

Open & Embedded Finance

Navigating The Future of Financial Services



INNOPAY



Rabobank

Your hosts for today



Mounaim Cortet
Managing Partner



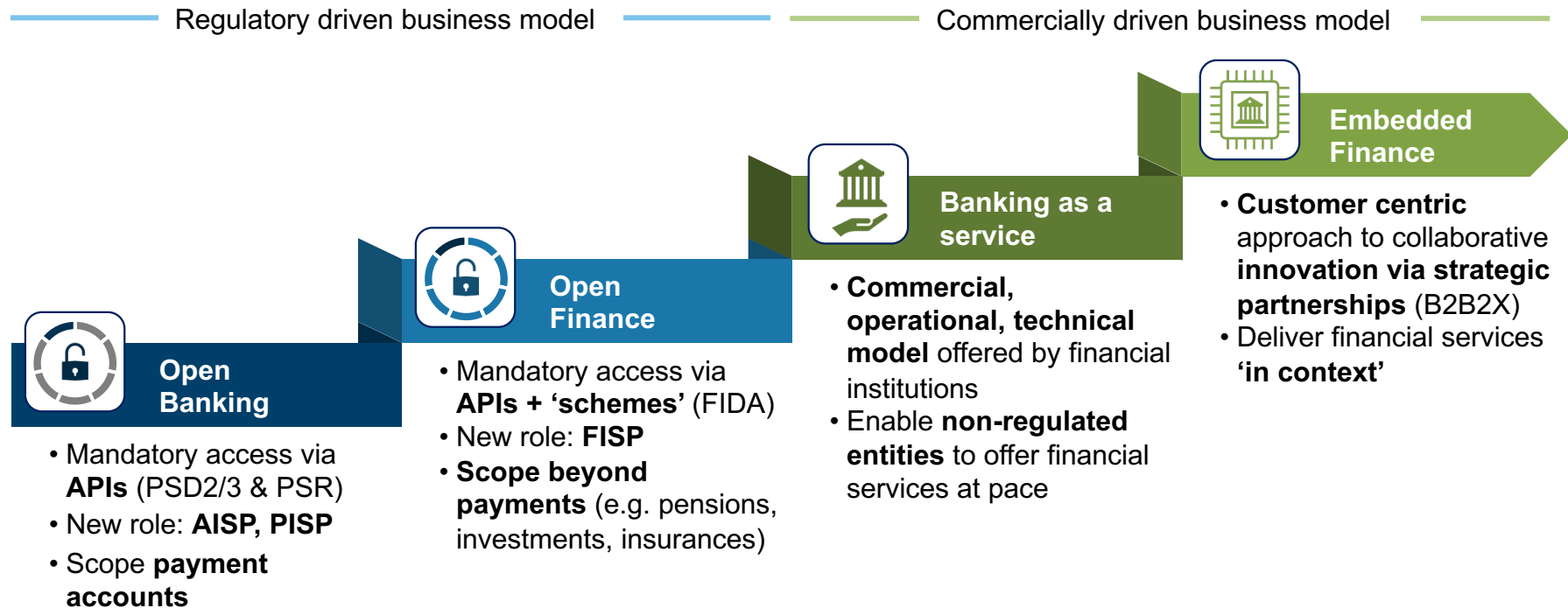
Dieuwertje de Rover
Area Lead BaaS



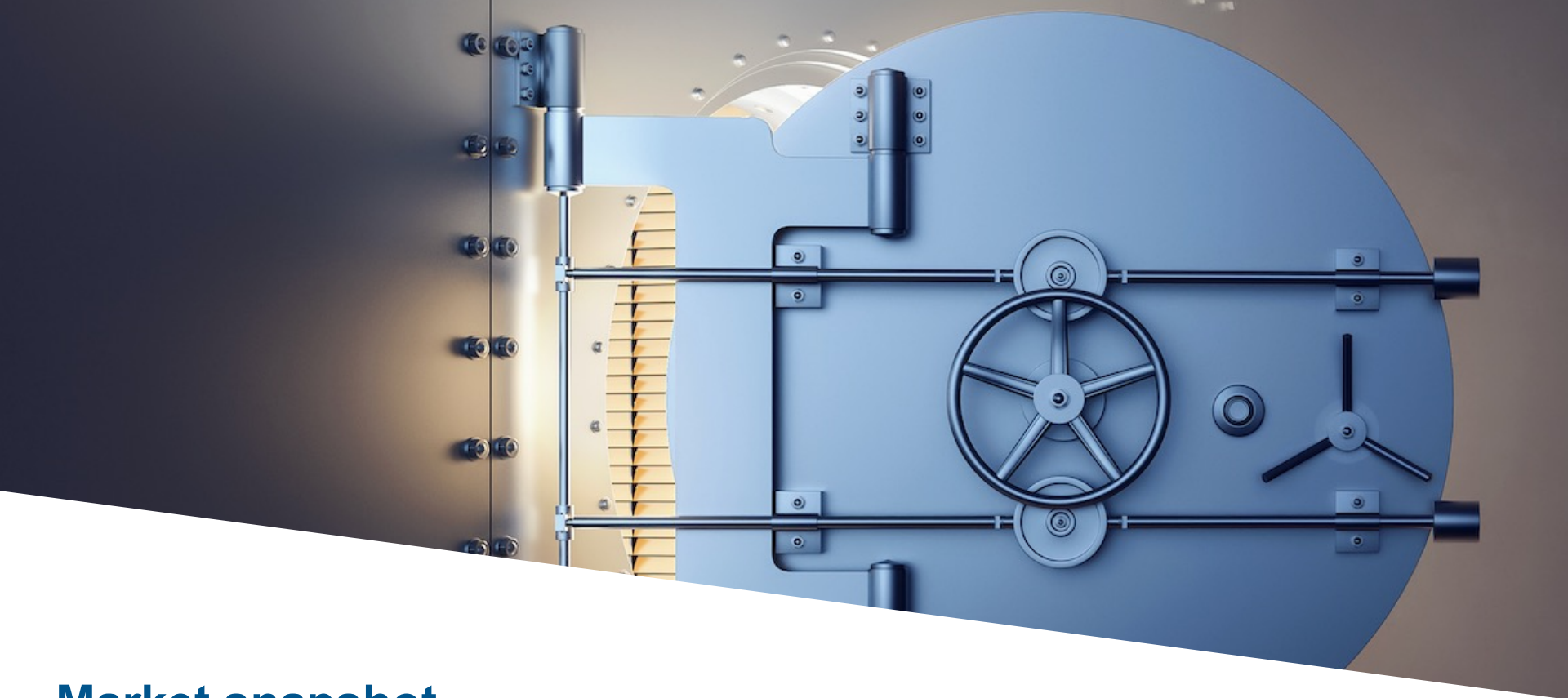
Today's programme

14.30 – 14.40	Welcome & setting the scene	Dieuwertje de Rover (Rabobank) Mounaim Cortet (INNOPAY)
14.40 – 15.20	Market snapshot on Open Banking & Embedded Finance	Jorgos Tsovilis Tim van Diepenbeek (INNOPAY)
	Key changes PSR/PSD3	Mounaim Cortet (INNOPAY)
15.20 – 15.40	<i>Break</i>	
15.40 – 17.00	Implications Financial Data Access (FIDA) Framework	Eugerta Muçi (INNOPAY) Mounaim Cortet (INNOPAY)
	Rabobank's transition to Open Finance, vision & lessons learned	Dieuwertje de Rover (Rabobank)
17.00 – 18.00	<i>Networking drinks</i>	

Open Banking kick-started the business model transformation in financial services



Source: INNOPAY analysis

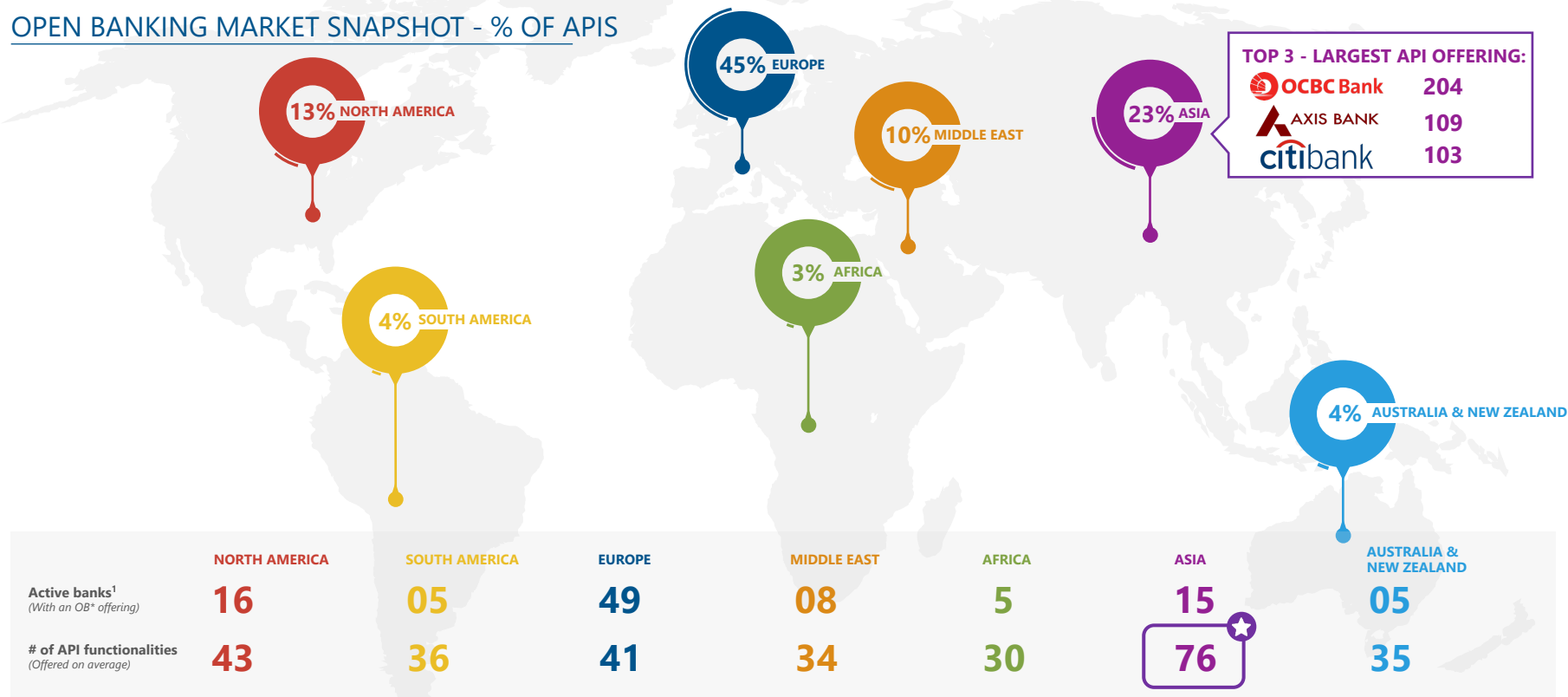


Market snapshot

How the market of Open & Embedded Finance is evolving in Europe

Europe accounts for ~45% of all Open Banking APIs, however Asia is the clear winner in terms of API scope

