INNOPAY

Open Banking Monitor 2023:

tracking the evolution of embedded financial services

December 2023

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Foreword

In today's rapidly evolving Open Banking landscape, it is more important than ever for financial institutions (FIs) to keep a close eye on key developments so they can take timely action to maintain their competitive edge. To help them, the INNOPAY Open Banking Monitor (OBM) has been periodically assessing hundreds of developer portals since 2017 to offer a comprehensive understanding of Open Banking API offerings and developer experience features from FIs across the globe.

Mounaim Cortet

Maarten Bakker

In this publication, we bring you several articles summarising the major trends over the past year. These include the continued increase in both the number and scope of payment APIs, the factors driving the surge in digital value propositions in financial services, and the need for strategic partnerships in the Embedded Finance value chain in order to capitalise on the opportunities. Additionally, we take a deep-dive into Open Banking in Europe's largest area – the DACH region (Germany, Austria, Switzerland) – and we zoom in on how the Open Finance Framework is affecting the EU insurance industry.

I hope you find these articles insightful. With our portfolio of consulting services and experience, we have helped numerous financial institutions to design, launch and scale up their Open Banking and Open Insurance initiatives. Feel free to contact me if you have any thoughts or questions.

Best wishes,

Mounaim Cortet Maarten Bakker

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The old guard are embracing new opportunities

A whole year has passed since our previous update of the INNOPAY Open Banking Monitor, which means it is high time to take a new look at where the industry stands. This year's update will cover the status quo of Open Banking globally, highlighting what steps banks have taken, which general trends can be identified, and whether these have resulted in new and innovative features and best practices. In turn, this will provide insight into the current frontrunners, the newcomers and the very latest API capabilities in a continuously evolving landscape.

*Grey logo indicates limited portal accessibility, thereby complicating full assessment.
**Banks with an Open Banking offering limited to regulatory requirements (e.g. PSD2 required services) are not included in this assessment.

Figure 1: Open Banking Monitor

3 Key findings from the 2023 update of the Open Banking Monitor

In the following section, we highlight three key findings that have been observed since the last Open Banking Monitor (OBM) update. A visual representation of the latest Open Banking Monitor can be seen in Figure 1.

1. Community Development is driving differentiation in DevEx as Open Banking continues to evolve

European banks continue to dominate in Developer Experience (DevEx). In the latest Open Banking Monitor (see Figure 1), the upper right quadrant contains two major Dutch banks (ABN AMRO and ING Group), two large German players (Deutsche Bank and Commerzbank) and numerous

other European banks (including Nordea, BBVA, the National Bank of Greece, Erste Bank and SEB). A common driver behind this differentiation can be found in the extensive Community Development efforts across these banks. Community Development is defined as a way for banks to inform and actively engage their communities of users. Besides strengthening the bank's position within the landscape, setting up, maintaining and growing a community around a bank's developer portal also incentivises users to drive innovation, leading to a greater variety of functionalities in a reduced timespan. This can be achieved by actively collaborating with the community by, for example, creating direct interaction channels with a respective bank, enabling users to suggest new API features or functionalities, or organising events and hackathons. The importance of Community Development is discussed in one of our previous publications.

Consequently, to a large extent, Community Development is a way to differentiate and drive adoption in an increasingly competitive European market. Similarly, there is significant room for improvement in the Developer Usability of most non-European banks' developer portals. In contrast to the developer portals provided by EU banks, the vast majority of them remain unintuitive to navigate and difficult to use, requiring developers to spend significant time browsing through the portals. The latest ranking on DevEx capabilities is visualised in Figure 2.

Figure 2: Ranking of Developer Portal Capabilities

2. Payment APIs on the rise, while Account APIs remain stable but significant

Payment APIs continue to increase in number as well as in scope, now accounting for 34% of all observed API functionalities. This can be explained by the rise of more localised as well as specialised Payment APIs, such as Cross-border Payments, Instant Payments, BNPL, Recurring Payments/Standing Orders, Scheduled Payments, Request-to-pay, and Batch/Bulk Payments. In particular, the number of Instant Payment APIs is expected to continue to increase due to the current instant payment regulatory developments in Europe, which are being driven by regulators in the EU as part of their payment sovereignty agenda. Similarly, the US Federal Reserve will be launching its 'FedNow' instant payment service in July 2023, having begun the process of formally certifying banks to implement instant payments in April 2023. Moreover, countries such as Brazil and India have already adopted instant payments, in the shape of PIX and UPI respectively. As trends like these continue to spread around the globe, new use cases will continue to appear, with payment innovations built on top of these real-time rails.

There continues to be a significant number of APIs related to Bank & Account Information. They account for 23% of all observed API functionalities and remain stable in terms of scope. APIs in this category are still focused on Transaction History, Account Balance, List of User Accounts and Branch/ATM locations. Unsurprisingly, functionalities once introduced by regulation (i.e. PSD2), such as Account Information APIs, make up the lion's share of functionalities offered by banks. These functionalities are now increasingly being offered by banks outside of Europe. Unlike in Europe, however, the adoption of these APIs is not driven by regulation but rather by the industry itself in some

markets, due to the value they can create for end-users, security enhancements and banks' revenue streams. Figure 3 provides a breakdown of the most relevant API functionalities.

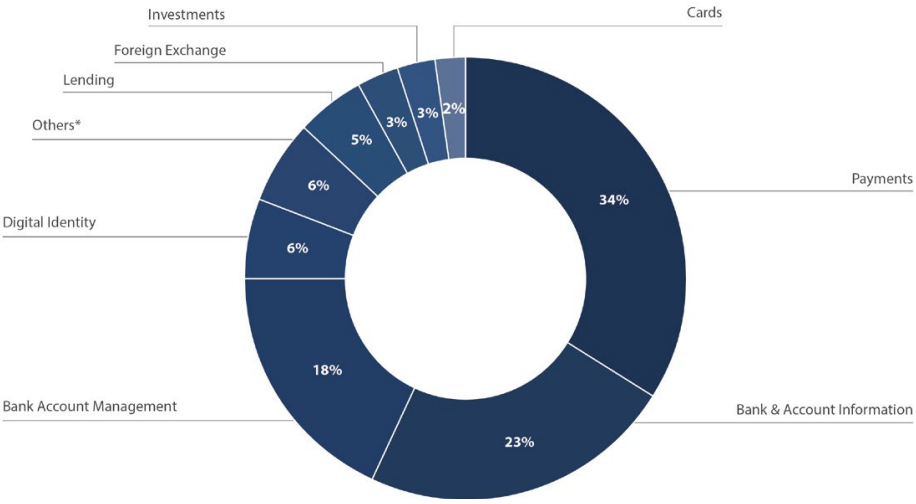


Figure 3: API functionality distribution

3. EU Open Banking is still leading but US Open Banking is catching up

Whereas US banks were previously lagging behind, there have been significant developments in the US Open Banking space over the past year. While Europe still represents the lion's share of available APIs, with 14% North American banks now make up the second-biggest geographic share in the OBM (as depicted in Figure 4). Moreover, as can be concluded from Figure 1, the quality of US developer portals has improved significantly, with Citi Bank positioning itself among the Masters in Openness. Additionally, US Bank and Wells Fargo can be highlighted due to their improved performance in this year's update. Both banks significantly expanded their API catalogue, with US Bank now being among the frontrunners in Functional Scope. Other noteworthy mentions are Cross-River Bank as well as Capital One, with their above-average performance on Functional Scope and Developer Experience, respectively. Lastly, banking giants such as Goldman Sachs, JPMorgan and Chase (separate portals despite being one entity) are slowly revealing their Open Banking offerings. However, they remain limited in accessibility, which makes it difficult to fully assess some US banks.

One key differentiator for US banks is the extensive offering of Investment and Foreign Exchange APIs. These APIs allow end-users to directly access relevant data and insights into different investment vehicles such as stocks, bonds, exchange rates and currency pairs offered by the banks. Additionally, some of these APIs also enable the trading of such assets at the current time or at a predetermined later date. Considering that US Open Banking developments are industry-driven rather than regulatory-driven, US financial institutions are exploring proactive, offensive Open Banking strategies to offer APIs that can unlock new value streams.

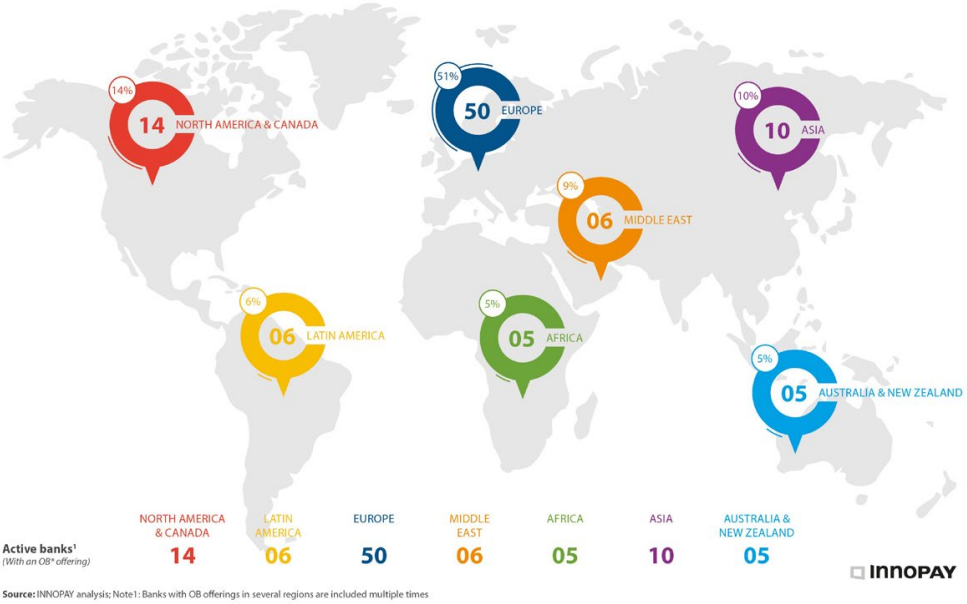


Figure 4: Geographical distribution of Developer Portals (#) and APIs (%)

Embedded Payments on the rise

With financial institutions (FIs) playing a key role within the Embedded Finance value chain, assessing their Open Banking offerings is imperative to develop a comprehensive understanding of the breadth and depth of their services. These offerings serve as key enablers for emerging embedded business models in close collaboration with their strategic partners.

