

Open banking and the cloud



The twin pillars of digital
transformation

Executive summary

7

There is great interest in open banking. A Google search shows over 700 million hits, so there's certainly no lack of opinion on the subject. Although progress towards operational open banking has been slower than many predicted, our view is that this delay is largely due to the magnitude of change required by some banks to migrate to an open banking environment. Most banks are extremely complex organisations. Any transformational change project must therefore undertake to guarantee the bank's reputation and operational efficiency. The adoption of open banking requires fresh thinking, new technologies and agile working methods. But above all, it requires careful planning and consideration to ensure that the deployment of APIs – whether open or internal – is fully aligned with the business goals of the bank.

GFT has participated in the open banking debate since its inception. We believe this is the most transformational banking initiative in decades and there are competitive advantages for early adopters. We have helped several clients adopt technical solutions that enable them to participate in open banking easily and profitably. In our experience it is clear that

cloud is a keystone of the strategic digital business platform that banks are starting to put in place. Such a platform requires enormous computing power and flexibility which we believe is best achieved in a cloud environment. Only cloud can offer the scale, elasticity and flexibility that are necessary to move open banking from theory into practice.

Although much of the open banking debate - and regulation - has focused on demand factors, such as delivering new services that delight customers, we believe that open banking is at least as much about supply side factors. In practice open banking is about bank transformation and end-to-end digitalisation.

GFT and Amazon Web Services

GFT has already published two papers¹ that identify and quantify open banking opportunities. In this paper we examine open banking as a catalyst of banking transformation and show the pivotal role of cloud technology in making this happen. But as an advanced partner of Amazon Web Services (AWS) we are also

delighted to be able to offer an expedited journey to the cloud using our open API framework.

The open API framework is the result of our close partnership with AWS and is built in the light of our joint expertise in banking and cloud technology. The outcome of our collaboration is a practical framework that delivers open banking in weeks rather than months while offering the best security and data governance standards available. Open banking is more of a journey than a destination and our open API framework offers a fast track to bank transformation.

We hope you find our paper interesting and insightful and that it encourages you to discuss your open banking plans with us.

¹ | GFT "The monetisation of open banking," Christian Ball, 2018
GFT "Operational open banking - Looking beyond the theory and regulatory compliance," Christian Ball, 2019



Business in a climate of change



Open banking represents the most seismic upheaval in banking for decades. A recent study² based on 269 interviews with European senior banking executives showed that 64% of them believe the financial industry will evolve significantly as a result of open banking. On the face of it, open banking is about customer empowerment and enabling customers to have banking their way – to be treated fairly, transparently and to be valued as individuals. But in practice, open banking is far greater than the sum of its parts.

To understand the transformational potential of open banking it is essential to review the drivers:

Regulation

Regulation provides a legal framework and establishes momentum. Legislation, such as PSD2 and similar initiatives around the world, allow customers to share their data, which is unprecedented. Regulation is also major catalyst to open banking by allowing new market entrants, encouraging competition and entrepreneurship throughout banking.

In practice, meeting regulatory requirements is simply the minimum entry requirement for open banking. Banks that treat open banking as merely a compliance issue will not reap the benefits and are likely to be left behind. It is worth noting that in some jurisdictions – such as the USA – open banking initiatives have progressed independently of legislation, because of the significant business benefits available.

A new digital ecosystem

New technologies allow collaboration, real-time (or near real time) data sharing and integration in a secure, standardised way. Open APIs have been around in other industries for more than twenty years and touch our lives daily. During the last five years this technology has reached a level of maturity and stability to secure significant investments in financial services. APIs create a new digital

ecosystem that can deliver a richer, more engaging customer experience. But, from a bank perspective APIs are also new products in that they deliver business value³.

The creation of a digital ecosystem creates limitless possibilities for banks to do new things and to do things differently. It is almost impossible to underestimate the disruptive potential of the new digital ecosystem as it enables new market entrants, new business models and is a direct challenge to established banking channels. In practice open banking means end-to-end digitalisation of banking.

The search for value

In a world of open banking, the real search for value is to find customer engagement strategies that build loyalty. According to a recent study⁴, 56% of financial executives believe customer loyalty will degrade over time and the key to a sustainable business is to remain relevant. With open banking, customers are empowered to make informed choices about which data to share and with whom, for example to integrate payment with a shopping app. This is a significant boost to consumer sovereignty that means free competition will determine who wins the battle for the customer relationship. Every bank must understand how it adds value and which role/s it wishes to play in the digital ecosystem.