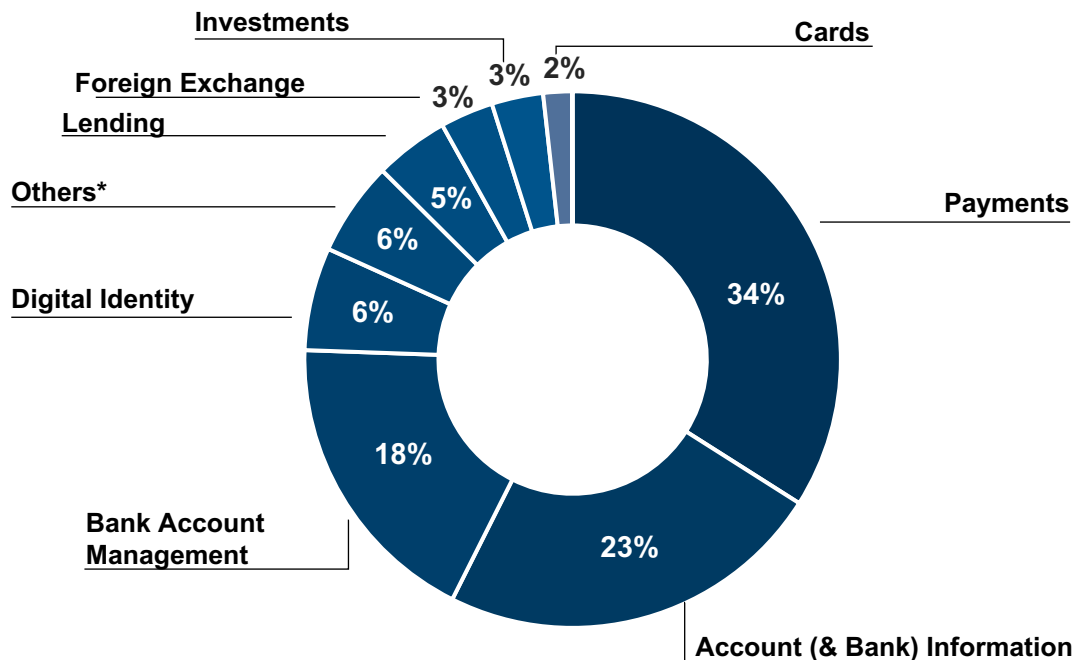
OPEN BANKING MARKET SNAPSHOT - % OF APIS



Source: INNOPAY analysis; Note¹: Banks with OB offerings in several regions are included multiple times

Available APIs are distributed across various product domains, with Payments and Account information taking the largest piece of the pie

OPEN BANKING MARKET SNAPSHOT - % APIs PER PRODUCT DOMAIN



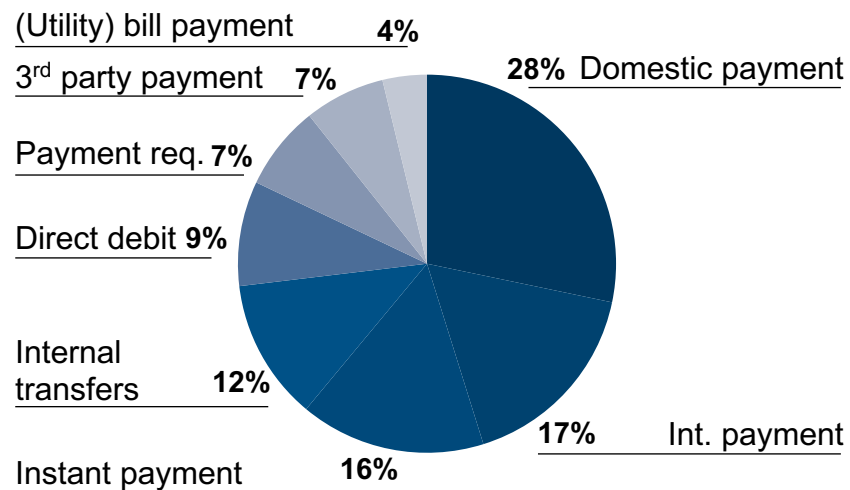
*Others: Domain overview is not exhaustive. APIs are also being developed in other areas such as sustainability, cashpool management, supply chain finance and virtual account management.

Source: INNOPAY analysis

The largest category, Payment APIs, consist of a wide suite of different payment products and management capabilities (1/2)

% PAYMENT & PAYMENT MANAGEMENT APIs

*Payment initiation (76%)**



HIGHLIGHTED PAYMENT API EXAMPLE



DBS

SINGAPORE
AIRLINES



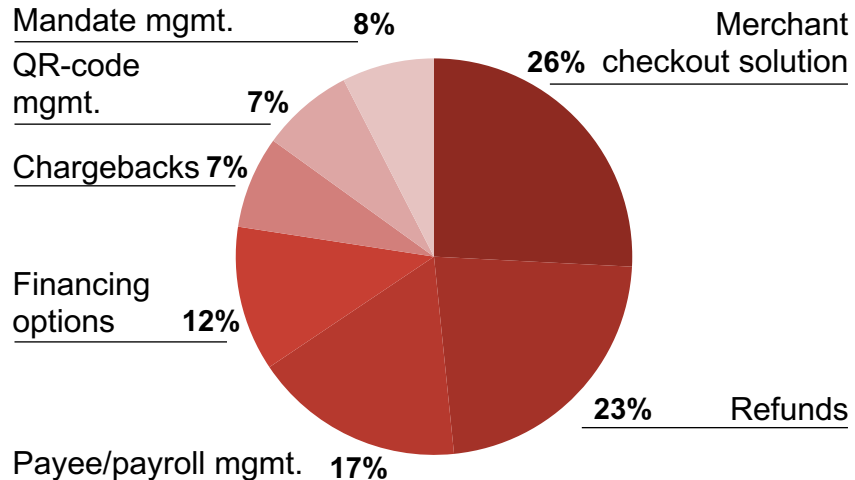
Instant Refund API to streamline ticket cancellation

- Integration of Refund API into airline's website
- Real-time refunds in event of changed travel plans
- Daily transaction reports generated via Transaction Enquiry API

The largest category, Payment APIs, consist of a wide suite of different payment products and management capabilities (2/2)

% PAYMENT & PAYMENT MANAGEMENT APIs

*Payment management (24%)**



HIGHLIGHTED PAYMENT API EXAMPLE

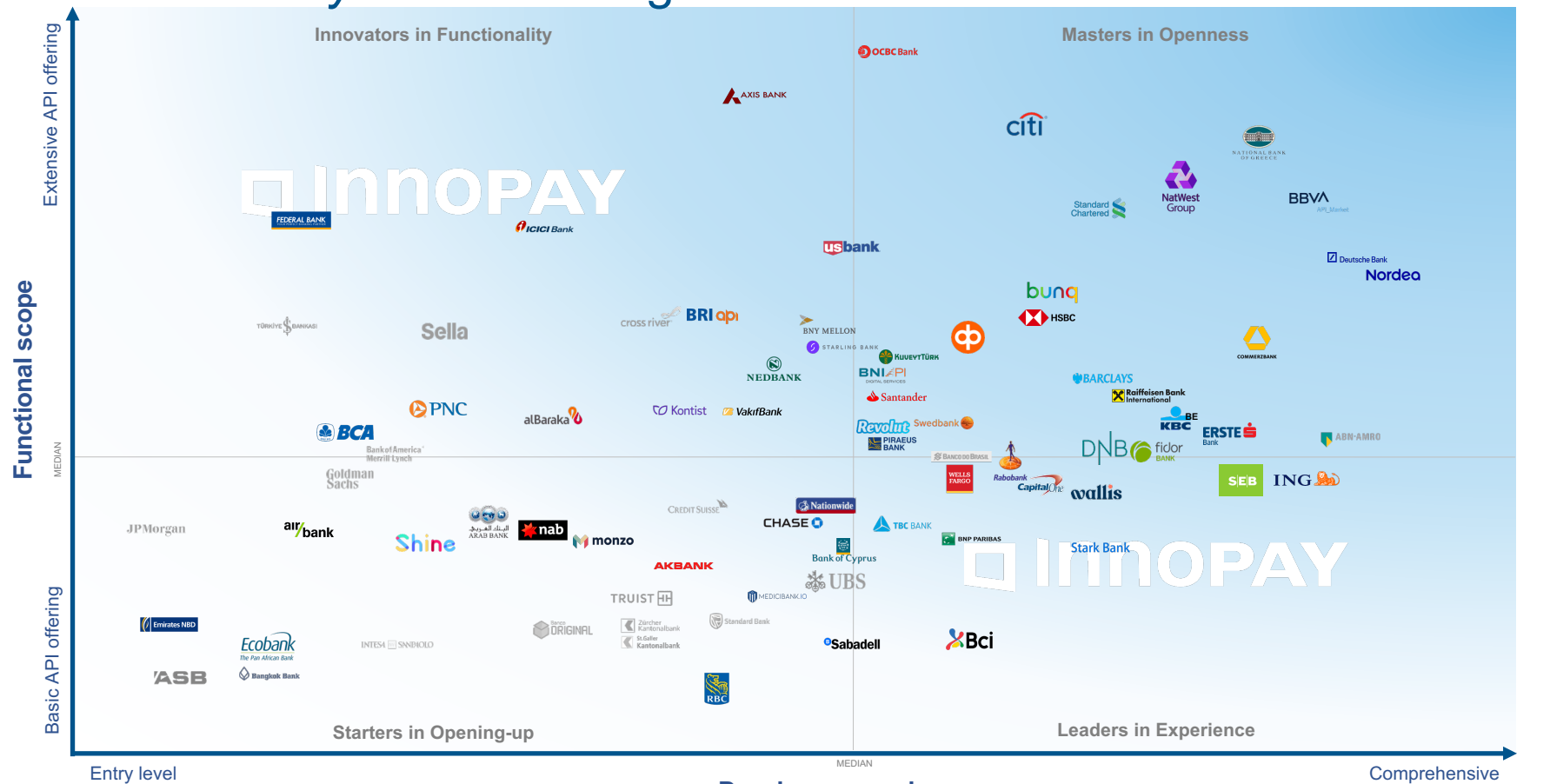
Nordea



Instant reporting API – Track donations in real-time

- Combining instant payments & real-time reporting to enable digital donations campaign
- Children see in real-time what they collect digitally & everybody can follow in real-time on website
- One of many stories: +800 corporates using real-time Open Banking APIs

APIs is *not only* about making them available...