Open Banking & embedded finance – Two sides of the same coin

Open Banking, or the concept of FIs enabling third parties to access financial data, services, products and infrastructure through APIs, has served a key role in promoting competition and innovation in the financial industry. The breadth of APIs offered differs significantly between FIs, with payment and account information APIs still representing a significant share of available APIs. However, a range of other data, services and products, within the space of accounts, cards, lending, insurance, trade and wealth management, are becoming increasingly API enabled. With this development, FIs further pave the way for Embedded Finance, providing the financial building blocks which are made available via technical service providers and/or directly at the point of need in an external, client-facing non-financial platform. FIs typically act as balance sheet providers within this emerging Embedded Finance value chain, whereas the client-facing platform acts as a distributor of the embedded financial service.

Introduction to the OBM

Since 2017, the INNOPAY Open Banking Monitor (OBM) has been the leading publication assessing Open Banking developments of financial institutions worldwide. Over the past six years, hundreds of developer portals have been assessed to develop a comprehensive understanding of Open Banking API offerings from FIs across the globe. FIs are assessed on the functional scope of their API products and the overall developer experience features provided to the 'API consumers' (i.e. any third party that is integrating with the FI's APIs). The developer experience is made up of various features spanning API Documentation, Developer Usability and Community Development. INNOPAY's developer portal capability model is summarised in Figure 1.

Figure 1: INNOPAY Developer Portal Capability Model

The latest edition of the OBM represents INNOPAY's largest undertaking yet, evaluating 530 FIs, over 3,202 API functionalities and over 80 developer experience features. The OBM's 2023 update has unveiled numerous new insights. One main insight from the OBM update related to the field of Embedded Finance is highlighted below. A first sneak peek at the other findings can be found here, and the final report is expected to be published soon.

Key finding: rise of payment APIs

Since the initial OBM publication in 2017, both the number and scope of payment APIs have continued to increase. Payment APIs now account for 34% of all observed API functionalities as shown in Figure 2. This rise can be explained by the growth of specific payment functionalities that have been added over time. The types of payment APIs include cross-border payments, instant payments (via various schemes), Buy Now, Pay Later (BNPL), standing orders for recurring payments, scheduled payments, request-to-pay and batch payments. In view of the current regulatory developments surrounding instant payments in Europe and the related use cases, INNOPAY expects the number of payment APIs to continue to soar.

In particular, regulators in the EU are driving instant payment adoption throughout Europe as part of the payment sovereignty agenda. A similar development is ongoing in the USA, where the U.S. Federal Reserve (Fed) is launching its own instant payment service, 'FedNow', in July 2023. The work on this has already started, since the Fed began to formally certify FIs to implement instant payments in April 2023. Moreover, countries such as Brazil and India have already adopted instant payment schemes in the form of PIX and UPI respectively. As trends like these continue to spread around the globe, new use cases will continue to appear with payment innovations built on top of these real-time rails.

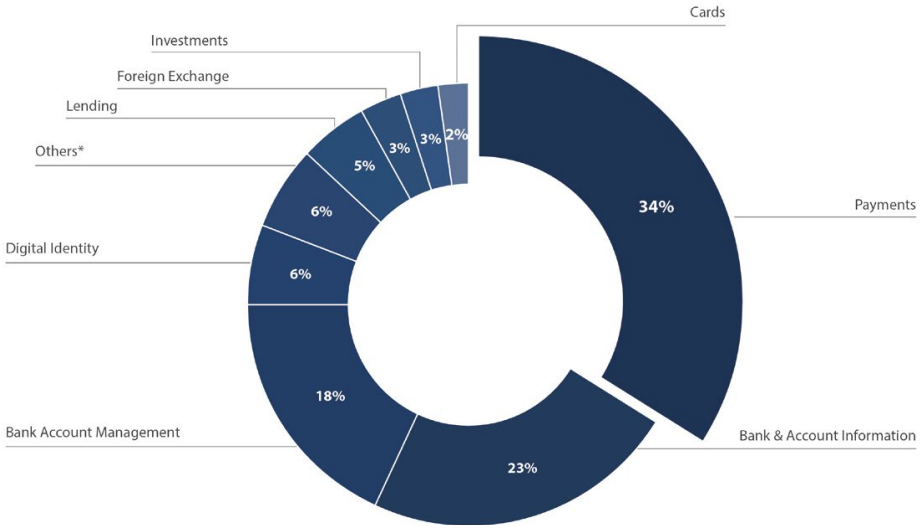


Figure 2: Distribution of API functionalities by product area

Case Study: Deutsche Bank's Embedded Instant Payment API

One example of these advances in payment-related functionalities is Deutsche Bank's instant payment API. It enables merchants to initiate SEPA instant payments (SCT Inst) via the merchant's web or app environment. Deutsche Bank in this case acts as the regulated entity and technical service provider, while the merchant – in the role as distributor – can offer an additional (instant) payment method, seamlessly embedded at the point of sale to boost conversion. End-consumers do not need to onboard for the service and can use it with any German bank account that can send and receive SEPA Instant Payments. Furthermore, the API consists of a built-in 'confirmation of payee' service, which validates the IBAN & name of the receiving party, thereby reducing the risk of payment errors and fraud.

Quo Vadis Open Banking in DACH?

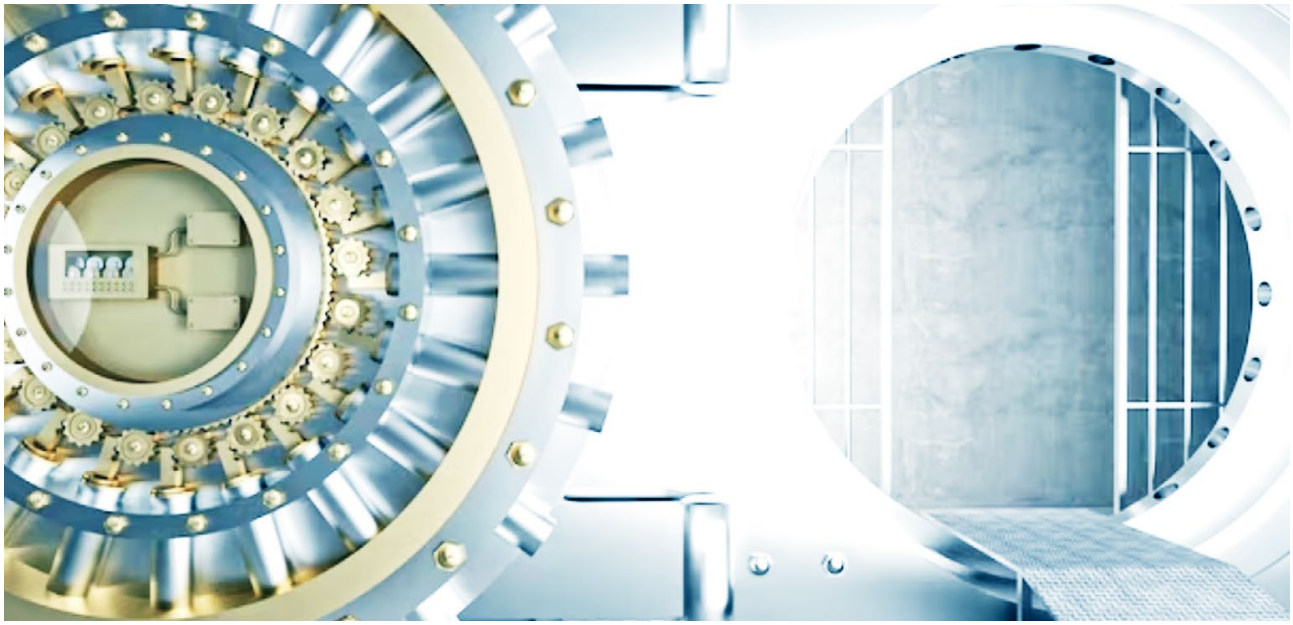
Market leaders further strengthen their competitive edge

Digital value propositions in financial services have seen a surge, accelerated by many factors, including regulatory pressure (e.g. PSD2), changing customer behaviour in part driven by the COVID-19 pandemic, as well as the latest buzz around 'embedded finance' enabling access to financial services at your fingertips. Therefore, it has never been more crucial for financial institutions to understand the emerging financial ecosystem in which they operate.

As Europe's largest area, the DACH-region (Germany, Austria, Switzerland) represents a significant part of the financial ecosystem. This blog takes a deep-dive into the DACH landscape, examining the progress made by financial institutions in the region in embracing Open Banking by assessing both the offered functionalities as well as developer experience. By analysing market dynamics and adoption trends, valuable insights are provided into the unique opportunities and challenges faced by banks in this region. The impact of key players, industry collaborations, and consumer attitudes towards Open Banking are discussed. Additionally, light is shed on the innovative solutions emerging from the DACH-region and how they are poised to shape the future of banking, locally and globally.

