# Delivering on the promises of Open Banking

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# Foreword

Open Banking presents a systemic and far-reaching change for our industry. It has the potential to transform not only how banks operate, but how and even why consumers and businesses choose to work with them. It will also catalyse substantial service innovation. The changes haven't quite happened yet, and it may take some time before we see that potential fully realised, but — as the findings of this report show — the industry must address key challenges now to enable the adoption of Open Banking-enabled solutions at scale.

We commissioned this research from Ovum to help us better understand the impact of Open Banking in Europe. While some of the opportunities arising from Open Banking have been well articulated, it reveals many practical challenges facing financial institutions in delivering an effective response to the requirements of national and regional regulatory bodies. In each case, addressing these challenges will require stakeholders from across the new ecosystem — including regulators, banks and third parties — to come together.

The report highlights the importance of securing customer trust in Open Banking: trust that consumer payment and other account information is shared responsibly and securely via standardised mechanisms; trust that all parties are protected against risk of error and fraud; and trust that any enquiries or disputes that arise will be resolved quickly and effectively.

And this posits the next question: How do financial institutions move beyond compliance in order to capitalise on the commercial opportunities Open Banking presents? For many, this could involve opening up premium APIs — monetising their customers' data to enable the development of value-added services for consumers and businesses across the wider digitial ecosystem.

Of course, the key to success will be in ensuring that Open Banking-enabled solutions are largely invisible to the end user: that propositions work as they're supposed to — on time, every time.

While financial institutions and third party providers wrestle with the challenges of the Open Banking ecosystem, they're looking for trusted partners to support them in their journey. Following consultation with banks and non-banks across Europe, Mastercard is developing a suite of solutions to facilitate the interaction between financial institutions and third party providers. Designed in response to our customers' most immediate painpoints, Mastercard Open Banking Solutions™ include a connectivity hub, a dispute resolution mechanism and a sophisticated fraud monitoring service (which provides real-time verification of third-party registration status, combined with fraud monitoring and alerts, to reduce financial institutions' exposure to liability and fraud).

At the time of publishing, Mastercard is embarking on pilot activities in the UK and Poland, with the first customers of our connectivity hub expected to go live with Open Banking-enabled solutions in mid-2019.

We invite you to join the conversation around how the industry can address key challenges to enable adoption at scale. Get in touch to explore your opportunity and learn how Mastercard can support you in delivering on the promises of Open Banking.

**Jason Lane**
Executive Vice President, Market Development, Europe, International Markets, Mastercard

**Jim Wadsworth**
Senior Vice President, Open Banking, Mastercard

**Join the conversation**
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# Executive summary

As in any ecosystem, the motivations of each of the main stakeholder groups in Open Banking are fundamentally different, depending on where the benefits, costs, risks, regulatory accountability and revenues fall.

But delivering on the promises of Open Banking will require stakeholders from across the new ecosystem – including regulators, third parties and banks – to come together to address technical challenges in three key areas by:

1. Developing standardised mechanisms by which banks and third-party providers (TPPs) interact

2. Establishing ecosystem-appropriate solutions to maximise security and minimise participants' exposure to fraud

3. Providing clarity and consistency in how to manage enquiries and resolve disputes

Educating consumers around the potential benefits of Open Banking will be critical to enabling adoption at scale, and banks should consider how to help their customers discover and access solutions that are proven to be both safe and reliable. Another critical factor will be securing customer trust in the new ecosystem by way of rules and mechanisms that are collectively agreed-upon and overseen.

Beyond simple compliance is the potential for banks to open up a wide array of APIs and services that exceed the minimum levels mandated by legislation. Many large and mid-sized institutions now view Open Banking through the prism of innovation, competition, new revenue streams and future growth.

Ultimately, the success of Open Banking will rest on it being largely invisible to end-users, be they consumers, SMEs or corporates. This will require a relentless focus on removing friction from the experience of all stakeholders – not just end-users but also the developers and TPPs that will play an integral role in shaping the future customer experience.

# Introduction

## How can the industry truly deliver on the promises of Open Banking?

While the term 'Open Banking' has come to mean slightly different things depending where and of whom the question is asked, there is universal agreement about one thing: that it has the potential to fundamentally re-shape the value chain, competitive landscape and customer experience in retail, SME and corporate banking.

