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Open Finance Brazil

the roadblocks ahead

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Labrys

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Table of contents

Summary

This article delves into the challenges facing the Brazilian Open Finance ecosystem, including overcomplexity, lack of direction, and unreliability. Despite its potential, the ecosystem has seen limited adoption, with less than 2.5% of all accounts connected. The article explores the reasons behind this and discusses the recent regulatory changes that could open the door to extensive networks, as well as potential solutions to keep the payment system open for competition from new entrants.

In April 2023, we wrote an update "Brazil is leading open finance in LATAM... but where to?". Back then, we highlighted the slow pace of development of the ecosystem in Brazil in 2022:

> In a country with one billion accounts and an ecosystem with 24 reporting participants, 18.7 million consents don't seem impressive at all. (...)
>
> The success rate for APIs is at a staggering 84.5%, meaning a participant may have up to two months of downtime in a year. (...)
>
> The highest conversion rate this year was only 39.7%, which suggests that more than 60% of all requests were abandoned mid-flow. This raises questions about whether this is due to standard issues, lack of value proposition, or technical difficulties.

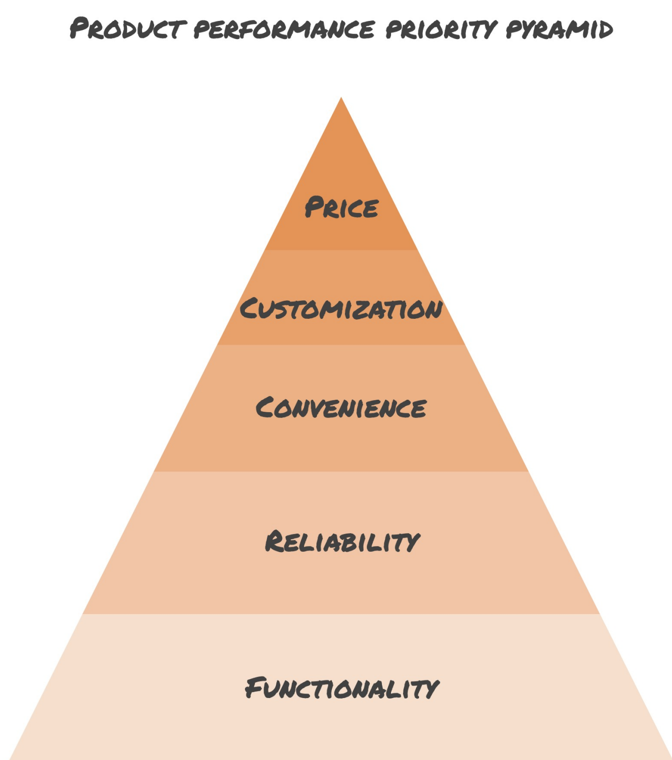
> Since BCB began reporting transaction data 16 months ago, PISPs in Brazil have made 868,149 transactions, with a total value of R$ 204 million. These numbers pale in comparison to Pix, which hit the same transaction value and volume within just 10 days of its launch.

Today we'll dive deeper into the challenges the Brazilian Open Finance ecosystem is facing. And why, after two years of operation, **less than 2.5%** of all accounts are connected. We'll break down three current issues and their potential mitigators.

Open Finance Brazil is suffering from overcomplexity, lack of direction, and unreliability. It all comes down to the technology and governance choices made very early in the process. But there is a path forward.

According to Prof. Clayton Christensen, the performance-defining features of any kind of technology product follow a specific priority order.

The first is functionality. It's the first basis of comparison between products that propose to do a job for any customer. It's the question: does it say it could solve my problem? The second is reliability. It's the question of whether the product can consistently deliver the job it promises. Those are the two biggest ones. After that comes ease of use (convenience), flexibility for customization, and, least of all, price.



Check out The Innovator's Solution and Seeing What's Next to learn more.

The bottom line is that no technical solution can succeed without nailing functionality and reliability first. No one will choose to use it to perform the jobs they need. And Open Finance Brazil has been facing notable functionality, reliability, and convenience issues.