New business platforms

From a bank perspective, open banking offers choice and flexibility about its go-to-market strategy. Banks can pursue new API-driven business models, such as Banking as a Service, that can help them enter new markets, reduce costs and bring these into line with revenues. In the longer term these business models help direct bank investment to where it is needed and obviate the need for large speculative investments with no promise of return.

Banks as aggregators

In essence, API-driven banking pivots the business model towards one of a “super-aggregator” that combines services and capabilities that enhance the customer experience, so a bank can enter new markets and tackle its own manufacturing cost base. This benefit is often understated but there are examples (not in the public domain) where manufacturing of financial products can be cut by 50% by embracing some Banking as a Service providers. With increasing pressure to reduce costs, this is a very important consideration. Tackling the cost base will determine a bank’s ability to invest, innovate and compete on price.

So, while much of the broad discussion around open banking is about customer engagement that is only the start of the story. Banks may also become distributors of third-party products and services and can partner, compete or collaborate with an evolving range of new players, including fintechs and challenger banks. Open banking is ultimately about building the bank of the future.

2 | Tink “Open banking 2019: Inside the minds of Europe’s bankers,” June 2019

3 | For a fuller discussion, see GFT paper “The monetisation of open banking”

4 | Tink, op. cit.

The open banking opportunity

“So banks are moving to ‘connected banking’ architectures using Open APIs to consume and provide innovative solutions through cloud-based ecosystems.”

▮

IDC “InfoBrief: Banking IT Modernization and the Adoption of Hybrid Cloud,” July 2018

Although open banking has legislative origins - and is compulsory - it is also a major catalyst to bank transformation. In addition to the opportunity to generate new revenue streams, improve services and attract new customers, open banking challenges the traditional culture and closed mindset of banks. Historically, banking has revolved around a closed “vault” function. The vault has become a metaphor for bank culture, which has remained closed and product focused. Open banking changes all that and encourages banks to participate in an ecosystem that is open, innovative and collaborative.

Open banking also challenges the traditional rules of engagement for banks and, over time, may even change what it means to be a bank. Banks are no longer competing just with each other but with new competitors, often from different sectors. Over time, industry boundaries will become blurred and some may disappear.

In this new order, banks must examine their service propositions to understand exactly where the value lies. Open APIs empower a bank to deconstruct its value chain and market individual components – such as know your customer – as bespoke services. At a fundamental level, every bank needs to consider what makes it stand out and also what it stands for - open banking is a unique branding opportunity.

API-enabled banking creates many new opportunities but also threats. For many banks, managing APIs is uncharted territory that requires fresh thinking, not just about monetisation but also about API ownership and governance.

Open banking and data

▮

Open banking is also about data. It creates an opportunity for banks to become data-driven companies and to deliver customised services in context. Some banks have already seized this opportunity⁵. To succeed, banks must ingest, store and share a greater volume of data – for a wider range of purposes – than has ever been necessary or feasible.

To extract the most value from the data available to them, banks will need to process and analyse the data in real time and at scale. In many cases this calls for a fresh approach and new technologies. Indeed, over a third (36%) of the participants in a recent open banking study⁶ identified IT systems modernisation as the biggest open banking challenge.

5 | To read GFT client success stories, see “Operational open banking – Looking beyond the theory and regulatory compliance,” GFT, 2019

6 | Tink, op. cit.

Cloud technology and open banking



“Enterprise cloud spending will soar as core business app modernization takes off.”



“Predictions 2019: Cloud Computing Comes Of Age As The Foundation For Enterprise Digital Transformation,”
Forrester, 8 November 2018



Open banking, innovation and cloud technology are not synonymous but are very closely entwined. Banks that wish to capitalise on the open banking opportunity will adopt strategic cloud solutions and as open banking develops, cloud technology will move from useful to essential.

Why? The following list offers some of the benefits of cloud that apply. This is not exhaustive and there is considerable overlap between these benefits.

Scale, elasticity and real-time processing



Open banking success is inextricably linked with data and the capacity to process large volumes of data in real time. To deliver a truly bespoke customer experience, banks need to ingest and process large volumes of data from disparate sources. The number of sources will increase as open banking develops so banks need to prepare to manage an exponentially increasing volume of unstructured data. However, as data processing volumes are also likely to vary over time, a cloud solution offers true elasticity of processing to accommodate fluctuations. Cloud also facilitates near real-time processing, which is necessary to align banking services with the dynamics of the real world.