The concept of Open Banking was born in Europe as a result of the European Union's revised Payment Services Directive (PSD2), and has swiftly risen to the top of the global industry agenda. Following Europe's lead, and the UK's own domestic project, regulators in other global markets have either delivered — or are in the process of developing — their own Open Banking guidelines or frameworks.

The coming months will be critical in shaping the future direction of Open Banking on an international scale. Banks, regulators, fintechs and other non-bank third parties outside Europe are watching carefully to understand best practice (and avoid potential missteps), while those active in Europe, but with operations in other markets, are using the region as a testing ground from which to take successful strategies into their wider operations.

In order to understand how the industry is responding to Open Banking, and how the future might look, we conducted a series of interviews with leading thinkers and market participants from across the value chain, including banks, regulatory bodies, those involved in standards development, and the fintech ecosystem.

The findings reveal the key technical challenges in Open Banking today, as well as the opportunity for innovation and change it will bring to the whole ecosystem.

# Delivering on the promises of Open Banking will mean overcoming technical challenges in three key areas by:

## 1 Developing standardised mechanisms by which banks and third-party providers can interact

One of the biggest structural changes that Open Banking is bringing about is the emergence of developers and TPPs as an entirely new customer base. Banks have traditionally competed on the basis of their own products and services but, with customer activity and interactions potentially one stage removed when TPPs are involved, competing to win mindshare among this new audience becomes a key concern. Consequently, the usability, accessibility and breadth of APIs and developer services will be a new competitive battleground.

Developer-friendly interfaces, testing resources, and commercial agreements and guidelines are also needed:

*"If you think of the developer experience, yes, you can deliver the functionality and endpoints, but does it create an easy to use, smart, attractive developer hub and portal? Those two things are very different, and there is a broader theme around developer experience."*
— Myles Stephenson, Chief Executive, Modulr

Banks, particularly those that plan to offer APIs beyond the minimum regulatory requirements, should also consider how best to attract developers and TPPs to build and test propositions using their APIs rather than those of competitors.

Still, fragmentation of API standards remains a potential drag on the adoption of Open Banking services. While industry bodies are working to address this, TPP services in Europe today remain largely account information service provider (AISP)-based, using mandated APIs. Moving to payment initiation services will require some form of standardisation over data formats at industry level as well as Strong Customer Authentication (SCA), harmonised API standards (even for commercial APIs) and a smooth developer experience.

*"Fragmentation in implementation and API standards is one of the challenges that we all have to work with."* says Nordea's Liisa Kanniainen.

*"There are multiple implementations of these APIs, which creates a need for a layer of aggregators in between. For commercial Open Banking the industry should work together to establish standards for the APIs – if we don't agree on the standards together, there will be another layer of aggregation that will add unnecessary cost."*

While there are initiatives underway to address some of these challenges, differing international approaches create further fragmentation risk, particularly in those countries like the US which are taking a market-led approach. Creating complexity for developers could introduce additional stages to the user journey, which could be a significant barrier to user uptake. *"For Open Banking to work, the customer experience must be at least as good as using debit or credit cards otherwise people won't use it,"* says Modulr's Stephenson. The success of Open Banking will rest on it being largely invisible to end-users, be they consumers, SMEs or corporates.

Efforts to ensure the harmonisation of API standards should be accelerated and, if necessary, the creation of approved (and low cost) API aggregators should be encouraged.

# 2 Establishing ecosystem-appropriate solutions to maximise security and minimise participants' exposure to fraud

Another key concern among the industry relates to the security of customer information. Protecting participants in the Open Banking ecosystem from bad actors will play a very important role in building confidence in new services.

For banks, the potential for fraud is a significant concern, especially on the payment initiation service provider (PISP) side. As Andrew Churchill, Security Consultant & Researcher at Technology Strategy, remarks:

*"Banks have effectively been told to embark on actions that introduce risk, and means that they face losing customers and revenue – it's their reputation that might be tarnished. If a TPP gets breached, the bank is liable – which the European Commission seems happy with."*

Several of the interviewees commented that these issues are a significant barrier to adoption of Open Banking at scale: *"you could argue that the role of the TPP looks very like a legalised man-in-the-middle scam"*. While somewhat tongue-in-cheek, it nevertheless highlights the need for banks to be able to monitor and share information on potentially fraudulent activity across TPPs. Effective models for risk-scoring Open Banking transactions must also be created.