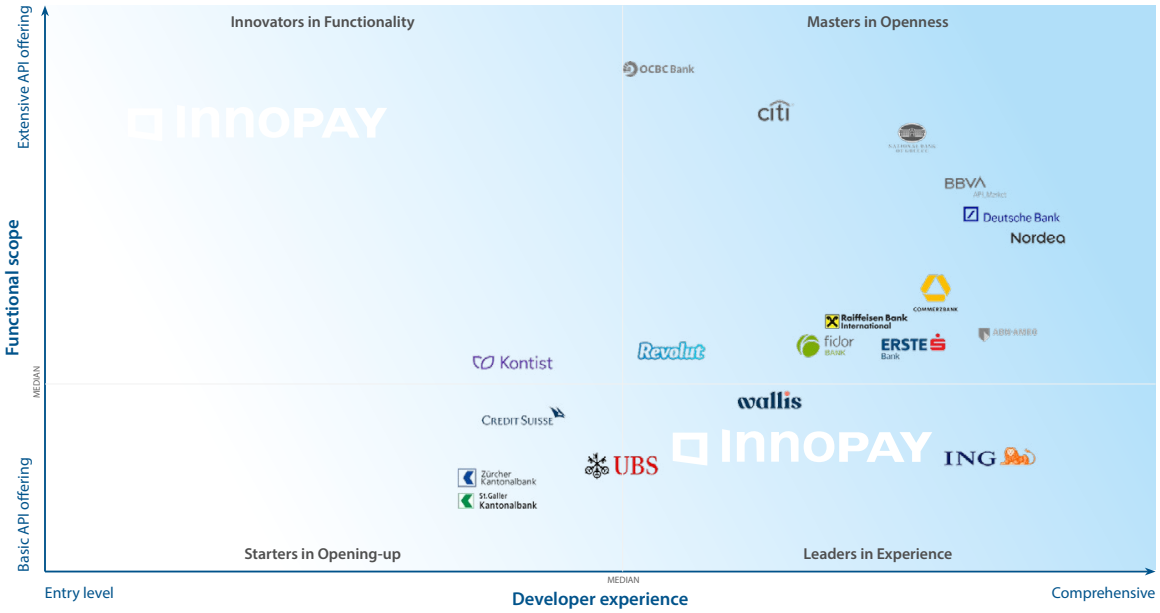
Innopay Open Banking Monitor

Since 2017, the INNOPAY Open Banking Monitor (OBM) has been the go-to benchmark assessing open banking offerings of financial institutions across the globe. Over the past six years, hundreds of bank developer portals have been assessed to develop a comprehensive view on the state of play of open banking offerings around the globe. Financial institutions are assessed on the functional scope of their API products as well as the overall developer experience provided to the API consumers, consisting of API Documentation, Developer Usability and Community development (see figure 1, page 8). For more information on the global Open Banking activities and historic development, please see previous publications.



Summary

The overall development of Open Banking in the DACH region can be summarised in that a very select group of financial institutions lead the way and make up the lion's share of premium API functionalities offered. 'Premium' in this context refers to functionalities beyond the regulatory scope of PSD2. In essence, only Deutsche Bank can compete with the global masters in openness, which are displayed in grey in visual below (figure 2).



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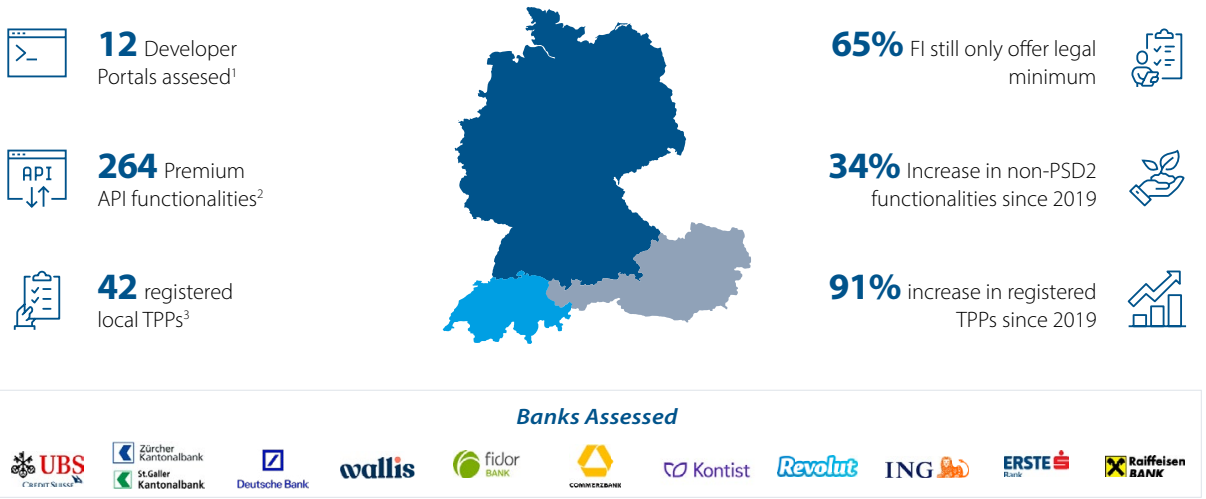
**Banks with an Open Banking offering limited to regulatory requirements (e.g. PSD2 required services) are not included in this assessment.

Figure 2: Innopay OBM DACH 2023

The leading banks Deutsche Bank and Commerzbank alone make up more than 30% of all premium API functionalities available in the DACH region. Looking at the market overall, still two out of three financial institutions do not have an offering which goes beyond the mandatory scope of PSD2, resulting in that the total number of financial institutions included in the monitor is still very limited (see figure 3).



Source: INNOPAY analysis; Konsentus [1] Wallis enables live access to approx. 400 Sparkassen banks; [2] API functionality beyond PSD2-scope; [3] Only PSD2-registered TPPs included (no figures for CH)

Figure 3: Key figures for DACH OB state of play

Reasons for the slow uptake of Open Banking initiatives at financial institutions in the DACH region are twofold:

1. "PSD2 Backlog"

As most European financial institution's API platforms were launched in the context of realising PSD2 compliance, September 2019 can be seen as the birth date of Open Banking across Europe for the majority of financial institutions. From this date, financial institutions had to enable licensed third parties to access payment initiation as well as account information services with the customer's consent. However, many developer portals and APIs were not yet fully operable at the time, which lead to many financial institutions working on technical, performance and availability issues, expanding access to required data and improving basic usability well into 2020. These shortcomings to meet regulatory requirements even lead to BaFin not giving out any exemptions on the Fallback mechanism for German financial institutions.

2. Global External Drivers

Due to the pandemic at the start of 2020, many organisations including financial institutions needed to shift focus on core business activities and cost savings. Studies indicate that budgets for technology-related innovation have dropped, therefore slowing down development on new Open Banking propositions. As soon as the pandemic lost its grip on the financial industry and society, the war in Ukraine had a similar effect on many institutions, again shifting focus to other areas within their operations. Another factor that could be contributing to this, is the large increase in funding for cybersecurity at financial institutions. According to reports, many financial institutions aimed to raise their IT security budget by up to 20-30%.

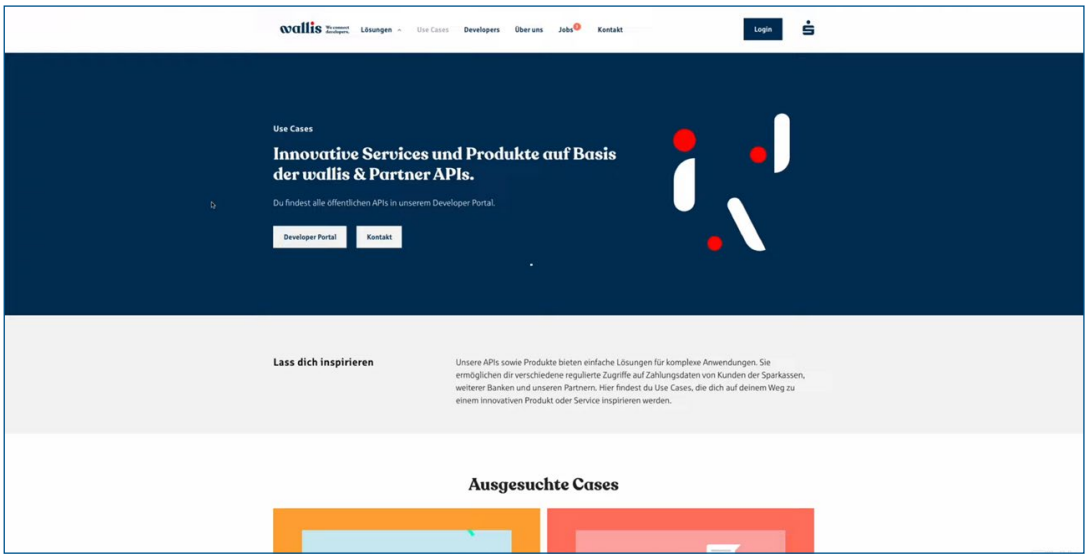
Main Findings

1. Developer experience improved across the board

One positive finding of the update was the overall improvement on the developer experience capabilities across the DACH financial institutions included in the assessment. The experience of developers when utilizing the API services of financial institutions play a key role in the ultimate adoption and usage of their APIs.
The advancements in developer experience are best typified by Deutsche Bank and Commerzbank, both of which scored within the top 10 globally for developer experience. As the OBM's scoring model is continuously improved, comparing absolute scores with previous versions is difficult, the progress is therefore best visible by highlighting some market practices that have emerged.