On Developer Experience of APIs European banks take the lead, through solid API documentation and positioning of published APIs

THREE CORE CAPABILITIES OF DEVELOPER EXPERIENCE

API DOCUMENTATION

Information needed to understand APIs and its functions



GET /accounts		Business context
<p>Accounts: lists all the account data of the customer. For your convenience, we also include information about the customer in a response.</p>		API Description
Headers	Request parameters & description	Pre-requisites
Authorization	string Bearer (a-z0-9)(12)	required
Accept	string Tell the API that you are using JSON following FIDIC's conventions	required
Content-Type	string We take JSON. What else?	optional
Responses	Response parameters & description	
200	application/json Example values: { "data": [{ "id": "751616424", "account_number": "9510168195", "identity": "readOnly" }] }	optional
403		optional
404		optional
422		optional
500		optional
Error codes	account_number string The bank account number maxLength: 10 readOnly	optional

DEVELOPER USABILITY

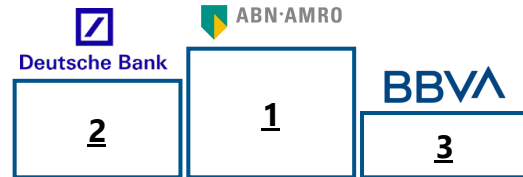
Tools to guide developers and get started quickly



Get Started		Getting started
<p>A guide to getting comfortable with our API</p>		
<p>You can get started on building your integration with Starting by following these steps:</p>		
1. Register Your Application	4. Personal Access	
Training Videos	Downloads	End-to-end guides
Visit Youtube	Download Package	Visit Github
Email Address	Registration	AUTHENTICATION
Federated login options	Sign in to GitHub	AUTHENTICATION QUICK GUIDE

COMMUNITY DEVELOPMENT & SUPPORT

Engagement with the Open Banking Community

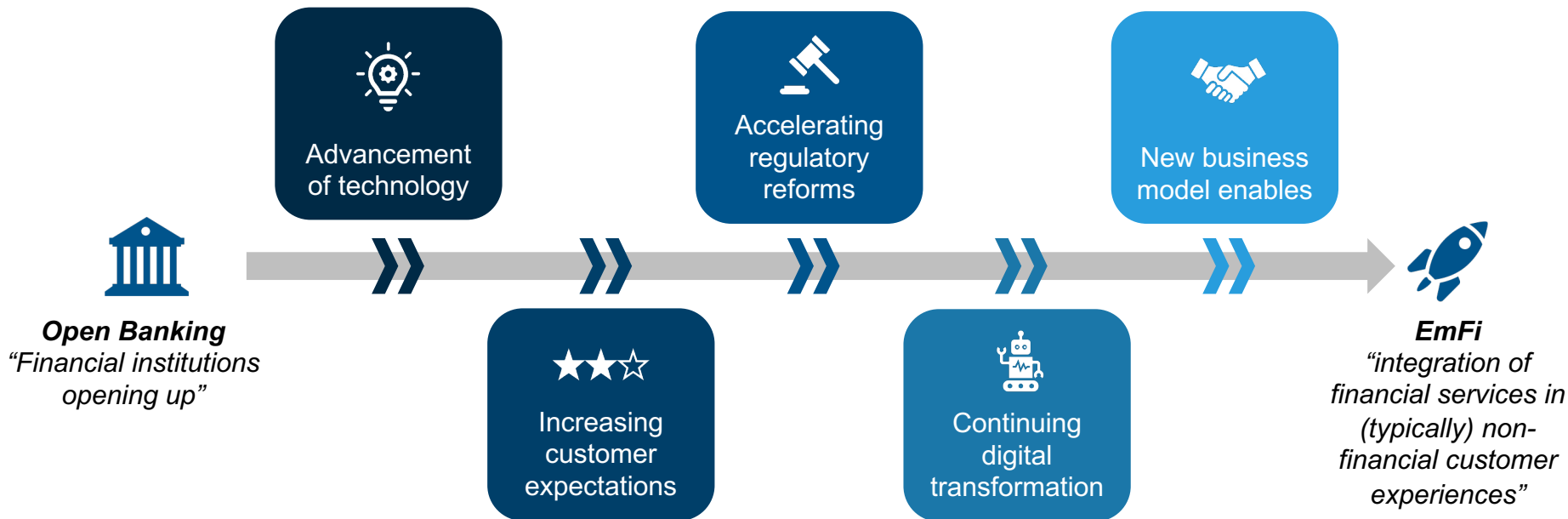


Ask our community		FAQ
<p>Have questions? Our forum is full of expert developers who can help you with any Nordea Open Banking related questions.</p>		We're here to help
Join the conversation	Support options	API marketplace
Curious about what's next	Still looking for help?	
Newsletters	Events & hackathons	
Subscribe me	Examples (non-exhaustive)	

Source: INNOPAY analysis – Open Banking Monitor update Q2 - Q4 2023

On the foundation laid by Open Banking, Embedded Finance (EmFi) can now take-off

FIVE REINFORCING ADOPTION DRIVERS



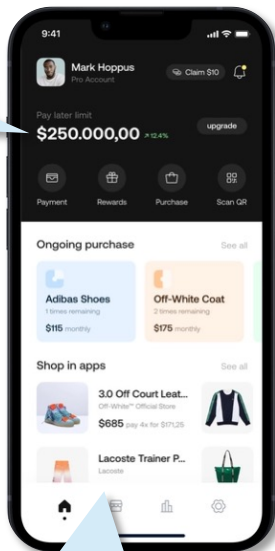
Source: INNOPAY analysis

This results in seamlessly embedded financial services at the point of need

EXAMPLE CUSTOMER JOURNEY

1

End-user starts journey in distributor e-commerce platform

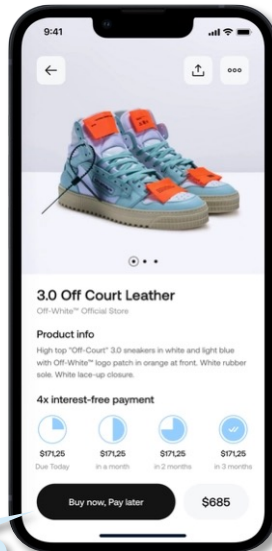


BNPL limit

Linked partner shops of e-commerce platform

2

End-user selects product

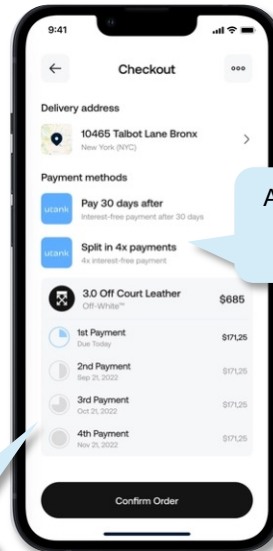


Product selection

Integrated BNPL option to select

3

End-user selects embedded BNPL as payment method



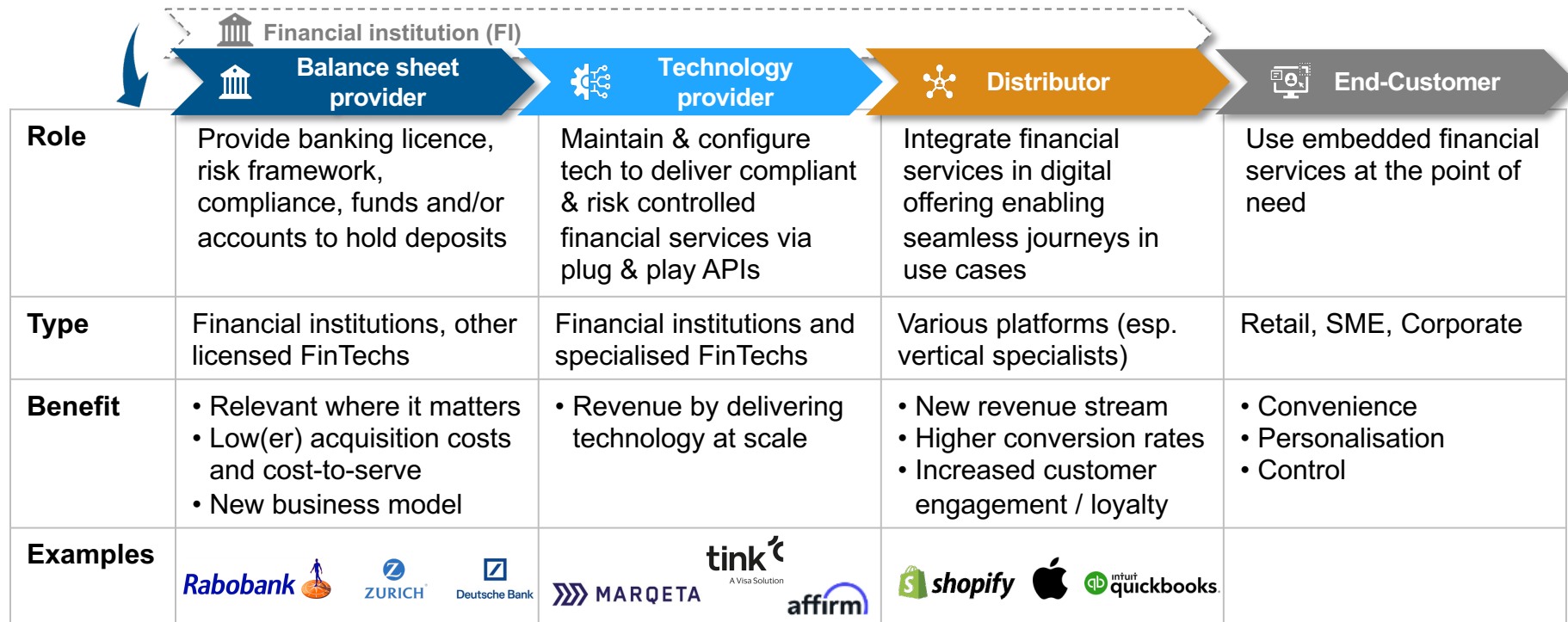
Alternative payment options

Detailed BNPL payment plan

Source: INNOPAY analysis

Within the embedded finance value chain three main roles are defined that combine capabilities to serve end-users

OVERVIEW MAIN EMFI ROLES



Source: INNOPAY analysis, Embedded Finance Radar 2023

The Embedded Finance Radar: provide strategic insights into the status quo of embedded business models globally

BASELINE



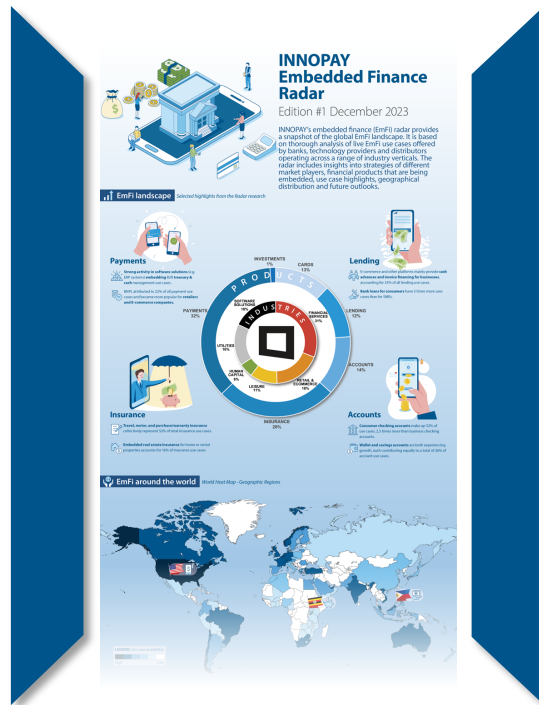
170+ Balance Sheet
Providers were analysed
(Incumbents, licensed
BaaS-providers)



70+ Technology
Service Providers were
assessed



150+ Distributor value
propositions were
explored



MAIN HIGH-LEVEL FIGURES



6 product categories were
identified...