Messaging campaigns will need to be carefully judged in light of the efforts that the industry has made to educate about the risks of authorised push payment (APP) fraud, phishing and other such attacks.

## Fraud and security issues among stakeholder groups

**Banks**

Real-time fraud and risk decisions need to be made on all TPP requests, including checking the regulated status of each entity.

Monitoring of emerging threats from potentially compromised customers and TPPs will also be a necessity.

**Customers**

Customers need to have trust in the TPPs they are dealing with, which may create a need for some form of standard or 'trustmark'.

Educating customers on the dangers of potentially bad actors, particularly new forms of phishing attack, will be essential.

**TPPs and developers**

TPPs will need to prove they can be trusted with access to customer payment and account information.

Adoption of new services by customers will require positive brand perception, which fraud attacks will undermine.

Source: Ovum

## Banks require a real-time mechanism for validating payment and information requests

An arguably more intractable problem is posed by the validation of TPPs, particularly in cross-border transactions, with confusion in the industry about mechanisms for TPP validation through national registers and eiDAS certification. This is likely to inhibit trust among users and hold back the development and uptake of Open Banking services.

In Europe, TPP licences are managed by a national competent authority (NCA) and can be passported across member states. A recent initiative by the European Banking Authority to establish a central registry of TPPs goes some way to addressing this, but it is simply a website that NCAs update on a weekly basis.

The real validation is covered by the European Union's eiDAS Regulation on electronic identification and trust services for electronic transactions introduced in July 2014. This regulation, and national variants of it, is intended to *"enhance trust in electronic transactions in the internal market by providing a common foundation for secure electronic interaction between citizens, businesses and public authorities"* through website certification.

Nevertheless, most interviewees had strong reservations about how this will work in an environment where real-time transactions and payments are being made. If a certificate is revoked, how quickly will that be propagated throughout the ecosystem? As Andrew Churchill notes: *"We may have national regulators that update their registers only on an intermittent basis, but yet all banks in Europe must accept requests from TPPs regulated in other member states. This is a potential risk"*.

Any solution will need to strike the appropriate balance between protecting against fraud and offering as seamless an experience as possible for the end user.

# 3 Providing clarity and consistency in how to manage enquiries and resolve disputes

Alongside initiatives to drive standardisation and improve security, clarity over how potential disputes will be resolved is urgently needed. This is particularly true where there is risk of detriment to the end user – be that financial or otherwise – as well as possible breaches of SLAs. As Todd Clyde notes: "There are a couple of big gaps in PSD2, and a clear path for dispute resolution is one of them".

Prior to Open Banking, there was an almost limitless number of ways in which customers may need support from their bank in resolving some kind of issue either with another party (such as a merchant) or the bank itself. Consequently, there evolved clear mechanisms for achieving this, with the rulebooks around payment card transactions a particularly good example of how to manage potential challenges that arise between multiple stakeholders.

Adding TPPs into this mix dramatically scales up the challenge. Indeed, the potential for disputes to involve a customer, at least one bank, a TPP and another third party such as a merchant points to a clear need for some form of centralised resolution process.

This is particularly acute where payments are involved, as there is a direct and immediate risk of financial loss to one or more parties. Where transactions involve SMEs or even corporate clients, the scale of these losses could be particularly large. Even where there is no direct financial loss, there may be other negative consequences that customers experience where transactions fail, for which they would expect some form of redress.

One example identified by Mastercard's Liz Oakes relates to the accuracy of available balance information:

*"People will look at an AISP service and we would expect them to act on what it says is their [account] balance. What happens if that isn't accurate? The majority of jurisdictions are moving or have moved to real-time payments, but many banks still have overnight batch processes and a significant number can't provide real-time balances without a lot of work.*

*"If someone is looking across a number of their own accounts (which could be with multiple providers) and moves their own money and then makes a purchase or investment decision based on their view across those accounts and it goes wrong as a result, who does the customer believe is liable and where will they go to resolve a dispute? The bank or the AISP?"*

Another example would be the challenges posed by the non-delivery of goods or services in cases where the payment is initiated by a TPP (or indeed where the merchant is the TPP). In the event that the customer cannot achieve satisfaction directly from the merchant, such as the case of businesses that move into bankruptcy protection (an airline, for example), there would need to be clarity over whether the TPP or account holding institution can act. This is before the potential for one or all parties to be resident in a different country (and under the jurisdiction of a different NCA) is taken into account.