Case Study: Wallis' API Matchmaker

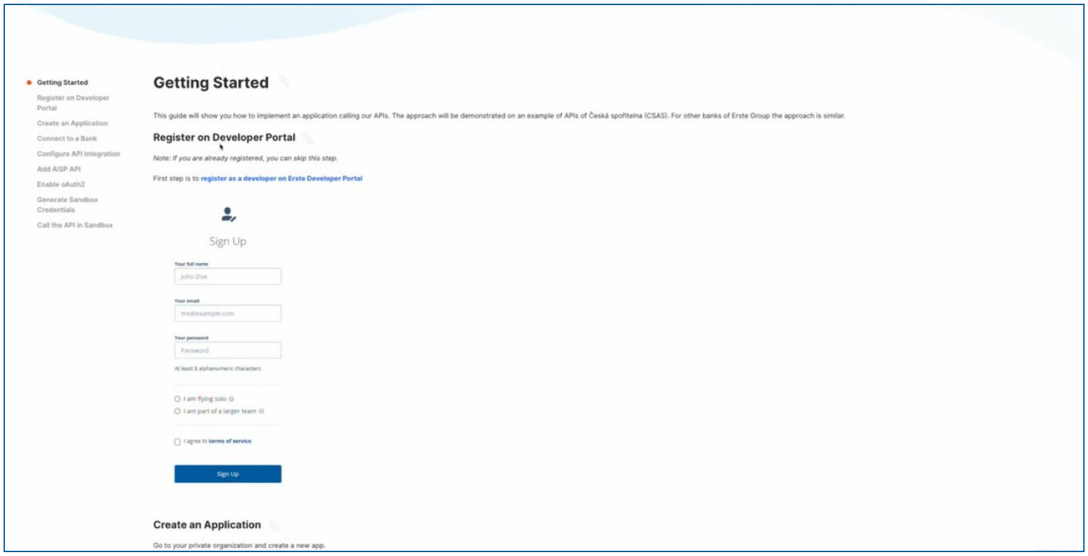
One positive DevEx example is the API matchmaker function from Wallis. This functionality allows developers to find the API that best matches the needs and wants of their customers, by focusing on the actual use case itself.
This feature tackles the mentioned lack of education within the financial institutions' clients by explaining the actual benefit they can deliver with the use of APIs. It also serves to highlight the advanced functionality of their bank and multibank APIs.



Video: Erste's Portal Guiding

Case Study: Advanced Portal Guiding

Secondly, another exceptional developer functionality is the very advanced 'Getting started guide' by Erste Bank. Instead of a generic guide, Erste provides a step by step instruction based on a live API, from initial registration all the way towards going live with user data. This speeds up API consumer onboarding and enables third parties to start as soon as possible on developing applications with Erste's APIs.



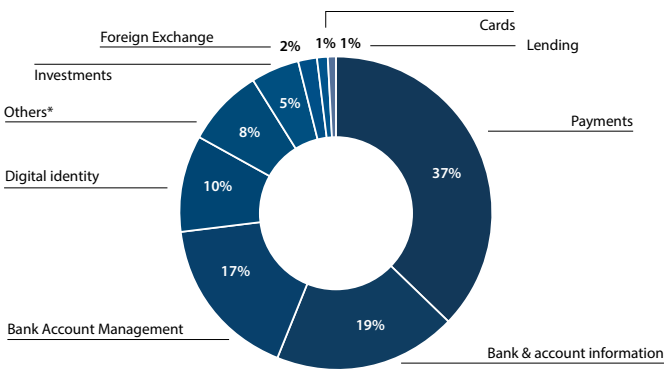
Video: Erste's Portal Guiding

2. Functional API scope overall very limited

While we found significant improvements in the developer experience of DACH financial institutions, progress on overall scope of API functionality has been lacking. In fact, since our previous assessment in 2019, we have observed a 34% increase in premium API functionalities[1] but as already mentioned, this is mainly driven by the two leading financial institutions in Germany (Deutsche Bank and Commerzbank). When looking at all the included financial institutions, still over 55% of offered API functionalities are within the space of PSD2 offerings. When including all PSD2-regulated financial institutions in the DACH region this percentage is even significantly higher.

Functional Scope: APIs focus on core payment and account information, other functionalities still in early stage

% OF APIs PER DOMAIN ACROSS ASSESSED BANKS



wallis: Provides access to **3.000+ core functionalities for Sparkassen customer bank accounts** through wallis.Bank API

Deutsche Bank: Developer portal with most extensive functional scope, enabling access to **36 live APIs**, with an additional **5 in planning or available in sandbox**

*Others: Domain overview is not exhaustive. APIs are also being developed in other areas such as sustainability, cashpool management and virtual account management. The share of live APIs in those domains is however very low when the analysis was conducted

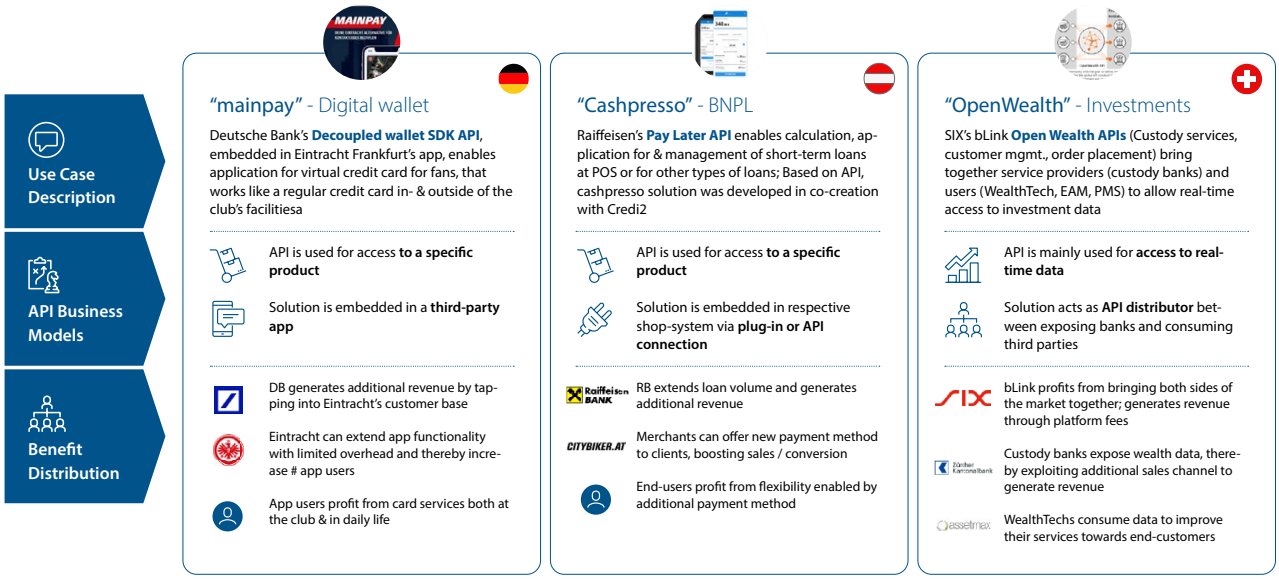
Source: INNOPAY analysis

Figure 4: Functional scope of open banking offerings in DACH

1 adjusted for number of banks included

This low adoption rate of premium APIs indicates that there is still much to be done regarding education on open banking and the benefits for financial institutions, key partners and end-customers. Despite this, we have observed several financial institutions enabling interesting use cases powered by premium APIs, some of which are highlighted below.

Exposed APIs enable a variety of use cases, ranging from wallet services, digital payments as well as Investment management



Source: INNOPAY analysis, Deutsche Bank, Cashpresso, SIX

Figure 5: Selected open banking offerings in the DACH market

3. Swiss open banking needs to catch up

Overall, the level of open banking activities is still lagging compared to Germany and Austria especially on developer experience. Reasons for that are three-fold and are linked to the fact that compared to the other two countries in DACH, the Swiss regulator decided to not follow the European Union in adopting legislation to force banks to open up towards third parties.

A) This industry-driven approach results in a very fragmented landscape, ranging from institutions not participating in any initiatives, others following the PSD2 implementation and some even already publishing Premium APIs either via the Open Banking platform bLink or directly via own API marketplaces. However, many API developer portals lack full access and guidance which made a full assessment difficult. It also creates confusion, as some financial institution e.g., publish information on multiple portals, leaving API consumers guessing what the leading information is to follow.

B) One potential downside of industry-driven open banking approaches is the difficulty in establishing standardization, which is something that we have observed for the Swiss OB market. While incumbent financial institutions follow a newly developed "SFTI common API specs" focusing mainly on corporate APIs, another initiative, the "Swiss NextGen API" is promoted especially by (Fin)tech providers and is oriented towards the most common European standard developed by Berlin Group and including retail and small business APIs.

C) Another effect is the concentration of OB activities on the topic of Open Wealth, mainly driving adoption of very specific user groups by connecting the chain of custody banks, Portfolio-Management-Systems, External Asset Managers and WealthTechs. Negative side effect of this, is that development of Use Cases for retail or SME clients until now has not been prioritised, resulting in that regulator has announced to intervene with regulatory measures in case the OB adoption does not increase also in those areas significantly in 2023. As a result of that, a consortium within the financial sector has recently announced to deliver a Multibanking proposition for retail clients until mid 2025.

Outlook for the DACH Region

Looking ahead based on the findings in the monitor as well as the overall market developments, INNOPAY sees two main trends that will drive API product developments in the coming year(s) in the DACH region.

(Instant) Payment-APIs in the Spotlight

One item of note from our analysis is that of the 12 DACH developer portals that were included in the 2023 OBM, only 50% had APIs for initiating instant payments (SCT Inst). Given only financial institutions with APIs beyond PSD2 functionality are included in the OBM, it can be reasonably assumed that the overall provisioning of instant payment APIs is even lower than this across the whole of DACH financial institutions. With the forthcoming EU regulation on instant payments, requiring all financial institutions that offer regular credit transfers to also offer instant payments, more reach will be enforced going forward. New and existing 'account-to-account' (A2A) payments use cases are expected to be powered by this instant payment infrastructure.

