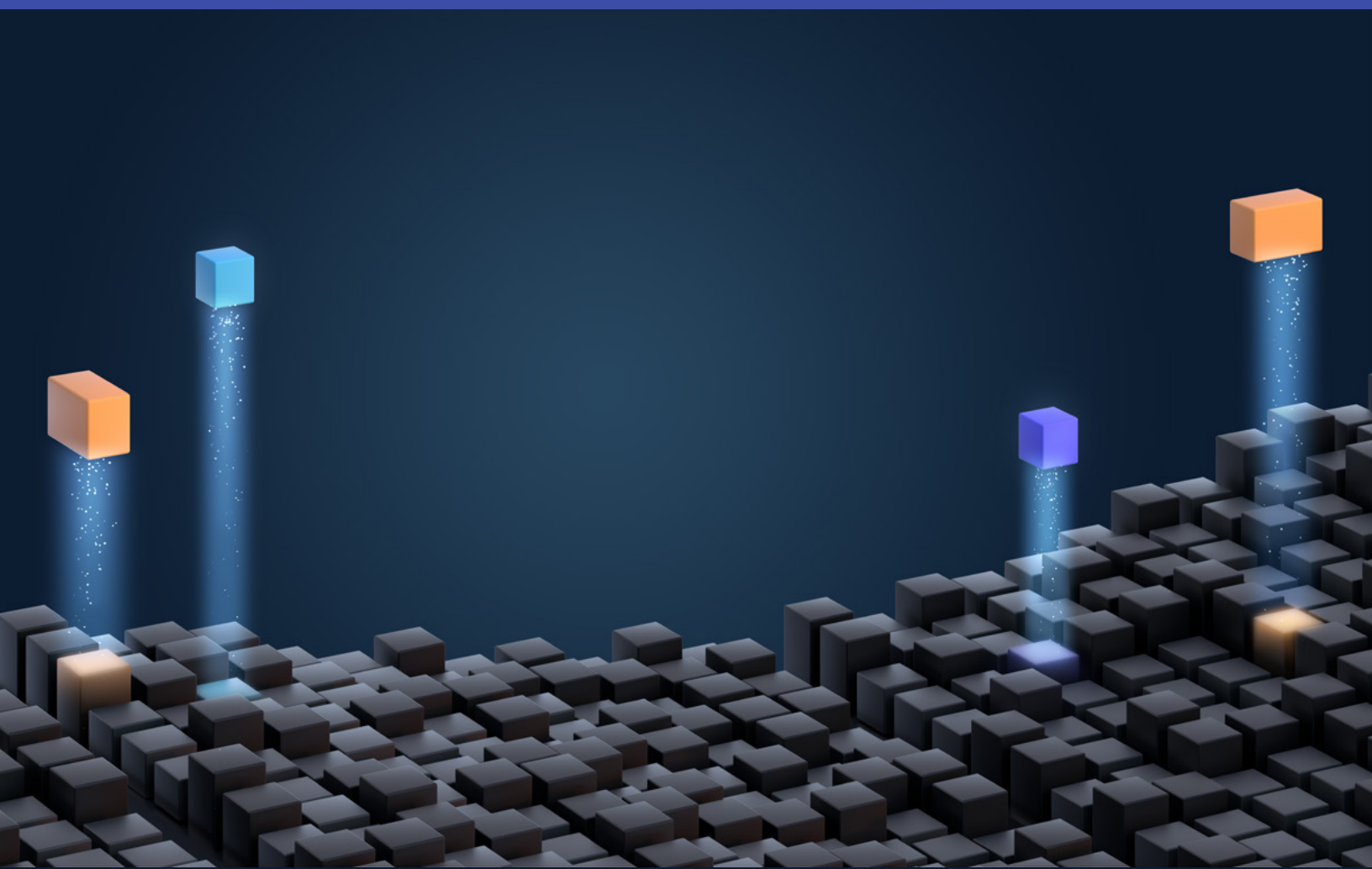


Why Instant Payments and Open Banking Are Critical for the Financial Industry

April 23, 2021



Introduction

Consumers have spoken: the future of payments is instant and the EU has a new [standard](#)¹ requiring compliance in 2022. For the rest of the world this also is a trend that can't be ignored.