Not unreasonably, the expectation from end users will be that dispute resolution under Open Banking will be largely similar to that for all other forms of transaction, with clear rules for liability and redress. In practice, and in the absence of a centralised resolution process, this will more than likely mean that financial institutions face the brunt of initial complaints, even where the issue may be ultimately unrelated to the actions of the bank. Inability to properly and rapidly solve these issues will bring reputational damage not just to banks, but TPPs too. In both cases, the result would be a negative impact on overall confidence levels in Open Banking-enabled services.

The situation clearly indicates that a mechanism for handling situations that go awry will be an essential building block of the future ecosystem. For Europe in particular, how this works in cross-border scenarios will be an important consideration.

## Dispute resolution is an issue that cuts across all stakeholders

**Banks**
Centralised and agreed resolution mechanism required to ensure consistent customer experience and avoid branches and contact centres being the front line for customer issues. Support on technical issues also needed for TPPs and developers.

**Customers**
Mass adoption will require customer confidence in Open Banking services to be underpinned by clear process by which to address issues arising with transactions.

**TPPs and developers**
TPPs and developers will require clear dispute resolution processes for areas including API availability, testing or sandbox facilities, and wider technical support.

Source: Ovum

# Enabling adoption at scale will be achieved by securing customer trust

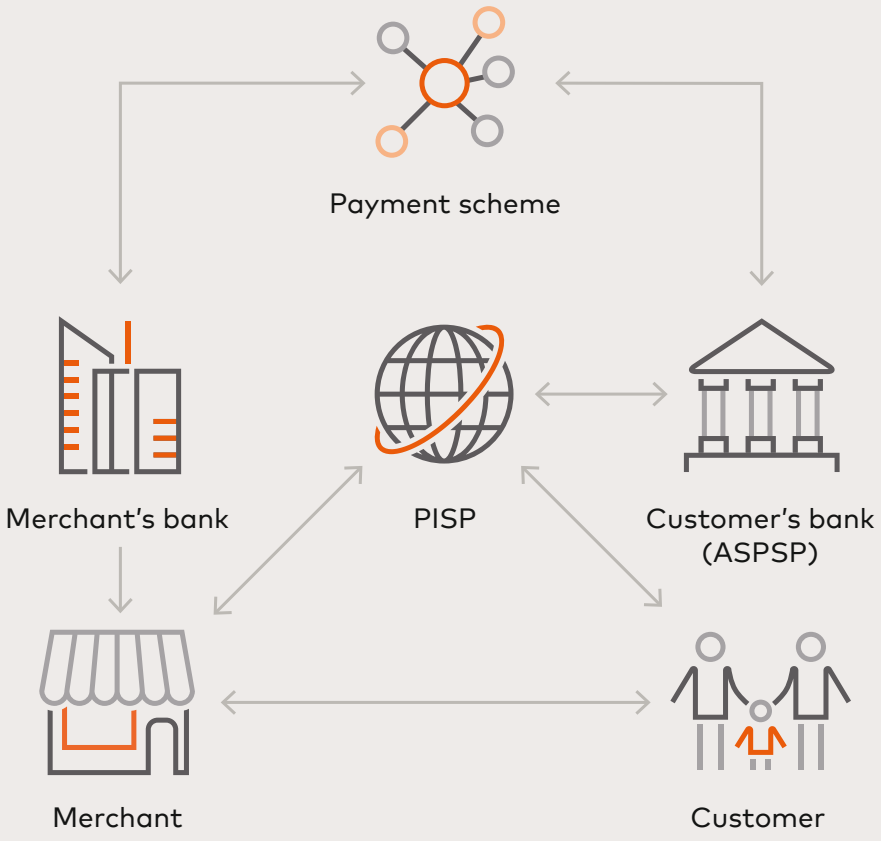
Petra Hielkema, Director of Markets & Infrastructure at DNB, the Dutch central bank, says that creating a trusted environment will be essential for successful consumer adoption: *"With Open Banking you are making a door for consumers, and people they don't know are going to knock on that door and offer them financial services. It is important they know whether they can trust those people."*

Awareness is generally low, and ensuring that consumers know that they can engage safely with TPP services is critical. Several interviewees commented that the very name 'Open Banking' is partly to blame for a lack of consumer understanding. *"People like their financial data to be private, not open,"* said one.