Embedded Finance on the Rise

Embedding financial services enables financial institutions to deliver value at the point of need. Through seamless integration, financial services and products can be made available in a broader customer journey, typically facilitated on non-financial, digital platforms. Such platforms serve sizable client segments (retail, SME, corporate) via their often vertically specialised value propositions and enable high-frequency digital interactions. This paves the way for all participants within the Embedded Finance value chain (i.e. balance sheet providers, technology providers, distributors, and end-users) to reap the benefits.

Embedded payments and embedded lending are only the beginning of embedded services. More embedded finance propositions are emerging across financial products (accounts, cards, insurance, wealth management) at pace leveraging API technology. Embedded finance business models will continue to challenge the status quo in financial services and become the key building block for financial service providers that wish to compete and collaborate in digital ecosystems.

To track the latest developments around use cases, technology provider landscape and business models, INNOPAY is currently developing an Embedded Finance Radar, so stay tuned for the upcoming insights and get in touch to learn more about how INNOPAY supports financial institutions globally.

Embedded financial services: unlocking value through strategic partnershipss

Embedding financial services enables financial institutions to deliver value at the point of need. Through seamless integration, financial services and products can be made available in a broader customer journey, typically facilitated on non-financial, digital platforms. Such platforms serve sizable client segments (retail, SMEs, corporates) via their often vertically specialised value propositions, and enable high-frequency digital interactions. This paves the way for all participants within the Embedded Finance value chain (i.e. balance sheet providers, technology providers, distributors and end-users) to reap the benefits.

The Embedded Finance value chain

The emerging ecosystems powered by Open Finance facilitate API-enabled access to financial data, products and infrastructure. In turn, this provides third parties – also referred to as 'distributors' – with the required capabilities to seamlessly embed financial products at the point of need to better serve customers. These third parties can offer financial services without bearing the costs of becoming a regulated financial institution themselves.

One might argue that such integration of financial services is nothing new. Indeed, non-financial players have been offering financial services via co-branded credit cards together with major retailers and airlines for decades. Other common forms of such integrations include sales financing through electronics retailers and car loans at dealerships, for example. However, there are two reasons why the current emerging Embedded Finance solutions are so powerful. First, the financial products are integrated into vertically specialised, digital platforms that serve sizable customer bases and where daily interaction takes place. Second, the financial products are surrounded by a seamless sales and service delivery model: state-of-the-art financial APIs, seamless user experience with plug & play onboarding, and a self-service model.

Figure 1 visualises how the traditional role of a financial institution is decoupled. Note that certain market players combine multiple roles in the value chain. For instance, a balance sheet provider can build its own technology layer on top of its own balance sheet to provide Embedded Finance to distributors. In fact, this is what leading financial institutions are seeking to develop under their 'Banking as a Service' strategies and where concrete API propositions are offered through their API marketplaces.

Key Roles in Embedded Finance Value Chain

	Balance sheet provider	Technology provider	Distributor	End-user
Role	Provider of banking license, risk framework/compliance, funds and/or accounts to hold deposits	Provider that maintains & configures technology for delivering financial services via plug & play APIs	Platform that integrates financial services in its digital offering enabling seamless journeys in use cases	Consumer or business that uses embedded financial services at the point of need
Type	Financial institutions, other licensed FinTechs	Financial institutions and specialised FinTechs	Various (vertical specialist) platforms	Retail, SME, Corporate
Benefit	• Relevance where it matters • New business model • Low(er) acquisition cost and cost-to-serve	• Revenue stream by delivering technology at scale	• New revenue stream • Higher conversion rates • Increased engagement / loyalty	• Convenience • Personalisation • Control
Consideration	• Modern tech stack and developer experience • Smart partnering to scale • Move up in value chain	• Own license vs. pure tech • Product depth vs. breadth • Operational costs to appeal to many distributors	• Smart partnering for plug & play experience • Financial services expertise • Insource for value capture	• Trust in platform / 'brand' to use • Privacy & security
Example market player	Goldman Sachs, Deutsche Bank, Zurich, Raiffeisen Bank International, Rabobank, SEB	Marqeta, Bond, Weavr, Galileo, Bankable, unit	shopify, quickbooks, Revolut, tis, toast	

Figure 1: Key roles in the Embedded Finance value chain

Embedded Finance products and revenue drivers

Embedded Finance does not necessarily involve the offering of new products. It can also entail the provision of existing products through new channels. In this case, the revenue drivers of these products are typically the same within an embedded context. The value created by this 'embedding' is explained based on a use case below.

Figure 2 shows six product domains for which the demand for an embedded solution is gradually increasing. Many distributors initially began by offering deposit accounts and payment products, before extending their embedded product range to also include credit cards and lending products such as merchant financing and cash advances.

Overview Product Areas of Embedded Finance Services

PRODUCT AREA	WHAT	REVENUE DRIVER	RETAIL	SME	CORPORATE
Payments	Initiating & managing payments	Transaction fees, FX	• Single payment initiation • E-wallets • Instalments	• Mass/Bulk payments • Payroll processing • Payment acceptance	• Account receivables • Salary processing • Payment acceptance
Accounts	Opening & managing bank accounts	Interchange	• Current Accounts	• Business Accounts • Cash management	• Business Accounts • Cash management • Money market deposits
Cards	Issuing & managing cards	Account fees, overdraft	• Debit / credit card • Prepaid card • Reward card • Gift Card	• Virtual card • Business Card	• Virtual card • Business Card
Lending	Applying for & managing financing products	Interest rates	• BNPL • POS financing • Short-term loans	• Working capital • Payroll advances • Cash advances	• Supply-chain financing • Leasing • Trade finance
Insurance	Applying for & managing insurance products	Premium commission	• Product Insurance • Travel Insurance • Shipping Insurance	• Business owner insurance • Worker health insurance	• Employee travel insurance • Logistics insurance
Wealth managment	Managing savings & investments	Trade commission, payment order flow	• Automated stock investments • Savings account • Saving penny change	• Cash management • Portfolio management	• Employee retirement plans

Figure 2: Overview of product areas with increasing demand for Embedded Finance services

Deposit and payment products are interesting for distributors because they represent sizable revenue pools, they promote 'stickiness', and they offer a powerful way to build customer relationships. In addition, these products generate many digital interactions with customers. In turn, these enable the capture of customer data that can be used to inform risk management processes and to underwrite decisions for higher-margin lending products.

In terms of the outlook, the Embedded Finance product portfolio is likely to expand further as customer onboarding, product onboarding and product servicing processes are all gradually digitised and made accessible via an embedded model. The advancements of real-time risk assessment capabilities will further accelerate the expansion of the Embedded Finance portfolio.

Case study #1: AppleCare+

Probably one of the most mature embedded insurance cases is the extended warranty for Apple hardware products. As a balance sheet provider, AIG underwrites the insurance but remains almost invisible in this case. This is because Apple enables the technical integration as well as the client-facing app or platform to offer the insurance product as an additional service for the hardware devices sold. In this case, AIG benefits from Apple's leading user experience as well as large customer base, without having to invest directly in client acquisition. This also results in significant additional revenue for AIG, as on average only 20% of earnings on extended warranty products need to be paid back to the policyholders, according to most estimations by industry experts. Meanwhile, Embedded Finance enables Apple to further grow its customer base by not only enhancing its product portfolio but also adding another revenue stream. Warranty Week estimates Apple's annual revenue from AppleCare in 2021 at US$8.5 billion, which makes Apple by far the world's largest extended warranty provider. The advantage for Apple users is that they no longer need to look for a suitable insurance or warranty extension, as they can directly opt in for a tailored offering.

Case study #2: Shopify Balance

Shopify has ramped-up its merchant solution platform over the years. The company now enables merchants to handle not only the setup of their online stores, but also payments, billing and lending – all facilitated through its Commerce Components suite. The main feature is the Shopify Balance solution, which provides a business account for Shopify merchants. In this case, Evolve Bank & Trust acts as the balance sheet provider, while Stripe facilitates the integration of the financial service within Shopify's merchant ecosystem. Evolve Bank & Trust benefits from tapping into Shopify's merchant portfolio, growing its net income by over 150%. This indicates the immense growth potential of embedding bank offerings within established digital platforms. Meanwhile, Shopify itself reports significant growth within its merchant solution revenue (47% from 2020 to 2021), which shows the commercial value of extended services beyond the core business. Today, Shopify earns more than 73% of its revenue from merchant solutions, the vast majority of which are embedded financial products.

Case study #3: Wethos' one-stop shop for freelancers

Freelancers and small business owners that are using Wethos' platform are now able to open bank accounts and request card services and other payment features, all within the platform's experience. As the technical service provider, Unit partners with multiple financial institutions that act as balance sheet providers in the background. This enables Unit to offer even more licensed products and select the most suitable solutions for each client (in this case, Wethos). Since the launch of embedded financial products, Wethos has experienced 40% month-over-month user growth plus a six times higher retention rate among users who utilise the embedded products. This demonstrates that, besides additional revenue, an embedded proposition can also lead to increased customer numbers and stronger brand loyalty.

Given the many opportunities that Embedded Finance presents, the various value chain actors should start organising for success. First, they should identify which products they deem relevant for embedding, for which client segments, and across which geographies. Second, they need to identify which parties to partner up with to offer embedded services at scale. Lastly, they should determine how to organise themselves internally to execute successfully.

Open insurance is still all bark and no bite for now… but mandated openness will soon change that

Open insurance is the most important enabler of scalable embedded insurance opportunities. But since the launch of the Open Insurance Monitor in 2021, we have seen little evidence that industry players are putting open insurance at the top of the strategic agenda. The landscape is still slow to evolve, with only a few new insurers and insurtech companies entering the playing field. With the new European Commission's Open Finance Framework, mandating open data access in the non-life domain, the question arises whether EU-based parties in the insurance industry are sufficiently prepared. And are they ready to work in close collaboration with their partners to develop embedded value propositions? Read on for our key insights from the most recent INNOPAY Open Insurance Monitor.