Research [suggests](#)² that, given an option, over 90% of consumers will opt for a digital payment – and of those, 80% will pick an instant payment option. Several factors drive this trend:

- COVID-related use cases increase usage of mobile banking, eCommerce, and digital payment networks
- A rich fintech ecosystem populated by vendors like E-Trade, ApplePay, Samsung Pay, Amazon Pay, Google Pay, Master Pay, etc. which have accustomed consumers to instantaneous trading, settlement, and balance updating
- The increased adoption of cryptocurrency, which offers instant payments
- Regulatory requirements like a [new one](#)³ for the EU coming in 2022

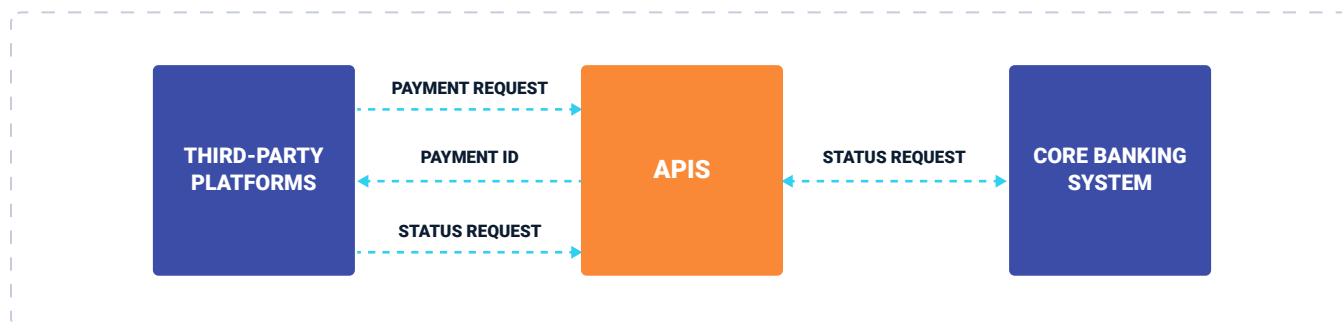
It was reported in a 2019 article that financial institutions largely [fell short](#)⁴ of expectations, with 93% not meeting consumer demands for instant payments.

Financial institutions' infrastructure simply wasn't designed for instant payments. They were designed to batch up requests and respond periodically. This leaves the institutions in a quandary about how to meet the new requirements. These new instant payments regulatory requirements are just a constant building off of PSD2 and other open banking requirements but this one adds timeliness not seen in other requirements.

ISO 20022 can be used as a basis for the new instant payments standard. "A single standardisation approach (methodology, process, repository) to be used by all financial standards initiatives" that is the next generation of the commonly used Swift protocol.

The PSD2 standard that came out a few years ago says current payment processes start by initiating payment and receiving a payment ID. Then the requestor keeps sending in "get status" requests until the request is fulfilled. All of this takes place as the other bank contacts its CBS "core banking system". It traditionally has been OK for this to take hours and the CBS even goes offline periodically to process data. This type of processing simply doesn't work for instant payments where the whole process has to take 10 seconds or less.

The stakes for banks are clear. If they can't deliver: not only will they not attract new customers but also they risk losing existing ones to fintechs and neobanks (internet only).



The current typical process is too long and will not work in an instant payments world. For EMEA's new requirements, the whole process has to be in 10s so something needs to handle the first API request immediately and accept or reject the payment request.

¹ <https://www.pubaffairsbruxelles.eu/instant-payments-commission-launches-public-consultation-on-measures-to-promote-instant-payments-eu-commission-press/>

² <https://www.pymnts.com/news/payment-methods/2020/payer-acceptance-of-consumer-choice-gives-instant-payments-a-positive-outlook-for-2021/>

³ <https://www.europarl.europa.eu/legislative-train/theme-an-economy-that-works-for-people/file-instant-payments>

⁴ <https://www.prnewswire.com/news-releases/new-study-finds-93-of-companies-not-meeting-consumer-demand-for-instant-payments-300825698.html>

01

Instant Payments: Part of a Broader Open Banking Push

Instant payments overall are just a part of an overarching strategy the whole financial services industry is embracing: open banking. Payments are a key part of open banking but it offers access and connectivity to accounts in standard ways as well. This enables banks to collaborate with partners.

An era of open banking leads to a flourishing of innovative products and services for end consumers. It also holds the promise of competitive advantage for traditional banks that can form alliances with fintechs.

Most countries encourage their financial institutions to build open banking platforms, but the actual approach varies country by country. The EU and some other regions now mandate open banking through regulation. Some other countries try to foster collaboration between financial institutions through persuasion. Overall it is a global push to work with open banking standards.

Emerging banking platforms include:

- The UK [Open Banking group](#)⁵
- [BIAN](#)⁶, an open source collaborative effort
- Various other countries also are creating their own platforms
- PSD2 – Berlin Group Standard

What all of these have in common is each has a set of APIs and architectures banks leverage to expose their data and assets safely.

Fintechs easily connect their accounts to open banking APIs. But traditional banks struggle since mainframes aren't designed with APIs in mind. This means laying the ground for open banking is daunting for traditional banks. This is true even when these APIs hold the promise of critical consumer functionality, like instant payments.