... with **48** different
embedded finance products



Available in **50+**
countries



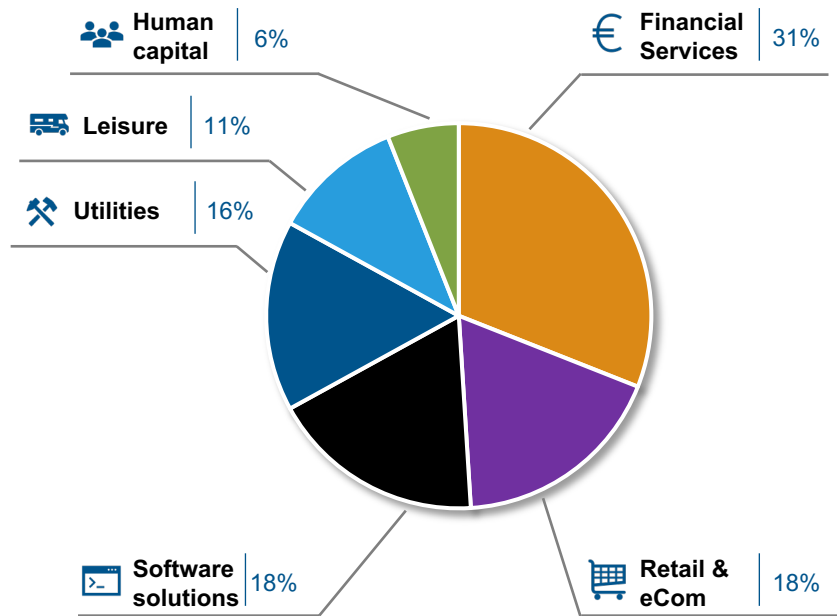
150+ live
embedded finance
propositions¹

Source: INNOPAY analysis, ¹propositions offered by distributors to end-customers (i.e. consumers and businesses)

Payments and Insurance products are most embedded, with majority of distributors operating in FS, retail & eCom and SaaS

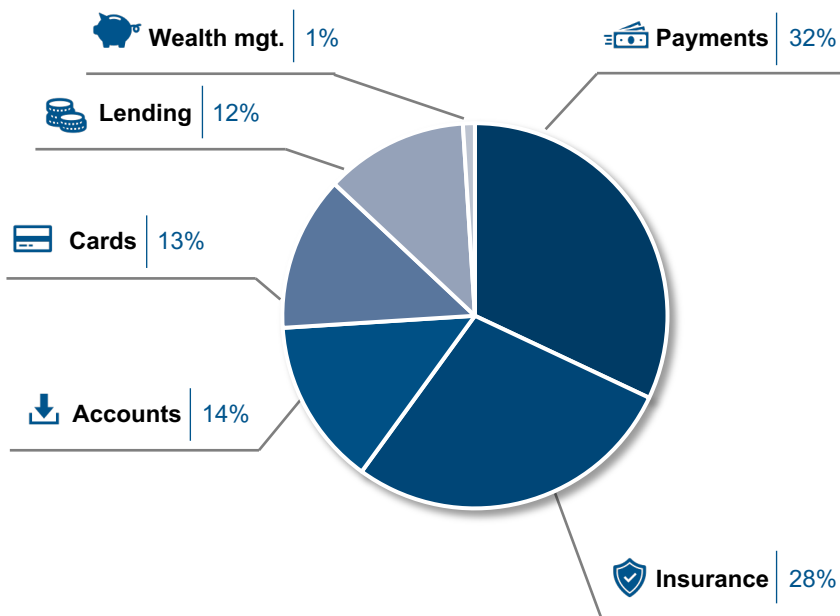
EMFI ACROSS DISTRIBUTOR TYPES

Majority of distributors operate in **financial services, retail & eCom and software solutions**



EMFI ACROSS FINANCIAL PRODUCTS

Embedded payments and insurance prevail across distributors



Source: INNOPAY analysis, Embedded Finance Radar 2023

Looking at use cases embedded finance has the power to make financial services more accessible and convenient



Agricultural financing



Enables local farmers to **purchase necessities** (seeds, fertilizer, etc.) and **pay after harvest**



Tarfin acts as both a **BSP** and **TSP** using proprietary ML based **agricultural risk models**

Local distributors

Farmers can apply for Tarfin financing at thousands of **local agricultural suppliers** which can be found using **Tarfin's app**



Access to financial accounts



Flex-workers **receive payments for provided services without onboarding** at a bank



BBVA acts as **BSP** and **TSP** for Zolvers



Products offered are; **access to bank accounts** and **instant credit** within Zolvers domestic services app

While estimates differ, they all show that EmFi market is large and growing

WHAT OTHERS THINK

Embedded Finance represents a revenue opportunity of ...

Roland Berger

... **180 bn** EUR in 2030



Accenture

... **120 bn** EUR for global SME market in 2025



BCG/Adyen

... **105 bn** EUR in US, Europe & UK¹



McKinsey

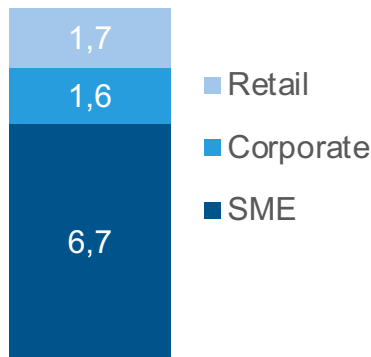
... **100 bn** EUR in EEA & UK in 2030²



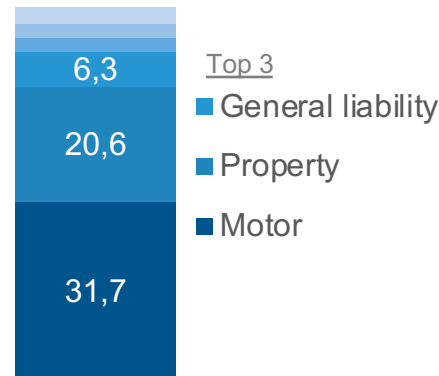
WHAT INNOPAY THINKS



Embedded Lending
represents a revenue
opportunity of **10 bn**
EUR in 2030 in EU



Embedded Insurance
represents a revenue
opportunity of **67 bn**
EUR in 2030 in EU



Note: ¹cash advances, bank accounts, and card issuing; ²lending, payments, accounts

Source: INNOPAY analysis, reports of referenced consulting firms **Note:** *includes General Liability, Legal, Credit & Surety, Marine, Aviation & Transport, Worker compensation



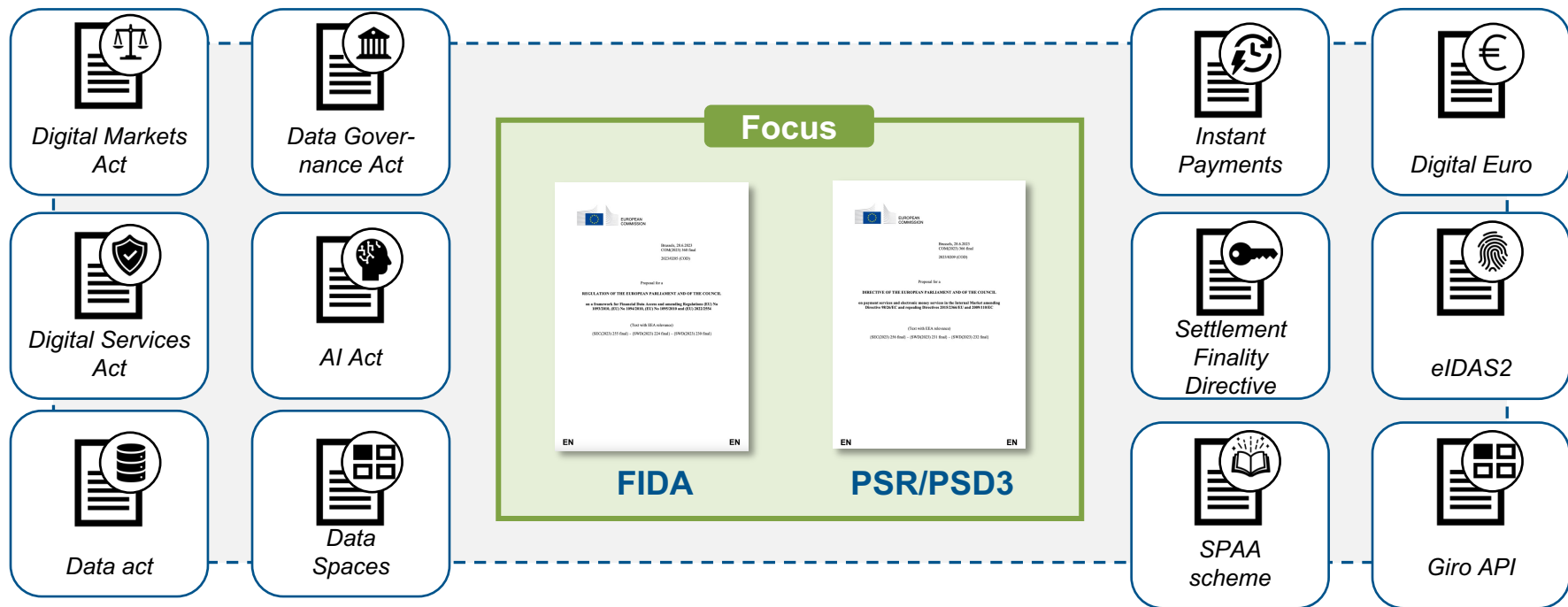
PSR & PSD3: evolution or revolution?