A short recap of the INNOPAY Open Insurance Monitor

The INNOPAY Open Insurance Monitor (OIM) tracks global developments in open insurance by assessing publicly available developer portals from players including insurers, insurtech companies, open finance marketplaces and banks that offer API-based insurance services. As shown in Figure 1, the OIM considers two aspects: functional scope, based on the richness of insurance-related services via API, and developer experience, assessing the richness of features that contribute to a positive experience for users of the developer portal and APIs (e.g. quality of documentation & tutorials, developer tools and community-building). Both functional scope and developer experience are critical drivers of the 'shopping experience' of third parties seeking to enrich their digital ecosystem with insurance services, which is why these criteria are used to assess how open insurance is maturing across the industry.

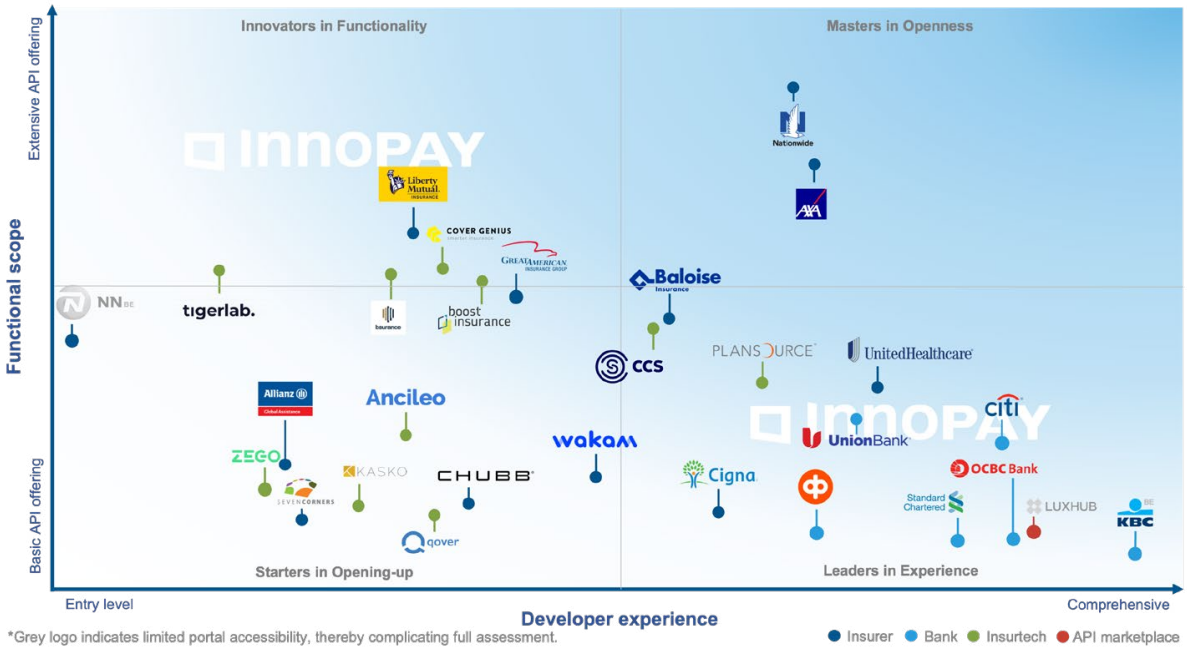


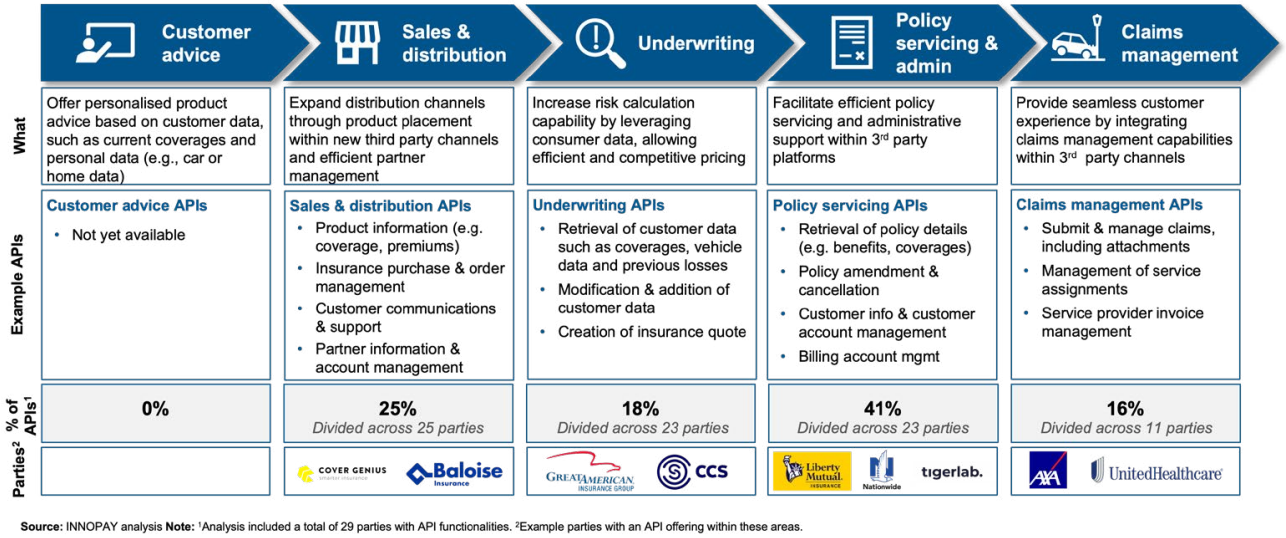
Figure 1: The INNOPAY Open Insurance Monitor considers both the functional scope and developer experience to assess open insurance maturity.

1. Open insurance seems to be in no rush to evolve (apart from some notable exceptions)

Top of the class in this edition of the OIM is United Healthcare, having achieved a significant move over the developer experience axis. The health insurer has put significant effort into professionalising the overall look and feel of its developer portal. Besides that, the portal better addresses the information needs of healthcare practitioners by improving the display of use cases and offering comparison guides on available digital solutions. These guides help health practitioners to compare the benefits of direct API integrations against other available options such as self-service portals, based on their own needs. The 'getting started' journey is enriched with a beginner's guide to APIs and extensive video tutorials for API usage. Other improvements of developer usability include app management functionality and two-factor authentication.

This OIM edition also welcomes a few new entrants, such as insurer Zego who provides API services for live activation of driver insurance based on the driver's digital timesheet. Insurtechs Kasko, Bsurance and Tigerlab offer APIs that primarily aim to support insurers with the sales and distribution of their products. In the case of Tigerlab, these API services are part of its larger insurance platform that also includes services for underwriting and policy administration. OP Financial Group has added claim services from Finnish life insurer Pohjohla to its 'Banking as a Service' (BaaS) offering. KBC Bank has also expanded its BaaS catalogue with a quotation service for home insurance. The API catalogue of the Great American Insurance Group consists of APIs for sales and distribution, underwriting and policy servicing. Chubb has launched a developer portal containing quotation and policy issuing services for various product lines. Qover has re-entered the OIM after a brief absence, now with a select set of APIs focusing on claim services. This insurtech was previously excluded after its developer portal and API documentation were made unavailable.

Comparing the most recent findings from the OIM with the results from May 2021, overall it becomes apparent that open insurance is progressing slowly. Insurers continue to have the richest functional scope (as seen predominantly at AXA and Nationwide), but have yet to invest in improving the developer experience. Meanwhile, banks still have the upper hand in developer experience but lack a rich portfolio of API-enabled insurance services (as illustrated by the cluster of banks in the lower right corner). There are even open insurance players that seem to limit their openness, such as Humana which has now made its developer portal available to registered partners only, and Wakam which has removed its claim and quotation services from its portal without further explanation.



Source: INNOPAY analysis **Note:** [1]Analysis included a total of 29 parties with API functionalities. [2]Example parties with an API offering within these areas.

Figure 2: Available API-based insurance services can be mapped across the insurance value chain

2. Closing the doors: some insurers prefer to serve a select group of partners

Apart from the insurers included in the OIM, there are various insurers that have live developer portals but restrict access to select partners only. Examples include Munich Re, Zurich Insurance, Insurance Australia Group and Markel Corp.

Many of those players that do provide public access to their developer portal lack a solid developer experience to appeal to and attract new partners to their API services. For example, the API documentation on such developer portals is often technical, incomplete and cryptic. This means it can only really be used by readers with technical knowledge who also have a direct support line with the respective insurer offering the APIs. Moreover, knowledge of internal systems and processes is often required to fully understand the APIs. Lastly, absence of the high-level business context and inspiring use cases, as well as limited efforts for community-building, show that these insurers are still at the early stages of positioning themselves as digital ecosystem enablers.

3. Insurers are not yet ready for embedded insurance propositions...

One important driver of open insurance strategies is allowing third parties to seamlessly integrate insurance services and products into other kinds of customer activities – typically on non-financial digital platforms – to serve their customers at the point of need. This form of partnership is also referred to as 'embedded insurance'. As with many other types of products, driving embedded insurance requires that the underlying open insurance APIs are clear and easy to use.

The findings from the Open Insurance Monitor indicate that many insurers are still primarily focused on supporting intermediaries with APIs (and often administrative ones) instead of directly enabling a better experience for users and end-customers of digital platforms. For example, this is reflected by functionalities such as retrieval of sales guides, underwriting questionnaires, class codes and policy histories, as well as functionality for management of agent/customer accounts. Although these API services can be of value for specific types of partners, they are less suitable for embedded insurance propositions.