Why can't traditional banks keep up with the times and do what the fintechs are doing so easily?

02

What's Holding the Banking Sector Back?

The business problem of delivering instant payments helps explain the technical challenges banks face in embracing open banking more generally. These challenges involve:

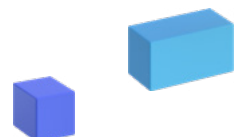
- Usually the bank's core infrastructure is designed to perform Close of Business Processing (COB), which requires downtime.
- Batch processing
- A host of other legacy processes to keep track of everyone's accounts

To be clear – financial institutions had some success. Banks can make instant payments when doing interbank wire transfers plus there are some central governing bodies that support open banking like RTP and Same Day ACH in the US and TIPS in Europe.

But still the bulk of the traditional financial institutions and their processes fail to meet the needs. While mainframes are powerful, the way banks use them is designed around batch processes.

Financial institutions speed up the processing by running batch processing more frequently, but it isn't designed to be instantaneous. The process is designed to queue up a bunch of requests and then process them all at once. Making smaller batches defeats the purpose of batch processing in the first place, which lowers the load on the overall system.

Banks systems also have COB downtime designed into their mainframes. Instant payment transactions may wait for a period of time making them no longer instant. Plus, mainframe transactions frequently use state-based behaviour but REST APIs are stateless. This means once you build APIs, it is tougher to replicate the work on the digital side.



⁵<https://www.openbanking.org.uk/>

⁶<https://bian.org/>

03

Decoupling Solves Many of These Problems

Banks have tried to solve their infrastructure issues for years by decoupling mainframes from the rest of their architecture. To achieve the decoupling, banks built APIs using existing middleware (ESBs). But this just creates additional queues and infrastructure components slowing down the actual processing without fixing the underlying problem. In many cases ESB becomes a functional component of the overall architecture.

Also, the rate of building the APIs is much slower with an ESB due to the testing of the overall system, which is a new monolithic application.

Ultimately, banks must emulate what their agile counterparts in the fintech space are doing – and build microservices. But there is a unique set of considerations for enterprises like banks that rely heavily on legacy architecture.

04

Designing Microservices for Open Banking Readiness

When building microservices, the guiding principle for banks is to decouple the monolithic core systems from the APIs that connect with them. This way the end systems don't care which core systems they are connected to. (BIAN, for example, is making this work by building cloud-native microservices.)

Banks need to create cloud-native microservices that expose standard REST APIs – therefore connecting to the core systems becomes natural. Instead, many vendors build core system specific APIs deployed on the core system. This leads to the digital side having connections to those systems and making the overall system very brittle. Also, once deployed on the core system the API isn't available during planned downtime.

“

OpenLegacy helped our systems become much faster, scale better, and be microservices-oriented by deploying all of the integration logic outside the mainframe.

”

Bank Leumi

CORE SYSTEM



API

Traditional Integrations focus on APIs attached to the Core system

MICROSERVICE

API CONTRACT

MODULE

Customer

+customerid: Integer
+customerLastName: String
+customerFirstName: String

MODULE

Customer

+id: Integer
+Name: String
+Description: String

MAINFRAME

AS400

Need APIs that abstract functionality as needed from legacy systems

05

Considerations in Making the Digital Journey

When integrating logic from multiple systems inside the microservice, it's important for banks not to recreate an ESB. ESBs apply basic logic to concatenate content together, queue data getting passed, and maintain support and security profiles different teams need. interservice orchestration is handled by the overarching open banking framework.

Using this approach, banks can build a system for buffering and handling the instant payment requests as part of the microservices layer. It starts with a request from the outside into the microservice through the API. When everything runs smoothly, the system can pass the data directly to the mainframe; other times it will handle the request on its own. When the mainframe isn't ready to process the transaction, the buffer can handle it on its own.

The beauty of this modernization strategy discussed is it supports a phased approach. Banks that want to start with a feature like instant payments can easily pick the elements from the core system needing exposure, expose it, and then build the infrastructure on the digital side to create instant payments and publish this as an open API. In other words – the bank doesn't need a single “sink or swim” effort in a single go.

06

A Blueprint For a New Era of Open Banking

Ultimately, the success of banks in a post-COVID world depends on its keeping pace with changing consumer expectations.

Instant payments are just one example of the rapidly-changing consumer financial landscape. More broadly, the open banking movement promises to standardize and democratize access to financial accounts, foster new partnerships between banks and fintechs, and turbo-charge the delivery of innovative new services and partnerships.