Proposals for improving the payments market in Europe

PSR/PSD3 + FIDA emerge in the context of broader regulatory & market developments on data, payments and digital identity

OVERVIEW REGULATORY & MARKET DEVELOPMENTS

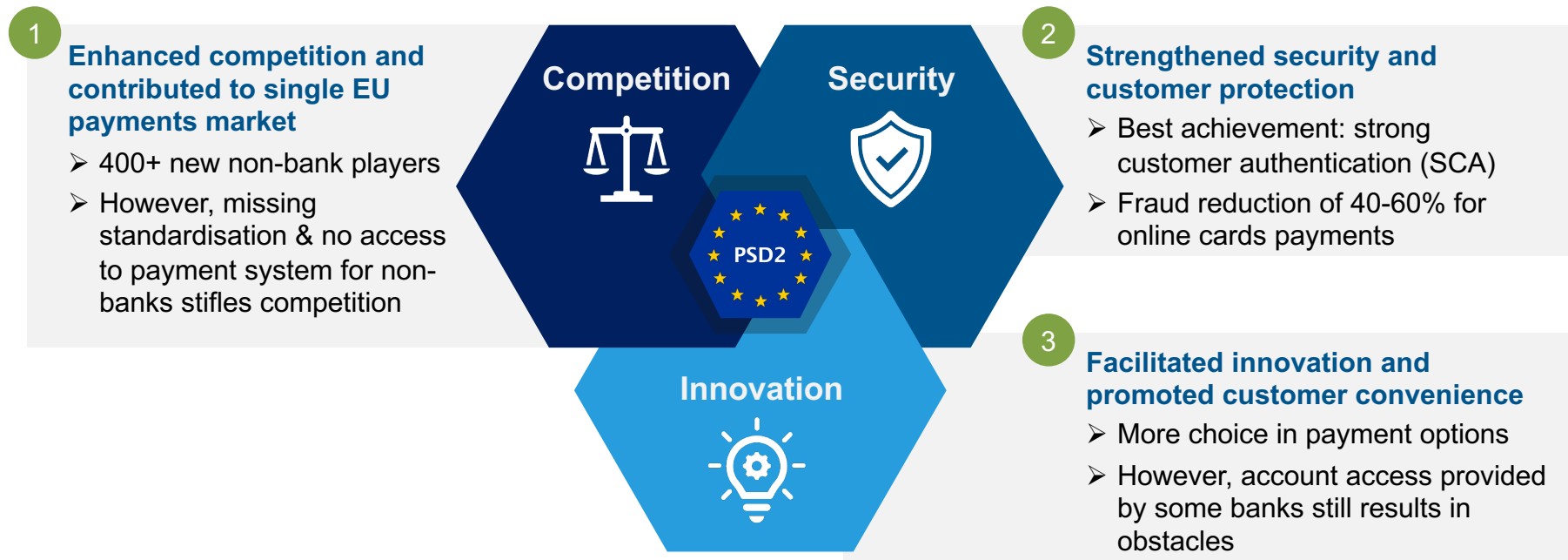
Non-exhaustive



Source: INNOPAY analysis

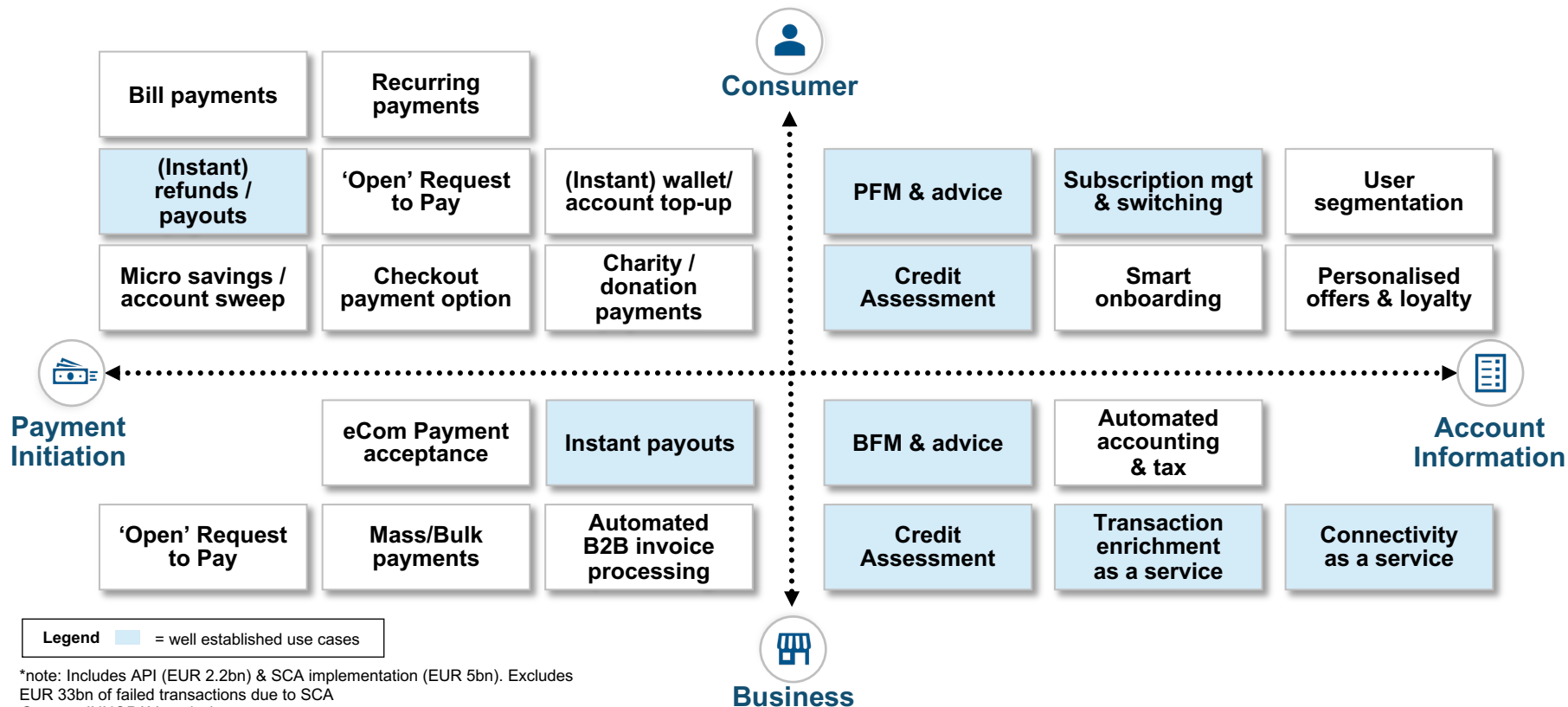
PSD2 successful in reducing fraud, but results in terms of competition and innovation could have been better

OVERVIEW IMPACT PSD2







Source: INNOPAY analysis

PSD2 enabled new services for businesses and consumers... for a EUR 7.2bn price tag*



Payment service package is split into two parts and aims to achieve 4 objectives

SPLIT PAYMENT SERVICE PACKAGE

	Payment Services Regulation (PSR)	Payment Services Directive 3 (PSD3)		
 What	<ul style="list-style-type: none">• EU regulation directly applicable, minimal interpretation• Specific rule set concerning PSP’s activities• Embeds requirements from PSD2, RTS and EBA Guidelines/Opinions on SCA, consent, Access to account, and Fraud prevention	<ul style="list-style-type: none">• Updated directive, to be transposed into national law• Fully integrating E-Money Directive• Elaborates rules for authorisation and supervision of PIs (incl. EMIs as sub-category)		
 Why	<ul style="list-style-type: none">• Address key challenges resulting from PSD2• Ensure uniformity and consistency in its implementation	<ul style="list-style-type: none">• Clarification of requirements for authorisation, registration and supervision processes		
				
 Aim	<div>1</div> <div>Strengthen user protection & confidence in payments</div>	<div>2</div> <div>Improve competitiveness of open banking services</div>	<div>3</div> <div>Improve enforcement & implementation in MS</div>	<div>4</div> <div>Improve access to payment systems & bank accounts for non-banks</div>

Source: INNOPAY analysis, PSR & PSD3

Key changes introduced in the PSR (1/2)

1 Open Banking – New requirements & clarifications

1.A Permission dashboard

- Monitor and manage any permissions provided to AISP on an ongoing basis in realtime

1.C Access via dedicated interface (APIs)

- PSPs with accounts accessible online obliged to offer dedicated interfaces for data exchange

1.E Minimal PIS functionality via dedicated interface

- Specifies minimal pay. services (direct debit, single SCA)
- Prior to initiation, ASPSP must share specific data
- All info on initiation / execution should be shared

1.G PSD2-as-a-service

- AISP's forwarding data – with permission - to other non-regulated parties is formally recognised in PSR/PSD3

1.B SCA

- ASPSP apply SCA only for first access to account data by AISP
- AISP's subsequently applies own SCA (every 180 days)

1.D Prohibited obstacles to data access

- EBA's opinion on dedicated interfaces creating obstacles has been incorporated (non-exhaustive list)

1.F Permanent contingency mechanism (fallback)

- Permanent contingency mechanism is not required
- Access via customer interface by AISP's and PISP's only in exceptional situations

1.H Commercial model

- PSD2 data access and payment initiation still free, but premium services in the context of scheme can be charged for (e.g. SPAA scheme)

Source: INNOPAY analysis, PSR & PSD3

Key changes introduced in the PSR (2/2)

Non-exhaustive

2 Direct access to payment accounts & systems

2.A Payments account

- Stricter on/offboarding reqs., to address 'de-risking'
- Possibility to safeguard user funds e.g. at central bank

2.B Payments system

Possibility of direct participation to payment systems:

- under SFD (e.g. Target2 ECB)
- of payment system operators (e.g. EquensWorldline)

3 Fraud mitigation

3.A Confirmation of payee

- PSPs must offer IBAN/name matching verification to all credit transfers in euros

3.B Liability & redress rights

- PSPs liable vs. customers in case of failure of IBAN/name verification or victims spoofing

3.C Fraud data sharing

- Introduces legal basis for sharing fraud-related information between PSPs

4 Commercial agent exemption

4.A Scope & exemption

- Narrowing definition of what commercial agent entails (eCom platforms should not be excluded from PSR)

5 Outsourcing agreement

5.A Tech. service providers

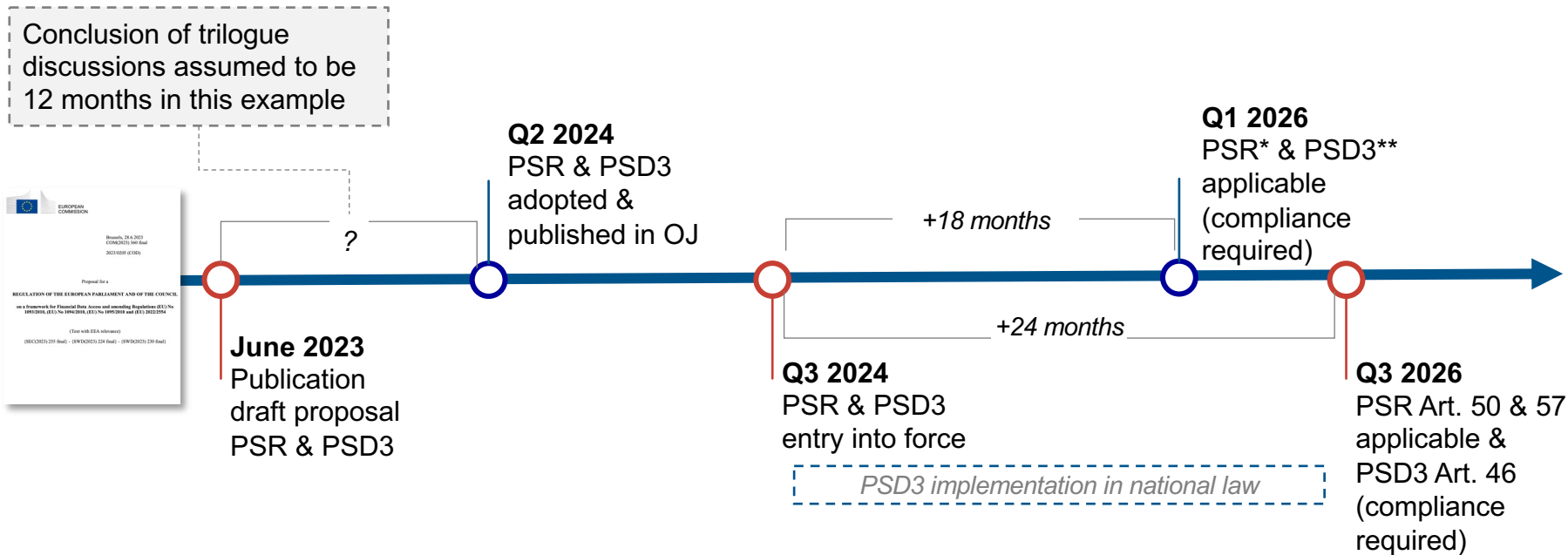
- Where tech. service provider offers/verifies SCA elements, PSPs should establish outsourcing agreement

5.B Pass-through wallets

- Not regulated as pay. service
- Wallets verifying SCA require outsourcing agreements with the payers' issuing bank

PSR will directly become applicable after transition period, where PSD3 will need to be implemented in national law first

Indicative



Note: *except for Art. 50 & 57 ("IBAN name check" & "Liability for failure of IBAN name check") ** except for Art. 46 "Amendments to Directive 98/26/EC on settlement finality in payment and securities settlement systems"
Source: INNOPAY analysis.