Building end user trust this new ecosystem will require cross-industry co-ordination and potentially investment, not just in education and awareness campaigns around how to enjoy the benefits of new TPP services, but also through initiatives to provide reassurance around the TPP discovery and selection process.

Knowing that they are dealing with TPPs that are in some way accredited would be a good way to enhance trust and confidence in the new Open Banking ecosystem. Consumers in particular have become familiar with downloading applications from app stores (such as those offered by Apple or Google) and having confidence that there has been a level of vetting.

Extending this experience into the TPP space, whether through a formal 'trustmark' system of accreditation or by encouraging customers to begin their search for TPP services through some form of dedicated portal – or even their bank's digital estates – should be explored.




## Putting the trust in TPPs

In a standard card payment, there are multiple layers of security sitting around the actions of each of the participants. This is one of the factors that builds trust in the entire ecosystem.

In the case of a payment initiated through Open Banking, the role played by the PISP introduces a new agent into the transaction flow, one that must be trusted by the bank and customer for the model to be successful at scale.

# The industry conversation is evolving from a short-term focus on compliance to long-term commercial opportunities

PSD2, alongside other regulatory-driven Open Banking initiatives, has taken the industry on a strategic journey. Back in 2015, the view from the majority of European banks was that PSD2 was a compliance matter, and an unwelcome one at that. Indeed, more than one session at the EBA Day conference that year was notable for the widespread agreement that 'Open Banking will be extremely difficult and costly to deliver, but we have a duty to be compliant'.

For the UK's nine largest banks and building societies (those subject to the Competition and Markets Authority's remedy to stimulate competition in retail banking), this challenge was amplified by a domestic order to develop and require the use of open API standards and data sharing through them. The initial response was the same. Indeed, we are aware of at least one large UK bank that had separate IT teams working on different projects for UK and European Open Banking compliance until at least late 2016.

But many of Europe's banks have since transformed their response to PSD2 from that of achieving basic compliance to long-term strategic thinking about how to take advantage of the opportunities it presents. This is a view echoed by Michael Salmony, Executive Advisor at equensWorldline, who commented: *"A number of banks are really embracing Open Banking and seeing that it is the future, and this has led to a focus on developing new business models and partners"*.