The customer value chasm

Starting with the question of functionality, the real value of the ecosystem is yet to reach the end customer. Financial institutions must **improve their use cases and value propositions for open finance services**. There are still few applications of open finance data beyond proof of concept experiments. Banks are allowing customers to aggregate their data on their apps, and players like Nubank announced they are already using that data to try and improve credit offers to their customers. However, **the benefits are still not tangible enough for end users**.

In this context, we hear a lot about the **need for education,** as if the lack of financial education was what is they still buy tickets because they can see the benefit of using this kind of service. The same goes for open finance. Even if someone can understand perfectly the economic forces behind its potential for transformation, they will not join the ecosystem if there is nothing in it for them.

In fact, **many banks are not even ready to leverage open finance data**. That means there is an opportunity for players to develop solutions to transform the new data source into something traditional institutions are accustomed to using in their credit and pricing models. One example is some players' efforts to develop a **credit score with open finance data** that could outperform the traditional scores in the market.

From The Payers (Fev 2023):

> klavi, a Brazil-based Software-as-a-Service, has launched klaviScore, a credit score that uses data exclusively obtained through Open Finance.
>
> With additional information to the standard data from credit bureaus, the new solution intends to assist businesses in better understanding the profile of their clients.
>
> Since current credit ratings are created using information from Cadastro Positivo, klaviScore will make use of financial data from millions of people that are frequently not included in the market. This results in a relatively constrained understanding of each consumer and frequently compromises accessibility to quality financial solutions. With the help of bank transaction data and a more

> comprehensive understanding of each person's habits, klaviScore was developed to enhance the market's credit scores.

And from Belvo's blog (Jun 2023):

> The Belvo Open Finance Score, powered by FICO, will help lenders make more accurate and inclusive risk assessments.
>
> FICO, a global analytic software company and recognized leader in AI decisioning platforms, and Belvo, the leading open finance data and payments platform in Latin America, today announced a strategic partnership aimed at expanding credit access in Latin America.
>
> The two firms are developing an interpretable and explainable machine learning model that will provide a score based on consumer-permissioned transaction-level data, aimed at increasing credit access for consumers, improving banks' risk management, and empowering lenders to create personalized financial experiences for their customers. It was announced today at the Febraban Tech Conference in São Paulo that the score is expected to be available in Brazil later this year.

As more plug-and-play solutions become available, **it will become easier for institutions to leverage open finance data and provide more value to their customers**. However, the **regulatory limitations to participation** in the open finance ecosystem raise the cost of developing this kind of product. Since only regulated institutions can participate in open finance, data analytics providers are in the position of either becoming regulated entities or facing the uncertainties of how the limitation will affect their ability to build open finance products.

Reliability and tech choices

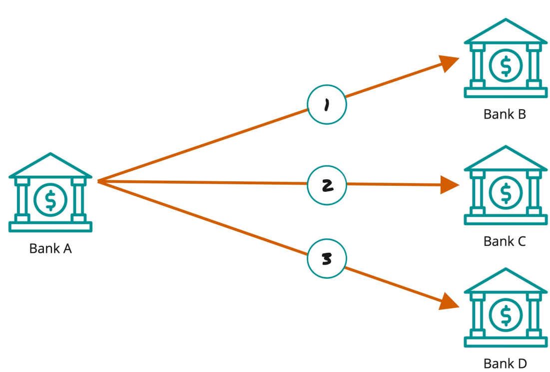
Ensuring that APIs are **reliable and available** is crucial for building trust and adoption among users. The current state of open finance API availability is both unsurprising and unacceptable. Banks lack sufficient incentives to improve their API availability and allow other institutions to access their data. Without strong regulatory oversight, it's unlikely that these numbers will improve significantly.

Pix solves this issue very well. The Brazilian Central Bank has set a minimum availability requirement for APIs that varies according to the volume of transactions each participant operates. This approach balances the need for higher quality service with the concern of not increasing

As a result, last month, almost 97% of all 787 institutions members of the Pix rail complied with their availability requirement, while none of the 27 reporting open finance participants managed to have a success rate of over 99%. The average monthly success rate in the open finance ecosystem is currently at a little over 96%. In the Pix rail, that level of success rate would only be accepted for institutions that operate less than 0.003% of all transactions in the rail. All data is available here (🇧🇷) and here (🇧🇷).