Gain customer insight and deliver bespoke services in context



The cloud empowers a bank to capture an unprecedented volume of customer data, analyse it, and deliver bespoke services where they are wanted. But most customer data is unstructured and requires modern technologies – such as artificial intelligence and machine learning - to analyse it. Although it is possible to implement these technologies on premises it makes practical sense to do so in a modern cloud environment, which obviates the risk and expense of an on-premises solution. The cloud also offers low-cost access to an operational test environment with secure sandboxes based on industry best practice methods. Developers have a safe playground in which to innovate.

Safe and secure processing



After some initial concerns, regulators acknowledge that cloud technology combines the highest standards of data security available. Tech giants like Amazon routinely have hundreds of millions of customers online and its security standards are beyond doubt as this is their core business.

Move to microservices and continuous development



At a time when banks are seeking to boost their agility and shorten time to market for new services, open banking offers a unique opportunity to do things in new, modern ways. Banks can break away from their monolithic technology stacks towards one that embraces microservices, Agile principles and continuous development. These are the building blocks of a truly digital bank and can redefine what's possible in banking. As well as boosting processing efficiency, moving to the cloud helps insulate the bank from technology change and the need to schedule upgrades.

“By 2022, public cloud services will be essential for 90% of business innovation.”



Gartner “Predicts 2019: Increasing Reliance on Cloud Computing Transforms IT and Business Practices,”
Yefim Natis, et al, 13 December 2018

How to get started with open banking, APIs and cloud

“Banks are increasing their cloud investments with the overwhelming majority focusing on private cloud deployments while public cloud is on the rise.”

Gartner “Cloud Heat Map for Banking and Investment Services, 2019,” Vittorio D’Orazio, Jason Malo, 5 September 2019

For many banks, the technology that made them successful has become an inhibitor to progress. Those that are stuck with monolithic mainframes run the risk of being left behind and becoming “bookshops in an Amazon world.” However, when considering their move to open banking and the cloud, banks should not forget that they are extremely large and complex organisations, for whom reputation, change management and operational efficiency are the priority. It is also important to consider cultural inhibitors, such as an organisational structure that is built around products and channels, and a deep concern about data sharing and the associated risk.

In an open banking strategy, APIs are the technical vehicles that allow banking systems and applications to communicate both internally and externally. For this reason, it is essential that they are aligned with the business goals of the bank and that they are able to address the cultural inhibitors mentioned earlier.

One of the first steps in an open banking strategy is to define how APIs will help the bank to:

- Launch new digital business lines to commercialise its products through third parties, to externalise internal services and to participate in digital ecosystems that enable the bank to reach a previously inaccessible market.
- Share digital assets with other teams within the bank and with external partners, avoiding silos and expensive end-to-end integrations.

To achieve these objectives, the open banking strategy should clearly define each

API’s target audience (internal and external consumers) and the functionality it will expose (portfolio).

Due to the functional scale and the organisational complexity of a financial institution, it is necessary to consolidate the evolution of the API portfolio in a single roadmap that is aligned with the technical roadmap that will support its execution.

Furthermore, banks should prepare an API capability model that provides a definition of functions, roles and responsibilities and present these in a process map. A sample API capability model is shown in Figure 1.

In order to guarantee efficiency, the API capability model must leverage tools, automatism and technologies, all properly aligned. Likewise, a range of governance actions should be put in place to assure compliance with policies and procedures, legal and regulatory compliance, understanding of the business through key performance

indicators (KPIs), an adequate relationship with the business and budget control.

Finally, committees, commissions and operational meetings should be put in place to ensure follow-up, enable continuous improvement and escalate decision taking when needed, as well as setting up specific working teams on demand.

A role for expert partners

Banks with the right technology partners can accelerate open banking adoption, mitigate risks, reduce operational costs and ensure success.

At GFT we believe that, in order to succeed, banks require a partner with a deep functional and organisational knowledge, broad experience, and the ability to deploy the most advanced tools and technologies for DevOps and cloud services.

With the right partner, a bank can move to the cloud quicker and tackle the cost base challenge sooner. Our teams have been involved in multiple successful deployments of API capability models and governance for open and internal APIs, both in the cloud and on premise, covering the whole process – from ideation and demand management to production and evolution.

