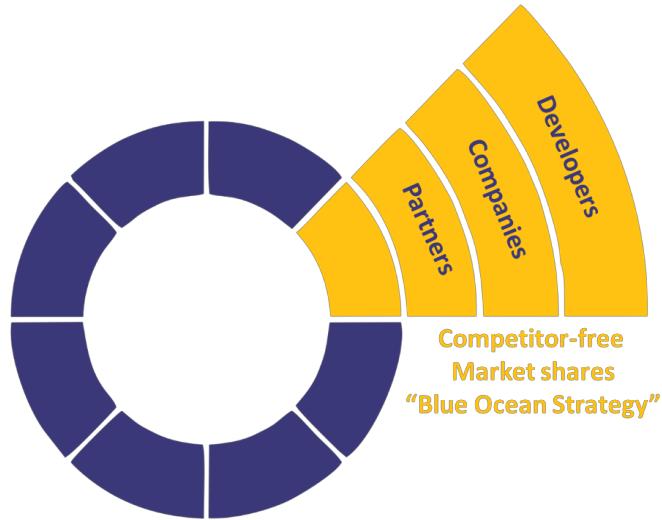
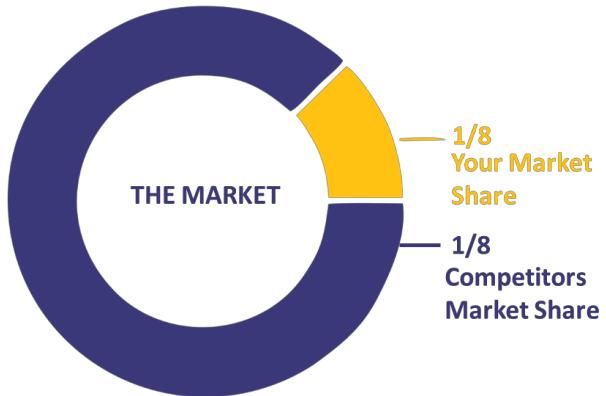
Betterment
Affirm