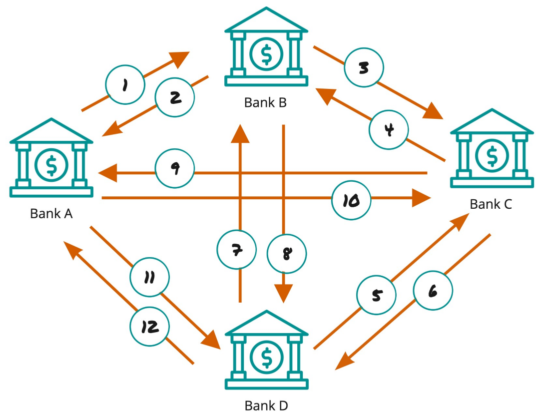
We can think of three potential reasons for such different levels of reliability. It may be an issue of architecture, an issue of the communications protocol chosen, and/or an issue of the quality of the technical standard created.

About the architecture, open finance relies on n-to-m integrations. For Bank A to access Bank B, Bank C, and Bank D data, it needs 3 integrations. See image:



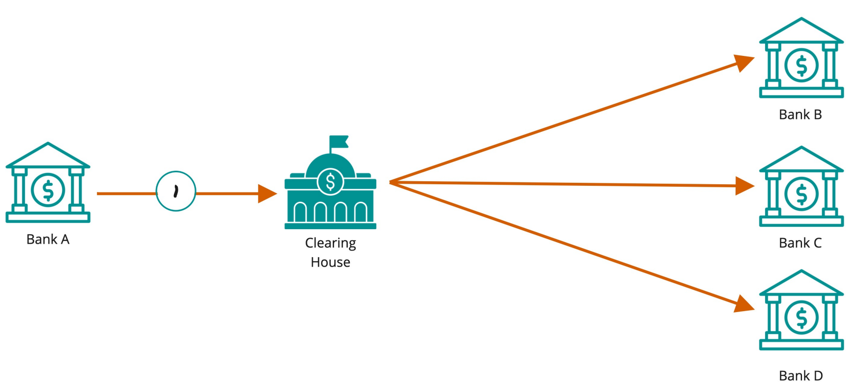
4 Banks in the ecosystem | 3 integrations are required for each bank

But because these connections work on a one-way basis, each of the banks will also need to connect with all the others to be able to receive data (pull). So, in reality, the information flow looks more like this:



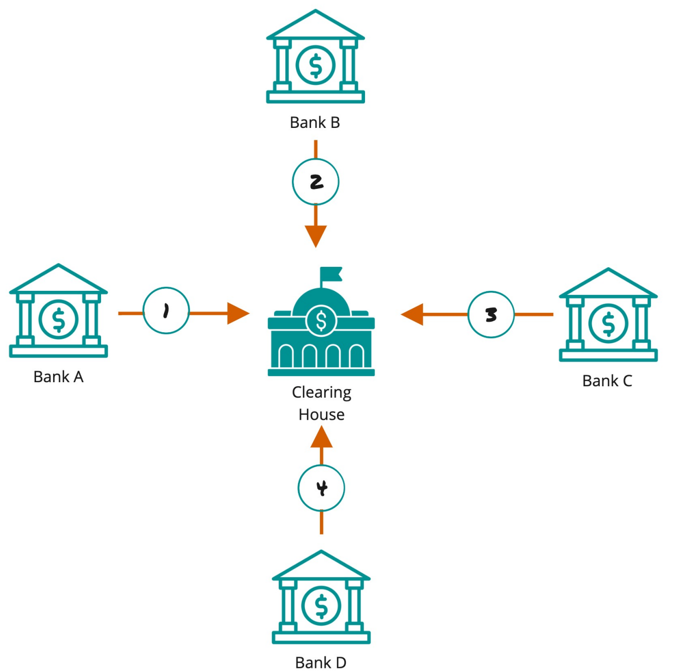
4 Banks in the ecosystem | 12 integrations are required for the data to flow from and to any of them