In collaboration with AWS, GFT has also developed a framework that facilitates the creation, management and monetisation of APIs to accelerate the launch of an open banking initiative.

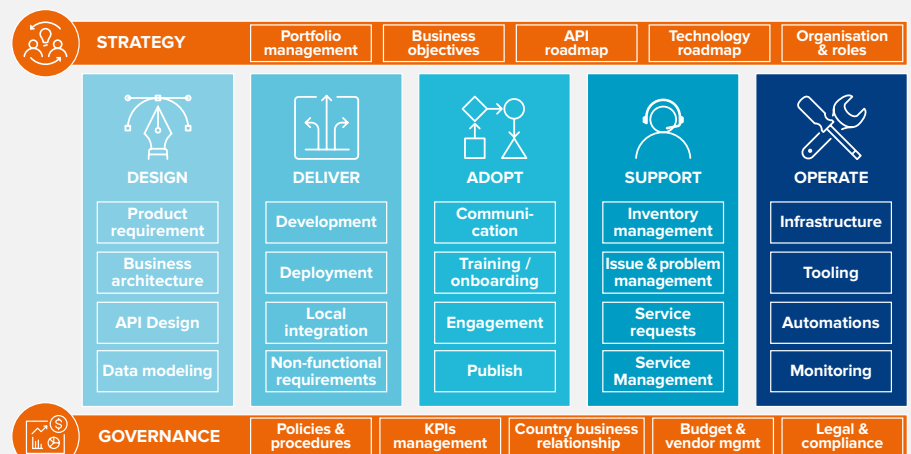


Figure 1: Sample API capability model including functions, roles and responsibilities

GFT's Open API Framework on AWS



GFT is an advanced partner of AWS. We have worked together to develop an open API framework that offers an easy, fast and affordable road to open banking success. With this framework, open banking can be implemented in weeks rather than months. Just as importantly, this approach enables a bank to jumpstart its innovation and bring technology change into line with business change.

The framework comprises three components:

- A serverless architecture based on AWS that enables financial institutions to build, manage and share APIs and best practice methods with other institutions, including fintechs.
- A self-service developer marketplace where APIs can be easily and safely monetised and exposed
- A consumer portal where developers can register their applications and consumers can interact with the externalised APIs

What the Open API Framework does

Our Open API Framework offers a comprehensive platform to manage and externalise public APIs in a safe and controlled way, using proven mechanisms that ensure validation and authorisation. The solution stores all transaction history automatically in a data lake, simultaneously

facilitating machine learning, training and analytics consulting.

The framework offers the highest levels of security available and machine learning models allow the application itself to block users, methods and APIs that present any kind of anomaly, such as misbehavior.

Why AWS?



AWS has helped customers in capital markets, insurance, global investment banks and fintech start-ups innovate, modernise and transform. All of these customers have managed to increase their agility, shorten time to market and reduced costs permanently.

For over twelve years, AWS has been the world's most broadly adopted cloud platform. AWS offers over 125 fully featured services for: compute, storage, databases, networking, analytics, machine learning and artificial intelligence (AI), Internet of Things (IoT), mobile, security, hybrid, virtual and augmented reality (VR and AR), media,

and application development, deployment, and management from 55 Availability Zones (AZs) within 18 geographic regions.

Benefits of AWS include:

- Pay-as-you-go pricing with no upfront charges or long-term commitment. Customers benefit from world-class technology, processing scale and expertise
- A massive global cloud infrastructure that allows customers to experiment, and iterate, instead of waiting weeks or months for hardware

- A secure, durable technology platform with industry-recognized certifications and audits. AWS services has extensive security in place to ensure the integrity and safety of customer data

- GFT has worked with AWS since 2016 and achieved advanced partner status in April 2019.

New business models can be simulated and created on a safe and scalable platform.

Why GFT?



At GFT, we have been working with cloud technology since its inception and for over 15 years on API development and governance. Our consultants have unparalleled experience and expertise across technology and financial services.

The GFT team comprises up to 300 experts in API design, analysis and implementation – certified on different Kafka products – and more than 500 cloud-certified engineers who are dedicated to helping clients transform to a cloud-operating model.

To date we have delivered over 30 cloud projects and 50 proof-of-concepts through a hands-on practical approach that delivers business value.