Financial Data Access Framework (FIDA)

Point of view on key challenges and pillars of the way forward

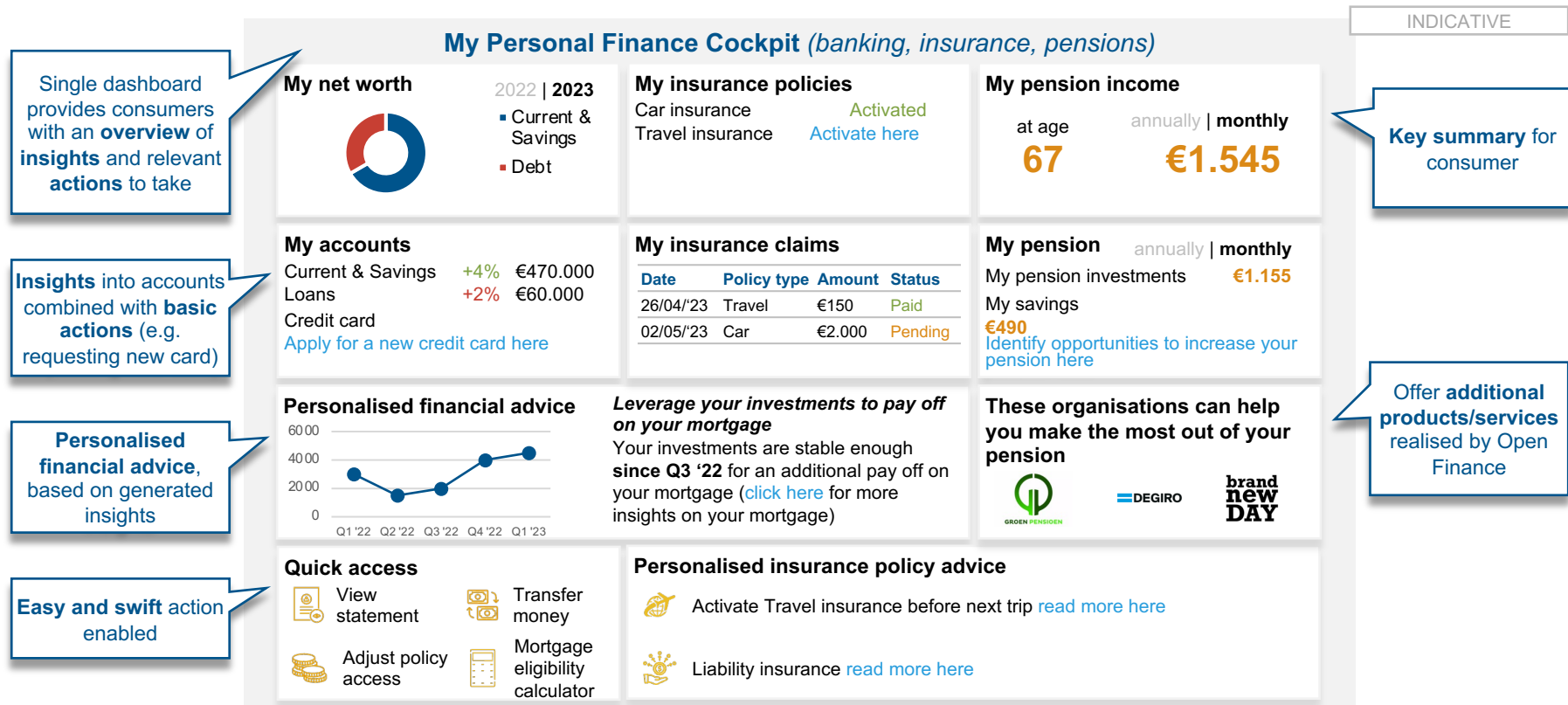
Content

1 Background and status of FIDA

2 FIDA challenges

3 5 pillars for an active approach

Use case impression: A Personal Finance Cockpit constitutes a basic, target customer experience across financial products



Source: Innopay analysis

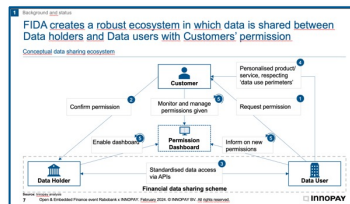
FIDA facilitates controlled sharing of multiple types of financial data by the customer, enabled by schemes

Proposed EU FIDA framework...

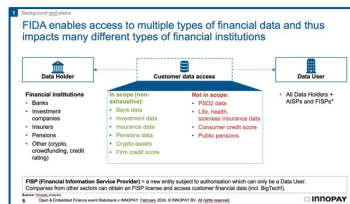
Regulation proposal: "A Framework for Financial Data Access" (28 June 2023)



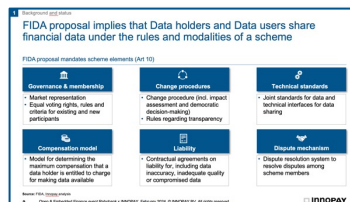
...sets out three main principles



Customer in control of own data



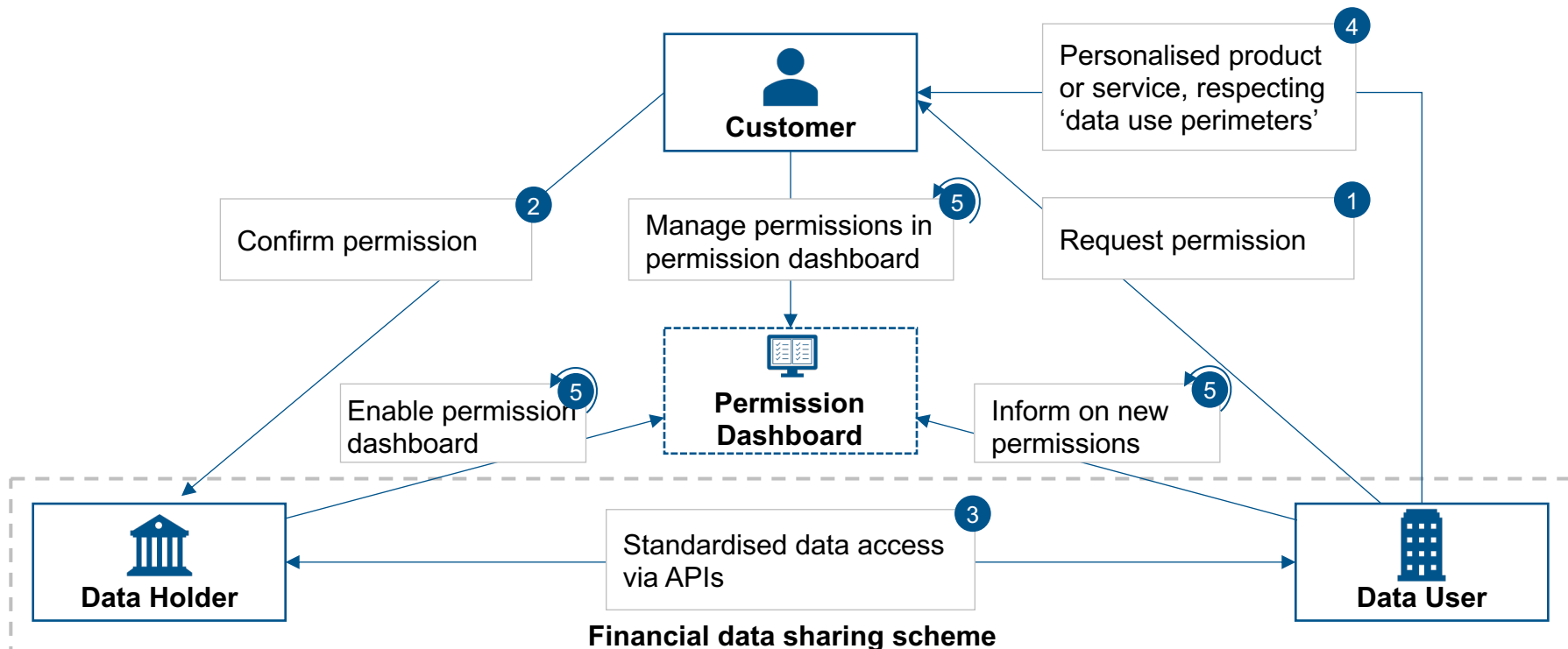
'Opening-up' multiple financial sectors and data categories



Participation in financial data sharing schemes

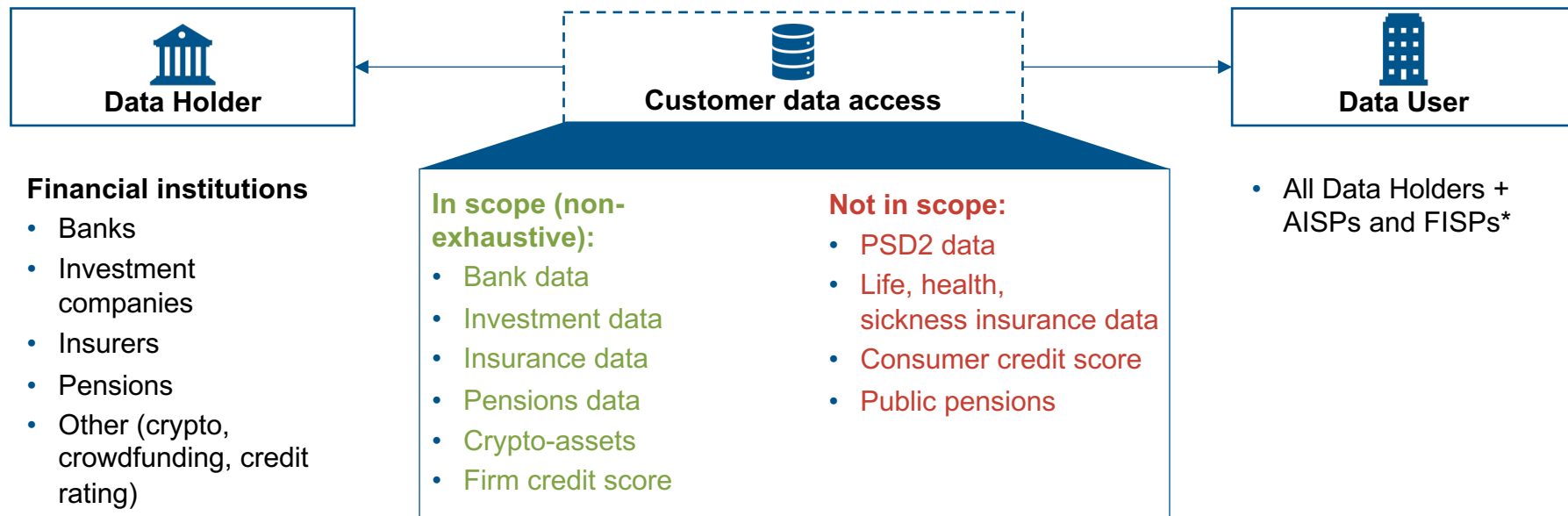
FIDA creates a robust ecosystem in which data is shared between Data holders and Data users with Customers' permission

Conceptual data sharing ecosystem



Source: Innopay analysis

FIDA enables access to multiple types of financial data and thus impacts many different types of financial institutions



FISP (Financial Information Service Provider) = a new entity subject to authorisation which can only be a Data User. Companies from other sectors can obtain an FISP license and access customer financial data (incl. BigTech!).