By contrast, Pix architecture uses a centralized infrastructure (the Clearing House), which routes all communications between any two institutions with one single integration. The way these integrations work, each bank either sends (push) or retrieves (pull) data from the Clearing House:



4 banks in the ecosystem | 1 integration is required for each bank

Taking a broader view of the system, it's easy to understand just how much more reliable this kind of design can be. See image:



4 banks in the ecosystem | 1 integration is required for each bank

In distributed computer systems, simplicity is the virtue of resilient design. There are simply fewer integrations to monitor and support.

India created an interesting model to deal with this complexity in the context of data portability by creating the concept of consent managers, who function as intermediaries to facilitate data flow.

The Payment Initiation Service Providers were created as a lightweight license to enter the open finance ecosystem in Brazil. And they can also function as data brokers to intermediate data transfers. It works like a wallet of data, so they aggregate user data from n account to later push it towards whichever institution the user wants to share the data with.

Apart from solutions to simplify the data flow, there is also the matter of the communication protocol chosen at the very beginning of the debates about the open finance technical standard. APIs may not be the best way to share a massive amount of raw data at high availability. Database replication techniques are known to outperform APIs in these scenarios. One such technique is a write-ahead log (WAL), which ensures integrity and replicates the data in the PostgreSQL database. Modeling OpenBanking on top of a WAL would result in a cheaper infrastructure, with properties such as eventual consistency implemented in a trivial manner.

Payment initiation: updates from Brazil

Regarding open finance's payment initiation, there are even greater questions as to its applicability and scalability. Because of regulatory limitations, payment initiation service providers (PISPs) initially needed a two-step authorization process for every individual payment: one step in the PISP interface and another in the account holder interface for confirmation.

That requirement dramatically limited the use cases PISPs can support. They could not, for instance, perform direct debits of variable recurring amounts – and even recurring payments of the same amount to the same payee, although authorized in the regulation, is still under debate in the open finance standard working groups. In this original setup, PISPs had only one strong value proposition: the ability to improve the user experience for mobile Pix payments.

Pix does not have a native app-to-app redirect feature, making mobile payments a hassle. It involves copying the content of the QR Code in the e-commerce interface, pasting it into their payment app, and then returning manually to the e-commerce interface. PISPs can streamline this flow by redirecting users from the e-commerce to their payment app and back.

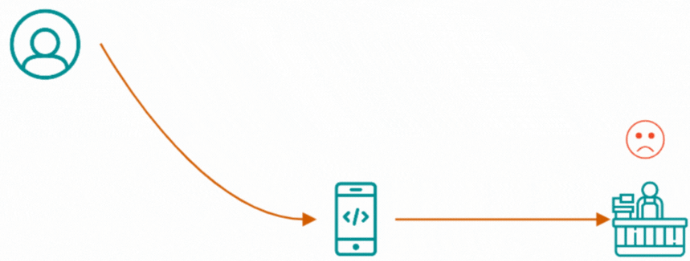
More recently, the Brazilian Central Bank decided to allow API payments without a second confirmation in the account holder's app. Once implemented, users will be able to connect their account to a PISP for future transactions.

They will go through the two-step confirmation once to connect their account. They would then only need to authorize transactions from the PISP interface. In practice, it means users will be able to choose their favorite app to make transactions irrespectively of where their money is.

The curious part, however, is that this seemingly simple adjustment in the technical standard completely changes the business dynamics of this market.

Before, the PISP's job was to help merchants facilitate Pix payments for their customers. Their job was similar to that of an acquirer in the credit card rails. They connect with the payer's bank to authorize payments, and the payer doesn't have a direct relationship with the acquirer. In that sense, it would be no advantage for the PISP to have an extensive network of customers.

But now, payers can connect their accounts to PISPs once and easily make future payments from their interface. Thus, having an extensive network is again a huge advantage, even if PISPs do not hold customers’ funds. To put it clearly: each new payer customer in the PISP's client base makes their payment service more valuable for merchants. Each new merchant prompting PISP's payer customers to connect their accounts to the PISP makes the PISP's payment service more valuable to every other merchant.