GFT open banking capability



Advisory and design-led thinking



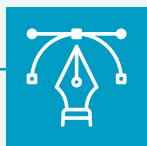
- Business and technology alignment
- API diagnostic assessment and business-led prioritisation workshops

API governance process design



- API governance design
- Open banking consent model
- API artefact generation engines
- Business capability alignment
- Identity management and security

Functional and technical design



- API specification design
- API management and gateway
- Business capability alignment
- Software lifecycle and DevOps

Established cloud partnerships



- Demonstrable cloud experience on verticals ranging from:**
- Application migration factories
 - Burst compute
 - Containerisation of microservices
 - Serverless architecture
 - Machine learning and NLP
 - Near real-time data pipelines

Legacy system mainframe optimisation



- Monolithic decomposition
- System assessment and optimisation
- mainframe offloading
MIPS mitigation

Success story

A ground-breaking virtual bank in Hong Kong



Standard Chartered is a British multinational banking group with a strong presence in Asia, Africa and the Middle East. As part of its ambitious growth strategy, the bank wished to launch a new ‘virtual bank’ that would extend its reach by appealing to affluent and emerging affluent customers throughout Asia. But, with fierce competition Standard Chartered realised that speed to market was critical.

An AWS cloud-base virtual infrastructure

GFT was engaged at the project’s inception and has played a pivotal role in helping Standard Chartered deliver one of the world’s first truly virtual banks.

A dedicated GFT team of over 40 has delivered:

- A near real-time data catalogue on an event-driven architecture puts data lineage at the heart of the system to ensure continuous compliance and strong data governance
 - Integrated APIs from a wide range of third parties to deliver new banking functions, including, core banking, KYC, CRM, and AML
 - A strategic AWS cloud-native architecture that embraces Agile and DevOps to enable delivery at pace that was previously impossible in traditional banking
- **GFT was uniquely placed to help Standard Chartered build a virtual bank from scratch at an unprecedented pace.**

A virtual bank that appeals to a tech-savvy generation

Standard Chartered’s virtual bank radically redefines the entire banking business model and is a direct challenge to the disrupters. The new bank takes online banking a huge step forward: customers can start a relationship with a bank, apply and obtain personalised financial services on the go, all in real time.

- **By launching the new virtual bank, Standard Chartered is offering a new service to the market and pioneering a new operating model.**

“Many people talk virtual banks, neo banks, challenger banks and digital banks, but we like to describe how we’re building a future operating model for Standard Chartered.”



Deniz Güven,
CEO and Executive Director of
Virtual Bank by Standard Chartered

FinTech magazine “Spearheading a cutting-edge virtual bank,” September 2019

What now?



To learn more about how your institution can start down the road to open banking utilising GFT's expertise, visit gft.com/open-banking



About GFT



GFT is driving the digital transformation of the world's leading financial institutions. Other sectors, such as industry and insurance, also leverage GFT's strong consulting and implementation skills across all aspects of pioneering technologies, such as cloud engineering, artificial intelligence, the Internet of Things for Industry 4.0, and blockchain.

With its in-depth technological expertise, strong partnerships and scalable IT solutions, GFT increases productivity in software development. This provides clients with faster access to new IT applications and innovative business models, while also reducing risk.

- blog.gft.com
- twitter.com/gft_en
- linkedin.com/company/gft-group
- facebook.com/GFTGroup
- gft.com

About the authors



Christian Ball



Head of Retail Financial Services



Christian is Head of GFT Retail Financial Services, specialising in helping retail banking clients realise their strategic vision for platform banking. He brings extensive experience to this role, spearheading the GFT Retail offering.

He was previously at Meniga, one of the top performing fintech companies in Europe, before which he worked with many of the leading banks to shape their digitalisation strategies – including positions at Cap Gemini, Fiserv and Accenture, where he led the global Business Development for Accenture Software.

Javier Antonucci



Engineering Director



Javier Antonucci is Engineering Director at GFT. As a member of the Global Business Development team, he focuses on understanding the latest technologies and analysing how to best leverage them in innovation and digital transformation projects at large financial services organisations. He is also responsible for overseeing the delivery of such projects, as well as recruiting and managing high-performance teams.

With over 20 years of experience in the IT field, Javier has participated in a large number of projects, including multiple

related to global API governance model and architecture mainly at tier 1 companies in the financial sector.

This report is supplied in good faith, based on information made available to GFT at the date of submission. It contains confidential information that must not be disclosed to third parties. Please note that GFT does not warrant the correctness or completion of the information contained. The client is solely responsible for the usage of the information and any decisions based upon it.