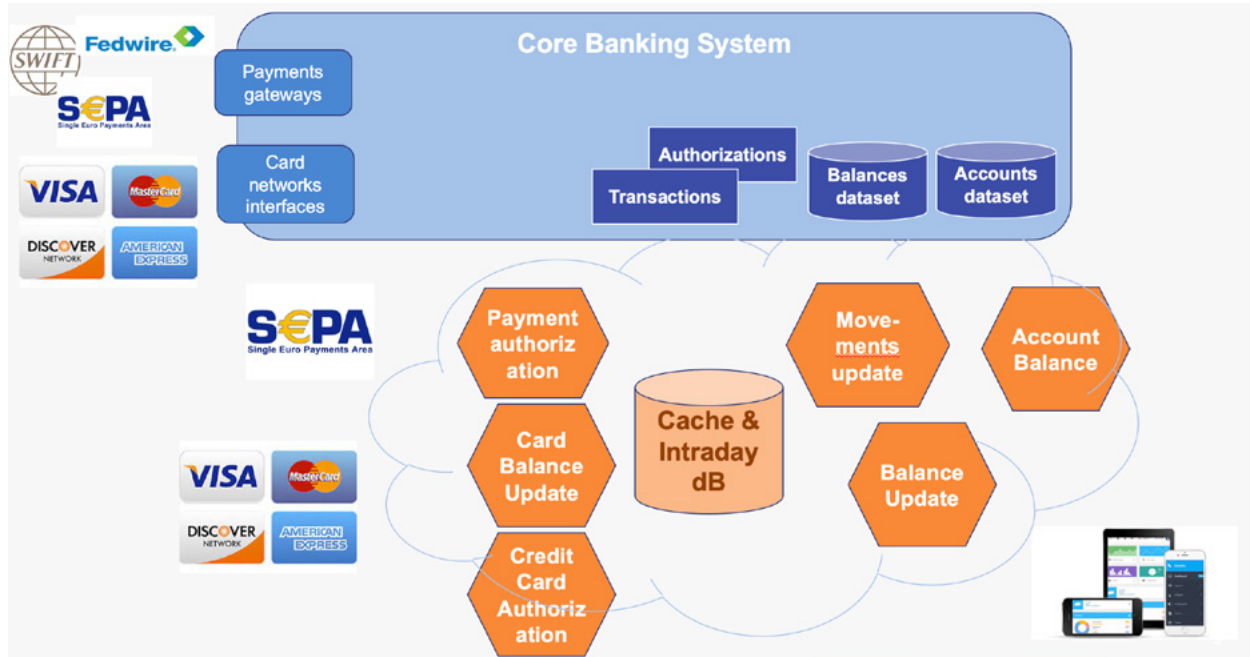
To prepare themselves for the new era, banks with legacy infrastructure must adopt a microservices mindset that decouples digital services from the underlying core systems. Only then will they deliver on the promise of open banking.

“

After years of mainframe modernization projects that didn't realize their full potential, OpenLegacy's API platform is the light at the end of the tunnel. Within an hour, we went from nothing to a working API connected to our payments app, powered by OpenLegacy – 80% of the work comes right out of the box.

”

Citibanamex



Current banking system

07

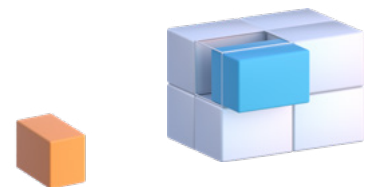
Solution to Support Instant Payments and Batch Processing

Traditionally Core banking account transactions are performed through batch because they kick off a whole bunch of complex processes. This can't be replaced completely through real-time operation by operation process.

The Instant Payment diagram has two main systems - the core banking system and the digital system. With this type of configuration the Cache can handle instant payments on its own when the core banking system isn't ready to receive them. These batch processes happen across all banks periodically to balance the books. To make this work the connection between the system needs decoupled microservice-based APIs. The APIs allow connections to the core banking system when it is ready to process requests but also can use the cache when it needs to.

The other concern is making sure the microservices are designed in a reusable manner. Banks will have new requirements as part of their Open Banking initiatives. No one wants to build single use systems any more.

The OpenLegacy platform is the only one that builds truly independent microservices. The platform automatically generates the translation logic from legacy assets and turns them into microservice-based APIs based on your design needs. These same design assets can be reused across multiple different use cases and scenarios.



About OpenLegacy

OpenLegacy's Digital-Driven Integration enables organizations with legacy systems to release new digital services faster and more efficiently than ever before. It connects directly to even the most complex legacy systems, bypassing the need for extra layers of technology. It then automatically generates APIs in minutes, rapidly integrating those assets into exciting new innovations. Finally, it deploys them as standard microservices or serverless functions, giving organizations speed and flexibility while drastically cutting costs and resources. With OpenLegacy, industry-leading companies release new apps, features, and updates in days instead of months, enabling them to truly become digital to the core.