4. ...and are not focusing on the uniformity and standardisation necessary for scalability

Looking at how insurers approach principles for API design and architecture, there is still limited uniformity and standardisation. Insurers' APIs are often exposed from a workflow point of view. Endpoints revolve around specific steps within operational flows and/or aim to retrieve or change very specific data objects. When adding the variety and complexity of different insurance products to the mix, API catalogues rapidly grow into complex take-out menus instead of one-stop shops with plug-and-play solutions for third parties.

In this context, insurtech companies differ from insurers in that their API offerings are more focused around key digital use cases such as 'sales and distribution' or 'claims management'. Consequently, their API catalogues consist of concise and clear sets of product-agnostic APIs for third parties to embed in their digital platforms. Examples include the policy-issuing APIs from Covergenius and Boost, and claims APIs from Qover.

As the legal landscape formalises in the EU, insurers need to start making open insurance a priority

The current pace of open insurance evolution has allowed insurers to take it slowly. However, the rules of the game have now officially changed with publication of the recent Open Finance Framework proposal. Just as what happened in banking with PSD2, EU-based insurers but also other parties in the insurance value chain like intermediaries (specifically in non-life with exception of health- and medical insurance) will be mandated to make their insurance data available to third parties. Those who already have a strategy in place with supporting API architecture will have a head start in capitalising on the new opportunities that will emerge.

INNOPAY's 7 key dimensions of mastering Open Finance maturity

Open Finance is growing rapidly as financial institutions continuously launch new APIs and improved developer portals to extend third-party access to financial products, services and customer data. However, there is more to Open Finance than that. INNOPAY has developed a comprehensive model covering seven key dimensions to help financial institutions assess their Open Finance maturity, and therefore their readiness to unlock new business opportunities, maximise revenue streams and lay the foundations for meeting upcoming compliance obligations.

The Embedded Finance value chain

Over the past few years, leading financial institutions (FIs) have continuously extended their Open Finance offering by providing third parties access to financial products, services and customer data using application programming interfaces (APIs). This started in the form of Open Banking and focused mainly on compliance with the EU's revised payment services directive (PSD2) for payment initiation and account information services. While some FIs chose to merely comply with PSD2, others recognised the opportunity to unlock additional value for their customers and create new revenue streams for themselves by providing access to financial products/services other than payments, i.e. Open Finance. These FIs are now publishing rich APIs that support a superior developer experience for Open Finance applications. We expect this development to further accelerate in the future, given the European Commission's proposal for a regulation on a framework for financial data access (FIDA).

Although developer portals and APIs are the result of months of complex planning, testing and technological upgrades, there is more to Open Finance than just API functionality and the developer experience. INNOPAY has developed a comprehensive model to help FIs assess their Open Finance maturity in seven key dimensions (Figure 1). The model can be used to develop a baseline understanding of the strengths and weaknesses in the FI's capabilities. Additionally, it gives insight into the FI's preparedness to unlock new revenue streams with Open Finance-related APIs and to meet forthcoming compliance obligations such as FIDA.

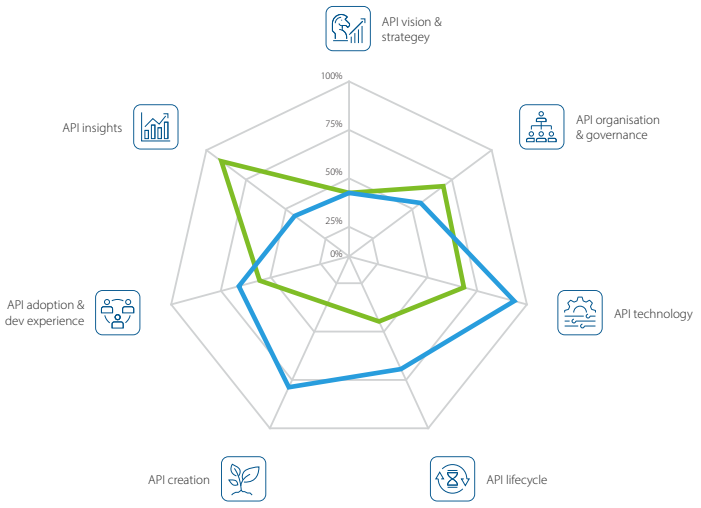


Figure 1: The INNOPAY Open Finance Maturity Model

Dimension 1 – vision & strategy: First and foremost, FIs need to get their strategy right. This entails not only developing a clear vision on Open Finance and its role in meeting strategic objectives and compliance obligations, but also identifying how to move beyond compliance to drive new product development, customer experience enablement, process efficiency and revenue generation. The role of APIs in sharing and consuming financial data should also be clearly defined. Ultimately, these aspects need to be aligned with the organisation's overall strategy and contribute to achieving the overarching objectives.

Dimension 2 – organisation & governance: The vision subsequently needs to be embedded throughout the organisation by defining policies, processes and procedures that govern the Open Finance propositions. This entails the creation of dedicated roles, leadership structures, decision-making processes and resource allocation to ensure objectives are met effectively and risks are managed accordingly. The governance model should undergo frequent review to maintain continued alignment.

Dimension 3 – API technology: Strong underlying technological and administrative capabilities are crucial for adopting and executing the defined Open Finance strategy, in terms of both guaranteeing the essential adherence to security standards and exposing APIs in a standardised manner to remove potential friction for developers. For large enterprises, this dimension also includes adherence to the MACH paradigm (**M**icroservices-based, **A**PI-first, **C**loud-native and **H**eadless). MACH architecture aims to increase organisational agility and flexibility by removing complexity when adding, replacing or removing structural components, tools and/or functionalities. This is often a pain point for many FIs.

Dimension 4 – API lifecycle: Open Finance propositions require structured and recurring processes to manage their lifecycle at scale. This means clearly differentiating between propositions focused on sharing financial data and those consuming financial data. Moreover, APIs supporting said propositions should be treated as digital building blocks rather than technical by-products. While there is no one-size-fits-all approach, most organisations should outline appropriate inception, validation, creation, operation and retirement processes. Progress through the processes should be monitored and documented, with relevant stakeholders being given access to the documentation.

Dimension 5 – API creation: Well-designed APIs consider both technical and functional qualities. This means both the overall API catalogue and individual APIs need to portray certain qualitative characteristics to be successful enablers for Open Finance propositions. An API-first approach ensures that APIs are viewed as distinct products. Consequently, APIs form the starting point in the development of new propositions focused on meeting the identified needs of the customers in question. FIs should use common design practices as well as relevant non-functional requirements (NFRs) to shield developers from underlying complexities. For example, the REST architecture style is used by 99% of the banks assessed in INNOPAY's Open Banking Monitor, while less than 1% support GraphQL and/or SOAP.

Dimension 6 – API adoption & developer experience: APIs mostly target developers and innovators outside the FI. The resulting communities and partnership ecosystems need to be catered for and actively engaged with. Moreover, adoption often hinges on smooth onboarding processes and developer usability. Many FIs still underestimate the importance of high-quality documentation (e.g. getting-started guides, specs for each API) and a sandbox.

Dimension 7 – API insights: The effective operation of an API-driven organisation requires insights into API usage. This means creating a feedback loop of KPIs which measure the success of the overall API portfolio based on metrics around uptake, performance, security, UX and/or monetisation. Besides monitoring and updating the metrics, the FI should use the insights to predict future performance and guide future API decision-making about improvements and innovations.

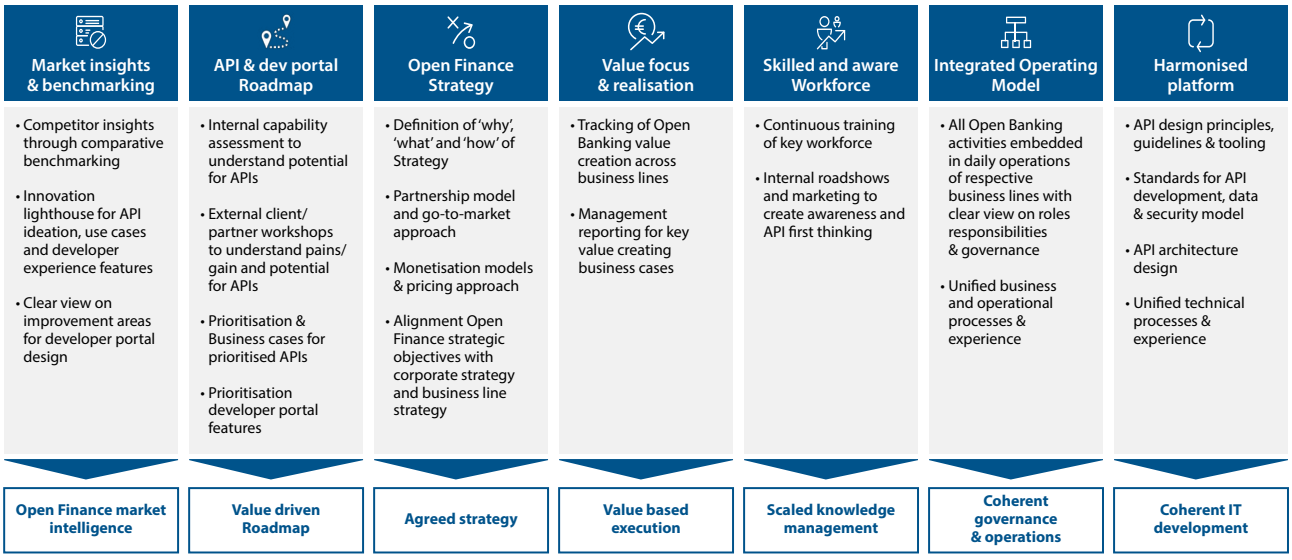
Based on these seven dimensions, FIs can assess their Open Finance maturity, and therefore their readiness to unlock new business opportunities, maximise revenue streams and lay the foundations for meeting upcoming compliance obligations.