FIDA proposal implies that Data holders and Data users share financial data under the rules and modalities of a scheme

FIDA proposal mandates scheme elements (Article 10)



Governance & membership

- Market representation
- Equal voting rights, rules and criteria for existing and new participants



Change procedures

- Change procedure (incl. impact assessment and democratic decision-making)
- Rules regarding transparency



Technical standards

- Joint standards for data and technical interfaces for data sharing



Compensation model

- Model for determining the maximum compensation that a data holder is entitled to charge for making data available



Liability

- Contractual agreements on liability for, including data inaccuracy, inadequate quality or compromised data



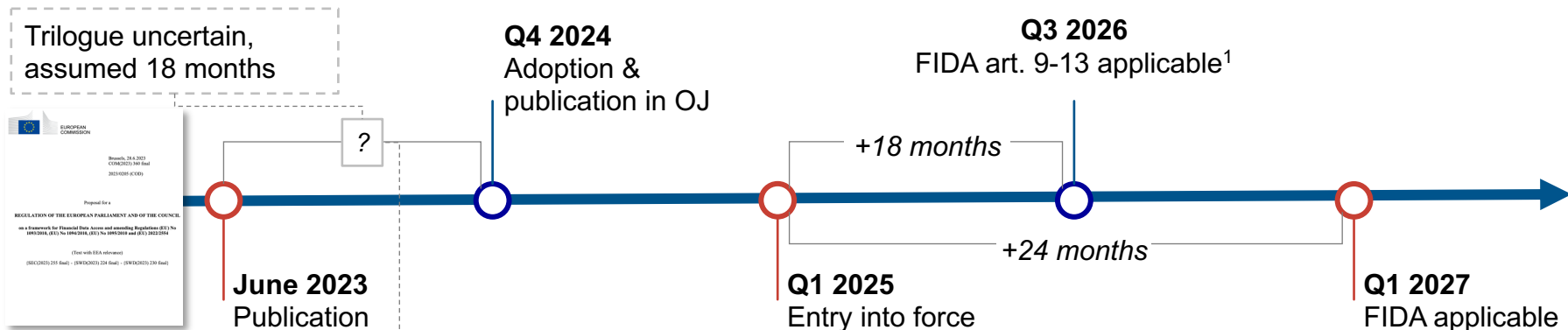
Dispute mechanism

- Dispute resolution system to resolve disputes among scheme members

Source: FIDA, Innopay analysis

Although trilogue is still ongoing, FIDA provisions on schemes could enter into force as early as in Q3 2026

FIDA provisions for schemes are expected to enter into force in Q3 2026



? Examples of external developments that influence trilogue timelines

NON-EXHAUSTIVE



Market consultation and positioning papers (e.g. DNB and AFM)



NL Ministry of Finance sheet describing the position of the NL cabinet. It is expected that several EU governments have provided input



Change of EU presidency every 6 months. Now Belgium (Jan.- June 2024), soon Hungary (July-Dec. 2024)



EU parliamentary elections (June 2024)

Source: FIDA, Innopay analysis **Note:** ¹Compliance with articles on financial data sharing scheme membership, application as Financial Information Service Provider (FISP) and legal representatives of FISP

Report on FIDA of the EP ECON Committee: Suggested amendments to enhance customer protection and clarify its scope

OVERVIEW SUGGESTED AMENDMENTS



Customer protection

- Compensation customer if data misuse, loss or fraud
- Specification of 'permission'
- Obligation to delete cust. data



Permission dashboard

- Include date of permission
- Include location of storage
- Information to be objective, accurate, easily understandable



Scope of FIDA

- Customer resides in EU
- Data available to customer and Data User continuously and in real-time (where feasible)



FIDA data

- Data to be excluded e.g. GDPR sensitive data, derived/inferred data, health/sickness cover
- EC can add data with del. act



Fin. data sharing schemes

- Equal voting rights members
- Standards based on existing initiatives & synergies with other sectors



FISP: gateway to fin. data?

- DMA gatekeepers: no access
- Delete legal representative possibility
- Other sectors access via FISP

Content

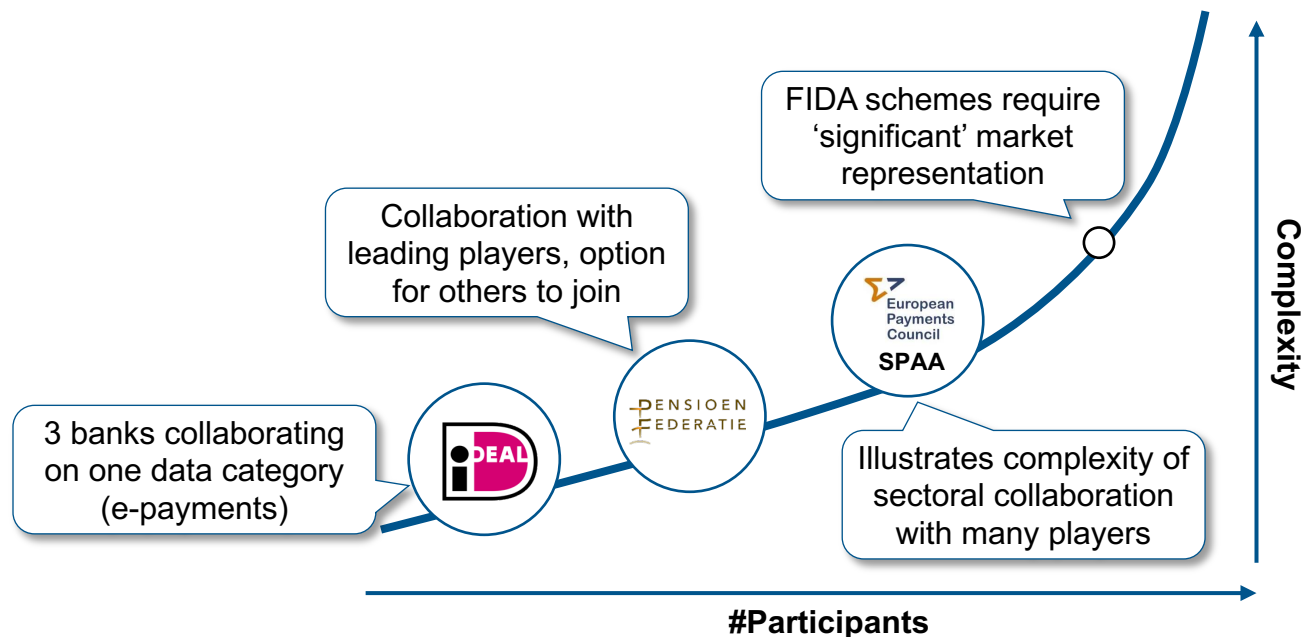
1 Background, content and status of FIDA

2 FIDA challenges

3 5 pillars for an active approach

Collaboration on FIDA schemes is complex due to diverging interests and different stakeholder types

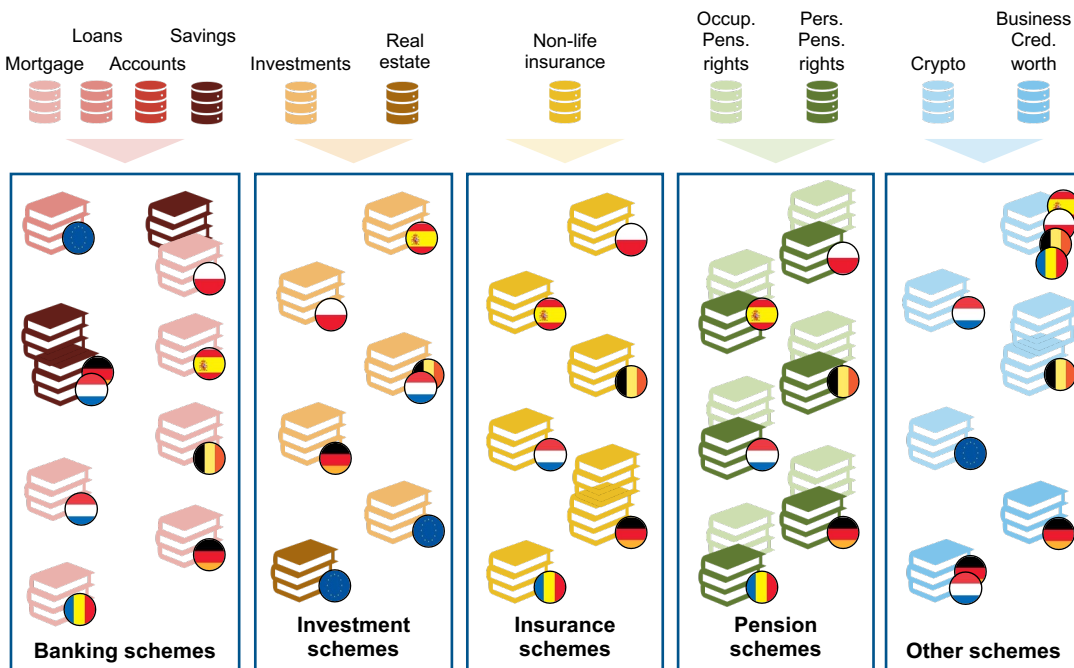
Setting up collaboration is complex ...



Source: Innopay analysis

Financial Institutions need to navigate the emerging FIDA scheme landscape, which is likely to be fragmented

NUMEROUS SCHEMES LIKELY TO EMERGE DUE TO FIDA SCOPE¹...