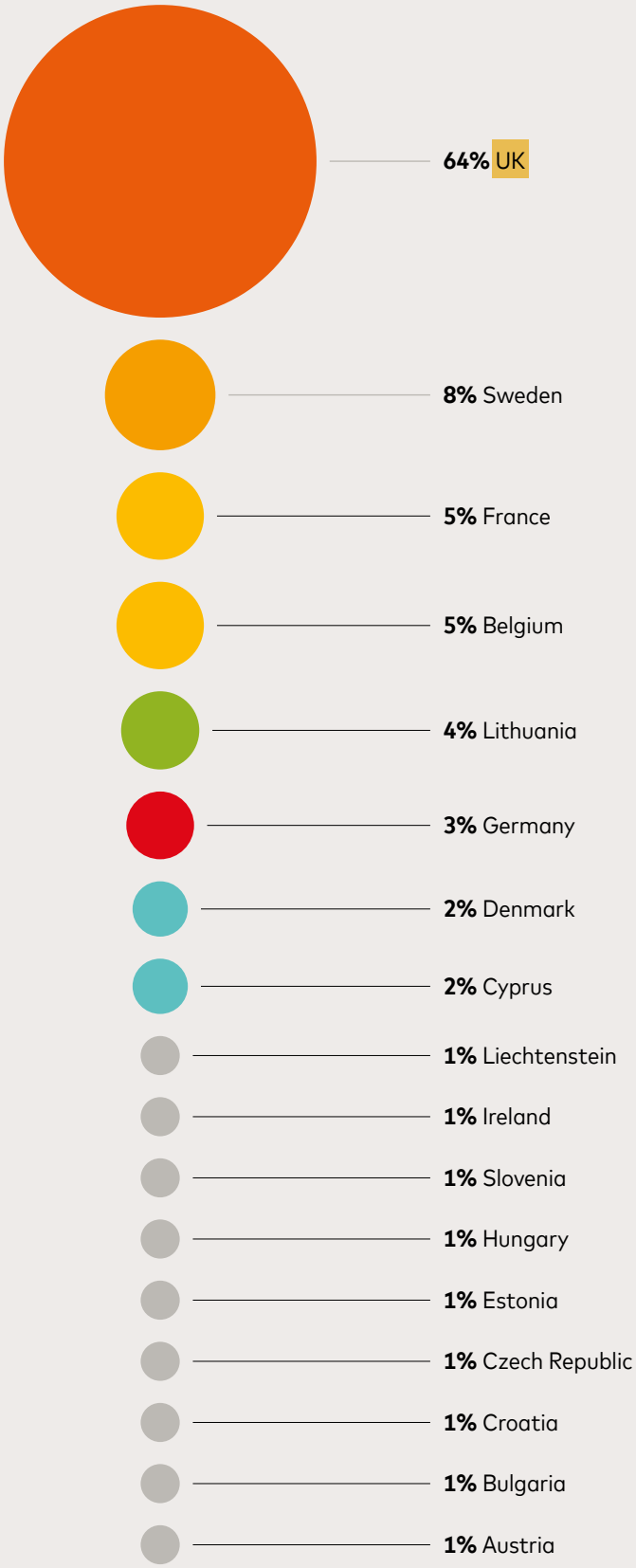
It should be noted many institutions continue to take a compliance-led path, particularly smaller banks and mutuals. However, many large and mid-sized institutions now view Open Banking through the prism of innovation, competition, new revenue streams and future growth.

## The UK leads the way when it comes to TPPs registered under PSD2

While there have been some teething issues at individual banks, recent reports suggest strong growth in TPP interaction with the UK APIs, with close to 30% month-on-month growth in activity in Q1 2019.

Given the UK's early start with Open Banking it is unsurprisingly a leading hub for TPPs. Analysis of the registrations under PSD2 from the national competent authorities (NCAs) in Europe shows that, of the non-bank TPPs registered as either an AISP, PISP, or both, 64% are UK-based. This has fallen from 75% as at the end of 2018 though, demonstrating the speed with which TPPs in the rest of Europe are launching as the PSD2 implementation date approaches.

## Proportion of AISPs and PISPs registered under PSD2, April 2019




Source: Ovum; EBA; national competent authorities, April 2019

## Open Banking will level the playing field when it comes to competition and innovation

While no single factor has driven this change in approach, the most significant has been a growing awareness of the risk of inaction. While Open Banking creates many opportunities for banks to innovate, it also makes it far easier for TPPs to bring new products and services to market. These concerns over the risks of ultimately becoming some form of service provider for TPP overlay services have been important in catalysing activity. Crucial here are two further realisations: that it will be impossible to prevent TPPs from attempting to do this and, more sensitive still, the realisation that those TPPs could be competitor banks.

As Myles Stephenson of Modulr, a fintech provider of alternative payment mechanisms to businesses, puts it:

*"Open Banking is part of a much broader shift and change in the regulatory environment and competitive landscape that is letting newer organisations compete on a growingly level playing field. Whether it's PSD2 or the CMA's review into business current accounts, or the Bank of England allowing non-banks access to payment schemes, they are all part of one big package of activity to open the market to competition. Open Banking is the next phase of that and will create significant opportunity and cause significant disruption."*

## Open Banking is creating a new form of 'API economy'

With the strategic importance of Open Banking now clear, the question facing the industry is how to take advantage of the opportunities it presents. This is a debate consuming not just banks, but also regulators and the TPPs that are looking to offer new propositions to their own customers.

One of the more pressing areas of conversation is the future shape of the product landscape, at least in the short term, and the list of potential use-cases is a long one. Most fall into one of three broad categories.