Open Banking / Finance: Essential building blocks

Financial services providers and other actors need to cope with an ever-changing competitive landscape, in which emerging players are disrupting traditional value propositions and business models while simultaneously also presenting new opportunities for collaboration.

As underlined by the articles in this publication, Open Banking / Open Finance are key in enabling financial services providers to compete and collaborate in digital ecosystems. It is therefore now time to act. We have identified seven essential building blocks that support financial institutions in creating sustainable value with Open Banking / Finance (Figure 1).

Open Banking / Finance: 7 Essential building blocks

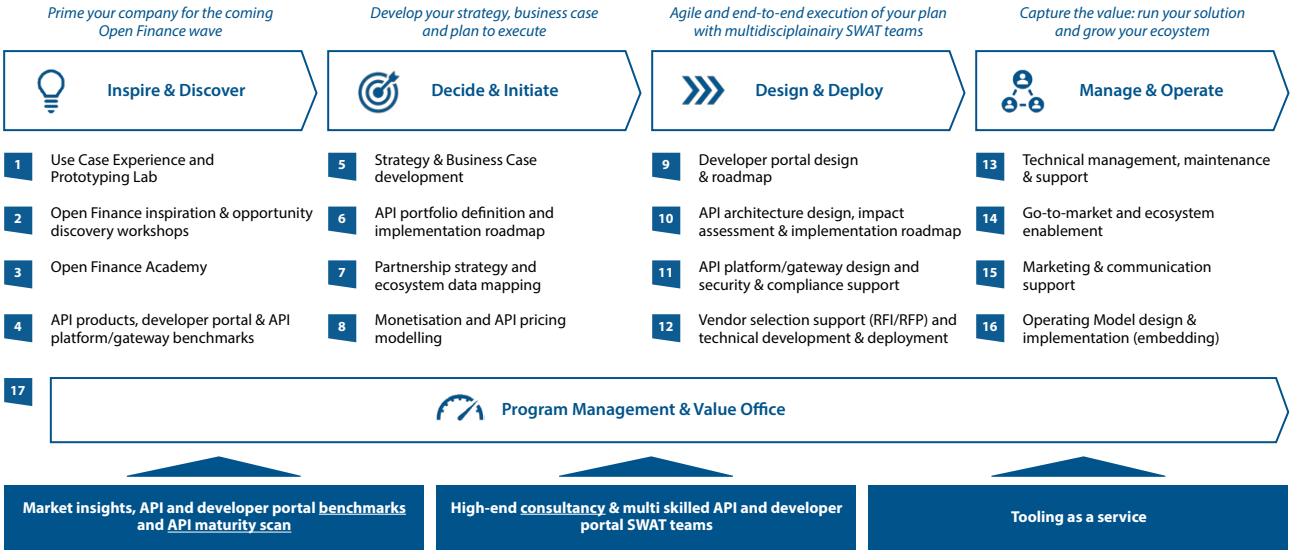


Source: INNOPAY analysis

Figure 1: INNOPAY view on Open Banking / Finance end state vision

INNOPAY has a solid track record in supporting financial institutions (e.g. banks, insurers, wealth managers, pension funds, etc.) and service providers operating in digital ecosystems with strategy development and the design and implementation of new products and propositions.
See for an overview of our consulting services portfolio in the context of Open Banking / Open Finance.

INNOPAY's consulting services Open Finance



Source: INNOPAY experience **Note:** Visit INNOPAY webpages about our Open Finance Services and our Open Finance Expert Team

Case study #1: German bank

We supported a leading German bank in assessing and prioritising Open Banking capabilities to drive value creation with APIs for Retail and Corporate customers

Challenge

- The client wanted to enable more informed and transparent decision making on API & developer portal roadmap, related priorities and investment needs
- For this purpose, client was seeking to understand how its Open Banking capabilities (API products and developer portal features) benchmark against its direct peers and industry leaders in the Open Banking market

Approach

- Deepdive analysis on client's Open Banking capabilities based on INNOPAY Open Banking Capability Model (covering 2.000+ API products and 85+ developer portal experience features)
- Deepdive analysis on competitor strategies and Open Banking industry leaders for benchmarking purposes and identification of best practises
- Collaborative strategic exploration on potential Open Banking strategies and refinement of API and developer portal roadmap

Key results

- Renewed Open Banking vision and insight in potential business models to pursue
- Identified focus areas for improvement of Open Banking capabilities
- Detailed API and developer portal roadmap to fuell commercial Open Banking initiatives

Case study #2: CEE BANK

We supported a leading bank operating in CEE to shape its Open Banking strategy and transformation roadmap for Corporate Cash Management & Transaction banking products/services

Challenge

- The client was looking to future-proof its Corporate Cash Management & Transaction banking products/services by exploring relevant Open Banking enabled payment and data use cases
- To realise this, client needed to align multiple country subsiadiaries operating across CEE to cater for relevant local market / competitive dynamics, requirements and customer needs

Approach

- Co-created potential market scenarios that could emerge for PSD2/Open Banking (for different market segments; private individual, SME, mid-corporates, Corporates, FIs) and implications for the client's role, business model, product/service portfolio, required capabilities
- Formulated strategic options and facilitated senior management decision making on the preferred set of options (considering synergy between options)
- Defined transformation roadmap to guide coherent execution of strategy across head office and country subsidiaries in CEE

Key results

- Outside-in: Comprehensive market and competitor assessment, incl. strategic implications
- Inside-out: Common view on key business and operating model challenges hampering effective implementation of Open Banking enabled use cases
- Preferred strategic option(s) and business model for Open Banking
- Group transformation roadmap to effectively execute on strategic options

Case study #3: US Banks

We supported a top 5 US bank to accelerate their Open Banking transformation journey by assessing and prioritising Open Banking capabilities to drive value creation with APIs across business lines

Challenge

- The client was looking for a bankwide strategy and business model for Open Banking to drive sustainable value creation from Open Banking
- Further, the client required better understanding and insights in the maturity of its current Open Banking capabilities and how a roadmap would look like to improve its API product portfolio and developer portal experience to underpin additional funding request

Approach

- Conducted an exploration of potential Open Banking business models and open banking strategies to pursue
- Performed an outside-in analysis of the client's current Open Banking portfolio and capabilities incl. global peer benchmarking
- Prioritised capabilities for development to drive value creation
- Created business case quantifying API value pockets, required investments and costs
- Identified key Open Banking transformation accelerators to support strategy execution

Key results

- Common understanding on Open Banking business model, strategy and strategic objectives
- Detailed API and developer portal roadmap, incl. global comparative benchmark
- Defined Open Banking transformation accelerators incl. partnership strategy, business development & monetisation, tech stack, operational support & operating model design

Case study #4: BENELUX Bank

We supported a tier 1 bank in the BENELUX to accelerate its Banking-as-a-Service (BaaS) transformation. We assessed and prioritised capabilities, identified new API propositions across business lines underpinned by customer/partner workshops and business case, and outlined a bankwide transformation roadmap

Challenge

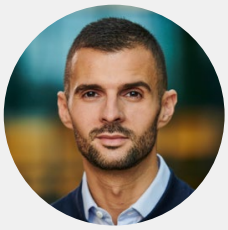
- The client was looking to refine and accelerate its bankwide Banking-as-as-Service (BaaS) strategy and transformation approach to demonstrate sustainable value creation
- Further, the client required better understanding and insights in the maturity of its current Banking-as-a-service capabilities – i.e. developer portal and API products – in order to devise a roadmap to future-proof its capabilities and organisation

Approach

- Performed an outside-in assessment of the client's current API product portfolio and developer portal capabilities incl. peer bank and non-bank benchmarking
- Conducted inside-out capability assessment across business lines (payments, business lending, consumer lending, insurance, sustainability/ESG, digital identity, trade finance and related transaction banking services) to understand what potential products, data and services could be exposed via APIs
- Identified most valuable API value pockets based on end-client and partner design thinking workshops to understand needs/challenges and quantified revenue potential to inform decision making on growth priorities
- Identified key transformation accelerators to support strategy execution

Key results

- Detailed API and developer portal assessment, incl. comparative benchmark
- Common view on internal capabilities that hold potential for exposure via API
- Detailed insight in API value pools based on real end-client and partner demand and revenue potential, including partnership strategy to scale API adoption
- Sr exec report with refined strategy, prioritised API value pools, partner scaling approach and bankwide transformation roadmap



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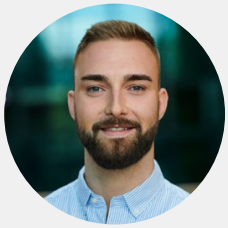

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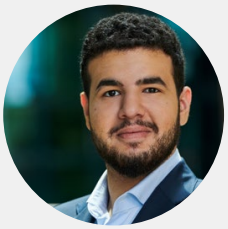

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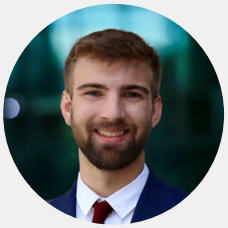

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About INNOPAY

INNOPAY is an international consultancy firm specialised in digital transactions. We help companies anywhere in the world to harness the full potential of the digital transactions era.

We do this by delivering strategy, product development and implementation support in the domain of Digital Identity, Data Sharing and Payments. Our services capture the entire strategic and operational spectrum of our client's business, the technology they deploy, and the way they respond to local and international regulations.

We have grown from strength to strength since our foundation in 2002 and operate from our offices in Amsterdam and Frankfurt. Our head office is located in The Netherlands, where we have the #1 market position.

We are a founding member of Holland FinTech, a financial technology hub with links to the rest of Europe, the US, the Middle East and Asia. Our team consists of over 60 experienced domain experts who regularly advise a wide range of global organisations.