... RESULTING IN VARIOUS CHALLENGES

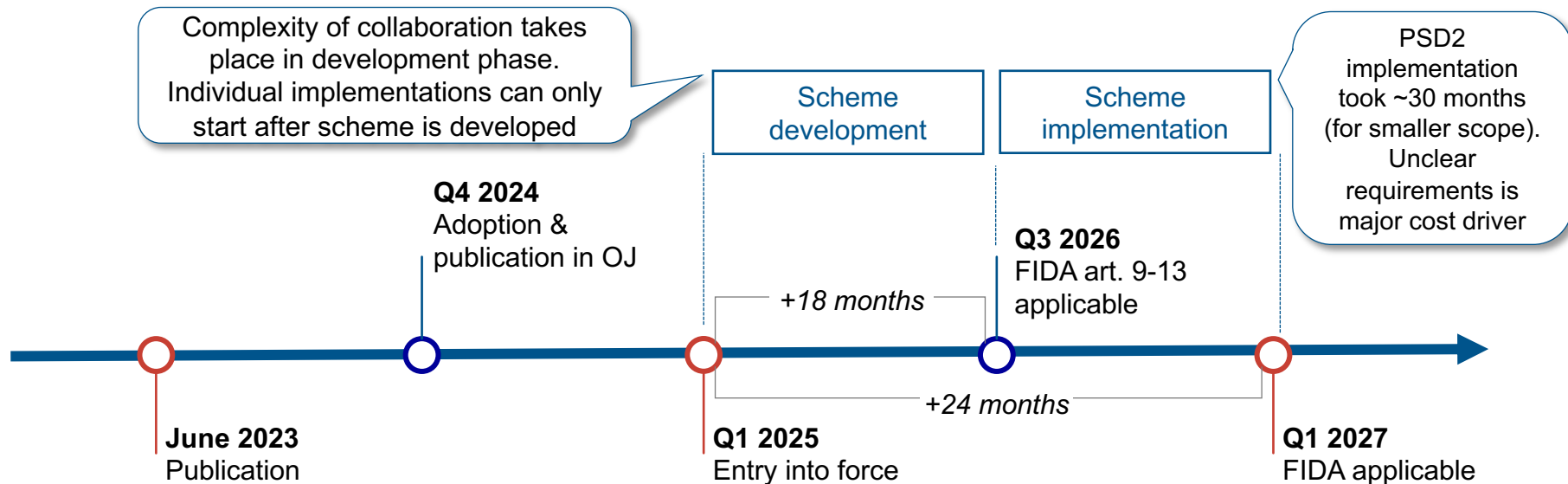
- ⚡ Multiple schemes likely to emerge requiring participation in more than one scheme by large Financial Institutions
- ⚡ In/cross-country dynamics add complexity
- ⚡ Fragmented implementation & customer experience
- ⚡ Fragmented Operating model

Note: ¹For illustrative purposes only 6 EU member states were included in this visual

Source: Innopay analysis

Timelines for development and implementation of FIDA scheme are too short and could result in high costs

Expected timelines are too short to develop & implement scheme if sectors wait for final FIDA text



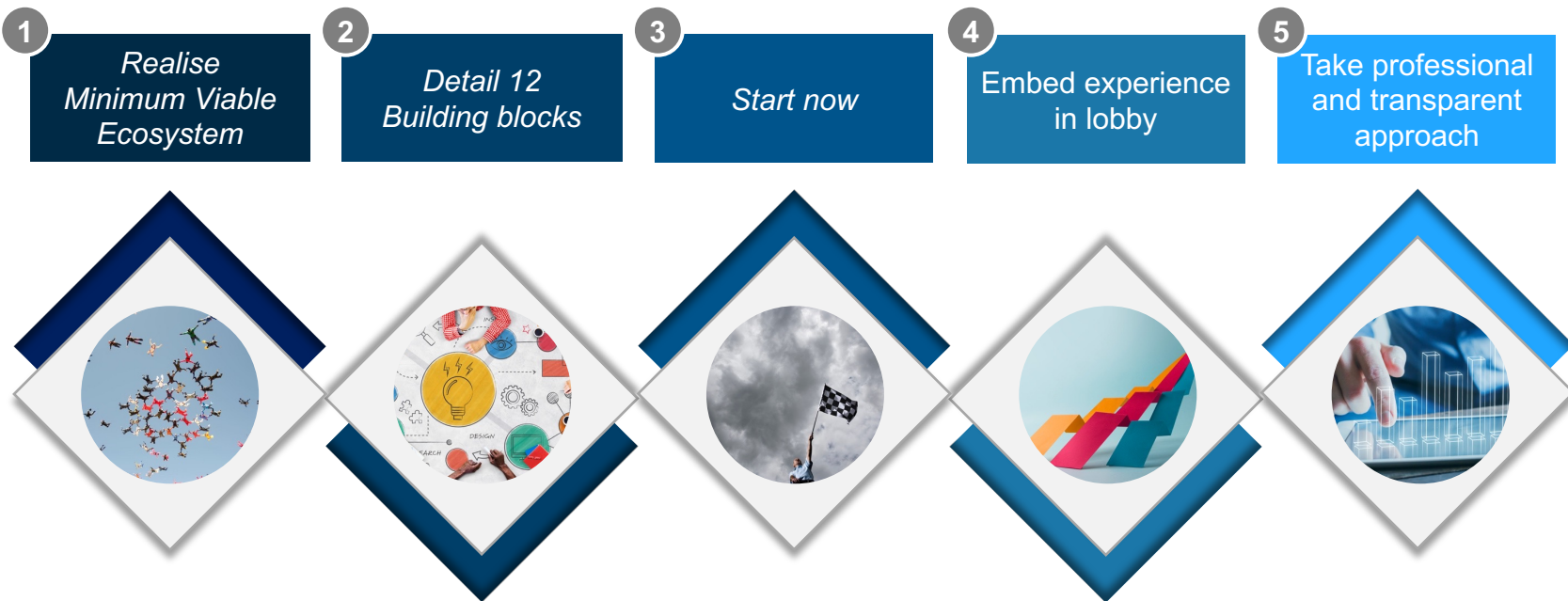
Content

1 Background, content and status of FIDa

2 FIDA challenges

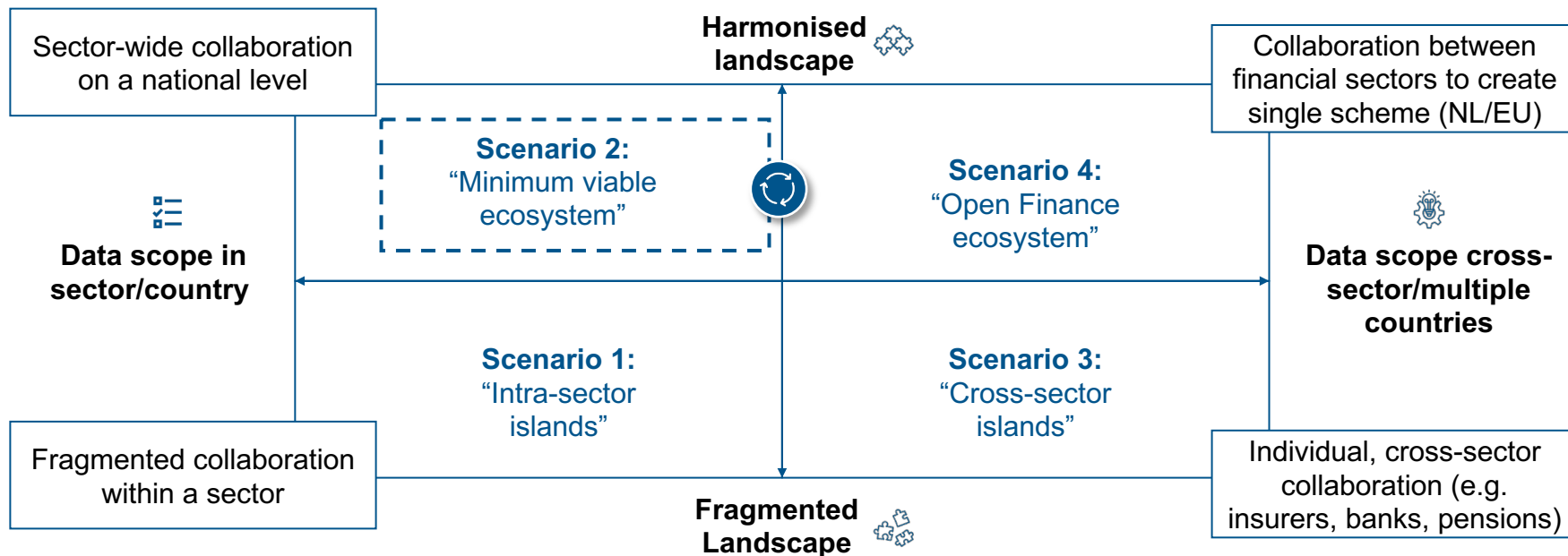
3 5 pillars for an active approach

Five pillars for a proactive approach to FIDA compliance



Realise a Minimum Viable Ecosystem to prevent fragmentation and drive a uniform experience & implementation at speed

Scenarios to achieve FIDA compliance



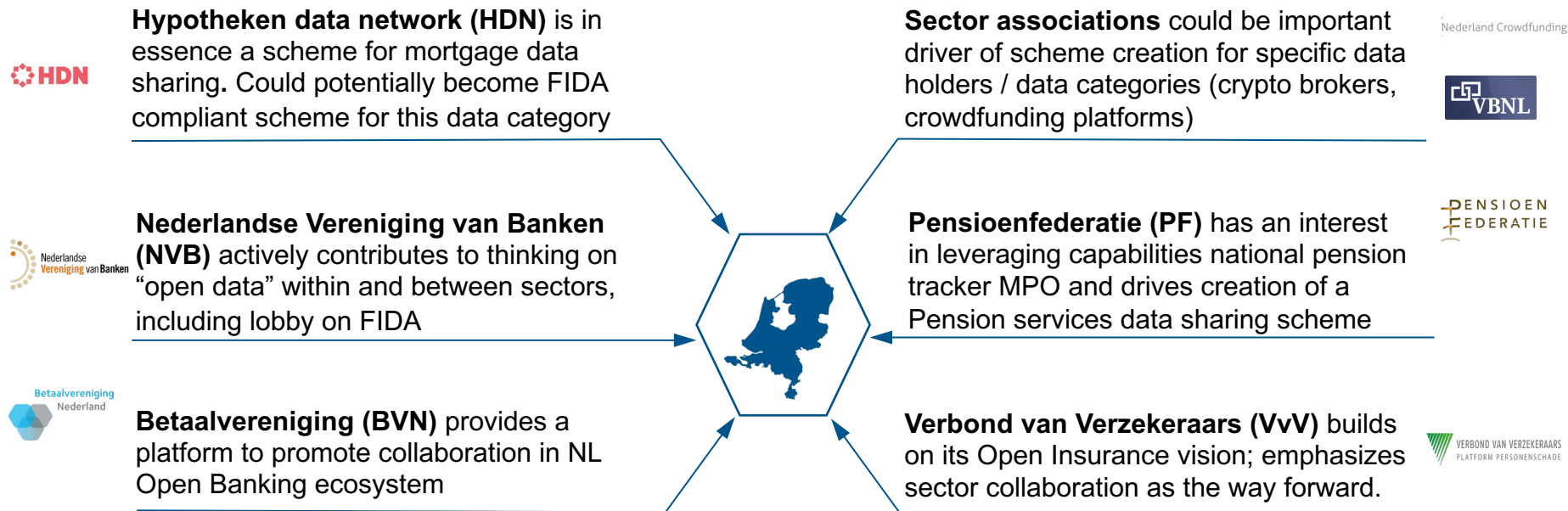
Where possible and relevant, sector harmonises with other financial industries and EU countries

Source: Innopay analysis

So where are we in NL?

NON-EXHAUSTIVE

Vision development on open finance by NL financial sector



Source: Innopay analysis