That's a huge win for big tech. They will be able to move money and make mobile payments without the costs associated with being a bank. To top that, they will do it in a scenario where there is no good enough alternative flow for Pix mobile e-commerce payments.

Both Google and Meta have subsidiaries greenlighted by the Brazilian Central Bank to pursue that opportunity.

We find this scenario deeply troubling. One of the biggest Pix wins was creating an environment where the incumbent's network effect has no use because Pix connects any two accounts. It doesn't matter if a company has 100 million customers or has just started with a few hundred customers. Every individual client from the newcomer will be able to make and receive payments from precisely the same accounts as the large incumbent.

Without an alternative to counterbalance it, the new standard will bring network effects back to the Brazilian payments game. Smaller players and new entrants may find themselves in hot water as a result.

Outside the PISP context, larger payment institutions are pursuing the opportunity to build proprietary solutions to facilitate the Pix payment flow on mobile devices. This path may prove to be one where first movers get a disproportionate advantage in setting the de facto standard. Especially if they can provide a more reliable and convenient payment experience.

One example that comes to mind is Nubank's NuPay solution with impressive early results. It's already deployed on LATAM's leading food delivery app (~70M deliveries/mo). And is now integrated with Ebanx, which offers cross-border payment services to 1,600 corporate clients, which include Airbnb, Spotify, and Uber.

The way forward

The alternative we are currently exploring is based on the assumption that open finance APIs are not the only way to enable app-to-app redirects – and honestly, it's not even the best way to do it. Using open finance APIs results in an extremely complex and expensive integration (the FAPI standard) to do something that is technically quite simple (app-to-app redirect).

The insipid nature of this payment initiation method is especially true in Brazil because of the presence of the Pix rail and its Clearing House, SPI. SPI is the glue that holds the whole Brazilian Payments System together. Every account service provider that holds more than 0.05% of the total number of accounts in Brazil (500k) is mandated to be connected to SPI. Because of it, any account service provider can send funds *and data* to any other account service provider through SPI without having to make 1:1 integrations with every other payment institution and bank in Brazil.

In this scenario, and because of how extensible the Pix rail is, it's hard to imagine a situation where it would be justifiable to build 1:1 integrations between every payment service provider for any reason. The Pix rail could be extended to absorb any use case that open finance payment initiation could dream to.

In our e-book Lessons From Pix, we detail how Pix could use URIs to develop a redirect solution that could help keep the payment system open for competition from new entrants. We revisited this proposal in our latest contribution to the Forum Pix.

In essence, the solution would allow any company, not only regulated ones, to create redirect links to enable m-commerce payments and allow all Pix participants to pull payments through SPI for an optimal payment experience available to all regulated institutions.

About the authors

Mariana Cunha e Melo is an experienced lawyer with a background in strategic litigation, public policy, legal research, and regulated markets. She has worked with Supreme Court justices in Brazil, represented Google in high courts and strategic litigation cases, and built the internet law team at a top law firm. At Nubank, she helped structure the Public Policy team and led efforts to work with the Brazilian Central Bank on designing its Real-Time Payments rail. She has also worked in early-stage startups as a strategic projects owner and director of regulation and strategy. Mariana is also a writer and speaker on topics such as privacy, free speech online, and regulation of fintech companies, with numerous international events under her belt.

About the authors

Jonas de Abreu is an experienced security engineer with a strong background in software engineering and security. He worked as an external consultant and instructor in the early stages of his career. Jonas spent almost a decade at Nubank, the leading fintech company in LATAM, where he made significant contributions as the Chief Information Security Officer and later as a Principal Engineer. He played a crucial role in shaping Nubank's infosec team and strategy and made a notable impact on the Brazilian Central Bank's decisions regarding the Pix rail. Jonas was responsible for Nubank's technical proposals during the Pix Forum, which were highly valued by industry experts and had a pivotal role in shaping the future of payment systems in Brazil.