The first is bringing improvements to existing processes and workflows, such as consolidating accounts from multiple providers in a single interface or using a direct connection to a customer's account information to streamline the loan application and approval process. Addressing painpoints such as these could bring material improvement to the customer experience.

The second is in taking account data or banking services (such as payments) outside the traditional bank channels and into the platforms or workflows in which customers may want to consume them. A good example here would be direct connections between an SME's accounting software or ERP platform and their banking services. In both of these cases, the APIs mandated under PSD2 would enable innovation across these areas and more.

Where the industry conversation has become particularly focussed of late is the creation of APIs that go beyond the basic regulatory requirements. It is here that banks such as Nordea and BBVA see the opportunity not just to support the launch of a new wave of innovative products and services, but to generate revenue from doing so. While PSD2 requires access for the mandated APIs to be on the same terms as for customers making the same transactions (therefore effectively costless in most scenarios), this does not apply to APIs that go beyond these requirements.

As Todd Clyde, COO at Token, notes:

*"Open Banking is part of a much broader shift and change in the regulatory environment and competitive landscape that is letting newer organisations compete on a growingly level playing field. Whether it's PSD2 or the CMA's review into business current accounts, or the Bank of England allowing non-banks access to payment schemes, they all are part of one big package of activity to open the market to competition. Open Banking is the next phase of that and will create significant opportunity and cause significant disruption."*

This leads to the third area of Open Banking use cases, and the one that creates the greatest opportunity for change. Where the most forward-thinking institutions are focusing is to deliver an entirely new set of products and services for customers across retail, SME and corporate clients, potentially beyond banking itself. Enriched transaction data for corporate clients, and even digital identity services are both high profile examples of what may emerge in the future.

Ultimately, for customers, be they corporates, SMEs or consumers, the focus is not on Open Banking itself, but on the new services it can bring. The rules of product and proposition development are not changed by Open Banking; it is the problems that are solved and the new value that is created that will determine whether these initiatives are a success.

# Conclusions

The ingredients exist for Open Banking to allow the industry to continue to innovate and thrive, but delivering on the promises of Open Banking will require far more than for banks to make regulatory APIs available.

The industry must come together to address further challenges highlighted in this report:

- Efforts to ensure the harmonisation of APIs standards should be accelerated and, in parallel, the creation of approved (and low cost) API aggregators should be encouraged.
- Banks, particularly those that plan to offer APIs beyond the minimum regulatory requirements, should also consider how best to attract developers and TPPs to build and test propositions using their APIs rather than those of competitors.
- Effective models for risk-scoring Open Banking transactions must be created, along with appropriate data sharing between banks.
- Dispute resolution mechanisms need to be created, to provide end-users with the same experience to those that underpin other types of transactions.
- Banks should consider how to help their customers discover and sign up with TPPs that are proven to be both safe and reliable.
- Building end user trust this new ecosystem will require cross-industry co-ordination and potentially investment. Not just in education and awareness campaigns around how to enjoy the benefits of new TPP services, but also through initiatives to provide reassurance around the TPP discovery and selection process. Developing some form of 'trustmark' should be considered.

# Appendix: Interviewees

**Andrew Churchill**
Security Consultant and Researcher, Technology Strategy

**Todd Clyde**
Chief Operations Officer, Token

**Sima Gandhi**
Head of Business Development & Strategy, Plaid

**Liz Hartley**
Head of Customer Experience and programme lead for PSD2 & Open Banking, Barclaycard Commercial

**Mark Hartley**
Bankifi and Board Advisor, Nationwide Building Society

**Petra Hielkema**
Director for Payments and Market Infrastructures, DNB (Dutch Central Bank)

**Liisa Kanniainen**
Vice President, Digital Banking Strategy, Nordea

**Maciej Kostro**
Electronic Banking Council/Polish API project

**Wijnand Machielse**
European Markets Director at SRC Security Research & Consulting/Berlin Group

**Liz Oakes**
Executive Vice President of Market Development, Mastercard

**Michael Salmony**
Executive Adviser, EquensWorldline

**Myles Stephenson**
Chief Executive, Modulr

## About Mastercard

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