Stripe
Venmo

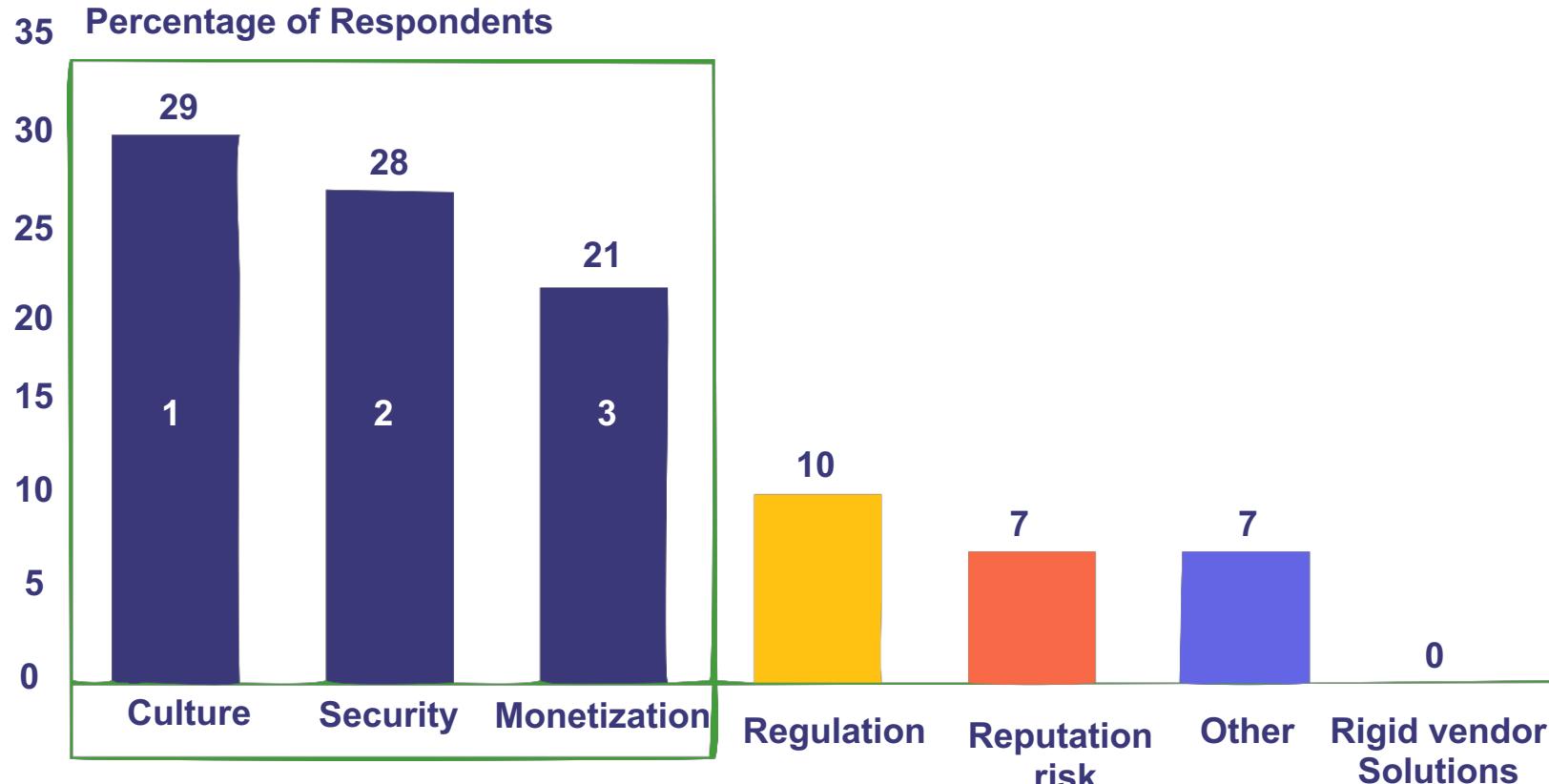
Gusto

Customers

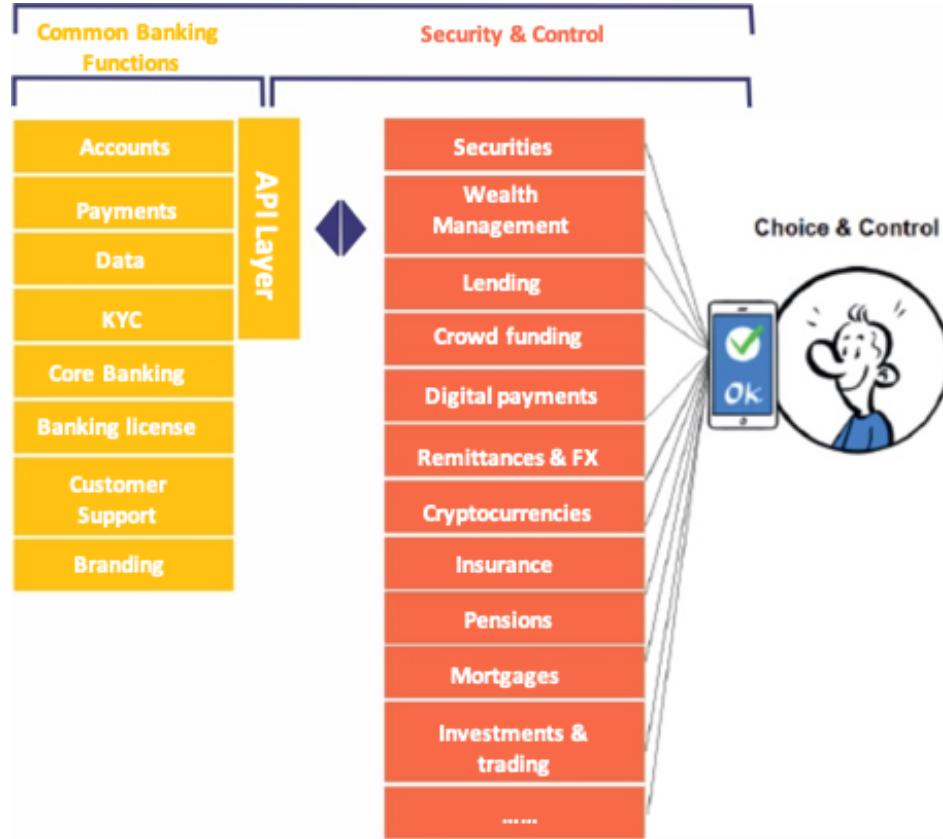
Open Banking : Blue ocean Strategy

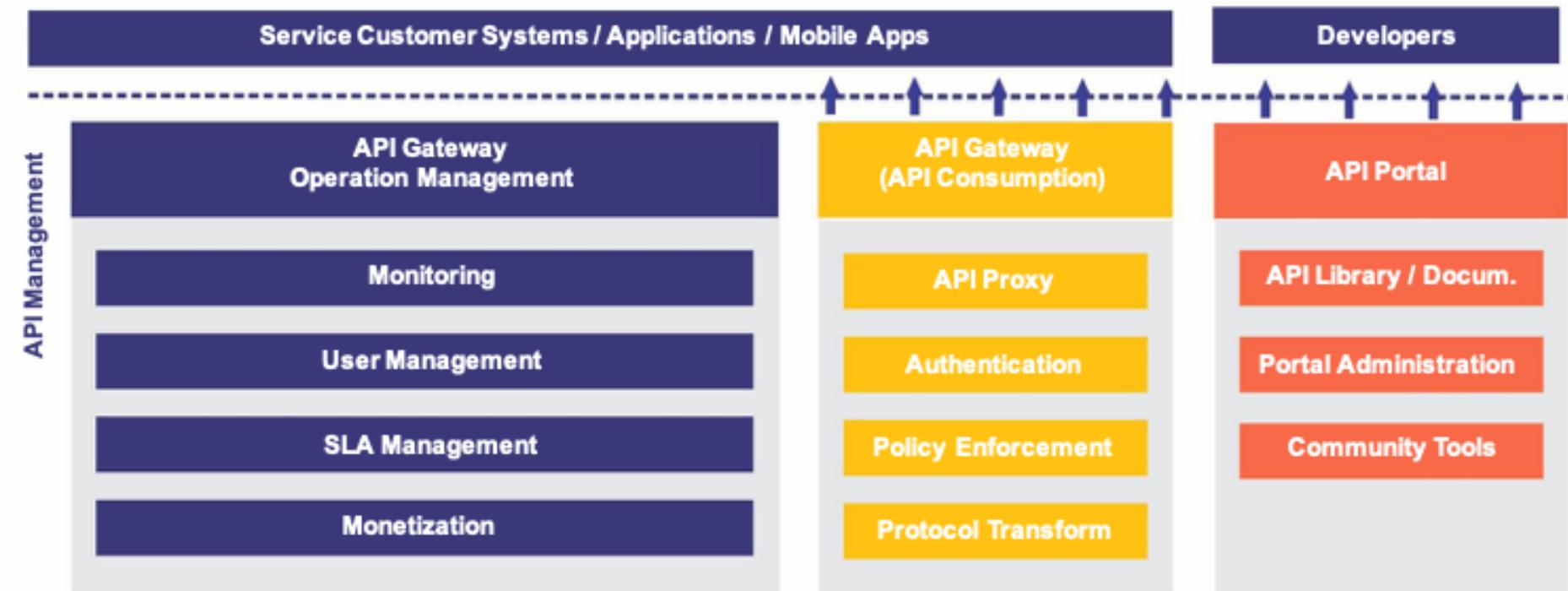


Barriers to open Banking



Open Banking Platform Model





RISKS AND CHALLENGES

- Customer Adoption Challenges
 - In the UK, 85% of current accounts remain with the five largest banks, despite the regulatory efforts to diversify this
 - Any news-worthy system breach could set back adoption
 - The Global Data Protection Regulation (GDPR) has raised the bar for individuals to control which parties compile and make use of their data and for how long
- Governance Risks
 - Third-party providers may store – or simply access – parties' financial data. A data breach at their end at minimum exposes an individual account but worse, could provide clues to access weaknesses that lead to large-scale hacking

Key Features required for Compliance





Collaborate.

Indian Fintech Ecosystem